Spatio-temporal Evolution and Driving Factors of the High-quality Development of Provincial Tourism in China

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Abstract: Accelerating the promotion of high-quality development of tourism (HQDT) is of great significance to the sustainable development of tourism. This paper defined the concept of HQDT, and then built an evaluation system for HQDT measurement to analyze the spatio-temporal evolution characteristics of China's HQDT based on provincial panel data from 2010 to 2019, using Geodetector to explore the similarities and differences between driving factors of HQDT and tourism development scale (TDS). The results show that: 1) Taking the development concepts of innovation, coordination, green, openness and sharing as the guidance, and considering the organic unity of quantity and quality, the evaluation index system of the HQDT consists of six dimensions of economic stability, innovation driving, coordination and linkage, green and sustainability, openness and cooperation, and sharing and harmony, which respectively represent the basis, momentum, means, orientation, direction and purpose of the HQDT; 2) The level of China's HQDT shows an upward trend, presenting the characteristics of eastern region > central region > western region > northeastern region in 2019. The regional differences in China's HQDT show a downward trend, and the intra-regional differences have replaced the inter-regional differences as the main source of regional differences; 3) China's HQDT shows the characteristics of higher in the east and lower in the west along the Hu line, while the improvement speed of HQDT shows the characteristics of faster in the west and slower in the east, making the decline of east-west differentiation of China's HQDT and the movement of the gravity center towards southwest; 4) Both HQDT and TDS are obviously driven by tourism capital investment and regional consumption. In terms of differences, the HQDT is more driven by government guidance, innovation driving force, and opening up, while the main driving factors of TDS are more biased toward capital elements and hardware facilities, including informatization, tourism resource, traffic, and eco-environment.

Keywords: high-quality development of tourism (HQDT); spatio-temporal evolution; Geodetector; tourism development scale (TDS)

1 Introduction

Tourism plays a significant role in quality of life of community residents and tourists (Uysal et al., 2016; Mamirkulova et al., 2020), the development quality of which has a more direct impact on the sense of attainment and happiness of the nation compared with other industries. The arrival of the era of mass tourism has created many opportunities for the development of tourism, but also entrusted it with a higher mission and made it face more challenges. It is worth noting that the long-term scale expansion development pattern of tour-

ism industry has resulted in more and more prominent problems, which are embodied in low resource utilization rate, homogeneous tourism products, unbalanced regional development, destruction of ecological environment, weak international competitiveness of tourism and low matching degree between tourism supply and demand. Globally, similar problems exist in other countries. Tourism related subjects' one-sided pursuit of economic benefits has even led to the problem of 'overtourism' to varying degrees (Oklevik et al., 2019). After the outbreak of COVID-19, the recovery and transformation of the global tourism industry has become a top priority. Governments, tourism operators, scholars and other stakeholder groups have accelerated their examination and reflection on the quality of tourism development. How to change the development mode to seek a better-quality tourism industry has become a global proposition of the times. In the process of tourism development, abandoning the one-sided pursuit of tourism scale, taking the road of high-quality development, applying the development concepts of innovation, coordination, green, openness and sharing, and adhering to the unity of economic benefits, social benefits, ecological benefits and cultural benefits, can effectively achieve this goal, which are extremely important in enhancing the resilience of tourism and realizing its sustainable development. Currently, as there is a consensus regarding the high-quality development of tourism (HQDT) in China, the pace of practice of HQDT is accelerating all over the country. However, there is a lack of corresponding theoretical guidance; systematic research results have not yet been formed in the concept elaboration, evaluation criteria and driving factors exploration of HQDT. In view of this, this paper carries out a series of exploration on the above issues.

Domestic and foreign tourism scholars have long recognized the importance of quality, and carried out in-depth discussion around the connotation. There has been productive international research on tourism quality from as early as 1962 (Baker and Crompton, 2000), focusing on tourism product quality (Richard et al., 2021), tourism service quality (Koc, 2018; Park et al., 2020), and tourist experience quality (Domínguez-Quintero et al., 2020). Quality assessment scales and models such as the importance-performance analysis (IPA) (Ryglová et al., 2017), the service quality (SERVQUAL) model (Rezaei et al., 2018), the service performance (SER-

VPERF) model (Lee and Kang, 2019) and other composite scales (Otto and Ritchie, 1996) are widely used in empirical research. The researches on tourism quality mostly focus on the consumer side and take tourists as the research center, so sample data are usually obtained by means of in-depth interviews and questionnaires. Drawing on the foreign research paradigm, Chinese scholars have also carried out a large number of tourism quality studies. With the deepening of research, discussions on the connotation, evaluation, and influencing factors of tourism development quality are conducted gradually. Compared with tourism quality, the connotation of tourism development quality is more extensive, comprehensive and systematic, covering a wide range of content including not only the quality of tourism products, services and experiences but also the quality of tourism resources, tourism planning, tourist sources, tourism enterprises and tourism environment of the whole tourism destination. Moreover, the growth mode, efficiency, and structure of the tourism industry are also components of the connotation of tourism development quality (Zhong et al., 2014). Due to the differences in research purposes and entry points, different scholars hold divergent views on defining tourism development quality. However, the significant ideas covered in the existing connotation research, such as innovation, coordination, integration, sustainability, and inclusiveness, establish a good foundation for research on the HQDT connotation.

The research on the measurement and evaluation of tourism development quality is usually carried out based on the connotation definition. Therefore, with the and expansion of connotation, the evaluation standard of tourism development quality has gradually changed from the original economic orientation to an equal emphasis on quantity and quality. Tourism development quality emphasizes changes and dynamics more than tourism quality, therefore second-hand data rather than first-hand data are more often utilized, which are more suitable for long time serial research. In terms of research methods, the core variable method is widely used because it is less difficult to obtain data, and it has proved to be convenient and efficient in many long-term evaluations (Sun et al., 2021). Specifically, the most commonly used variable of tourism development quality is efficiency (He et al., 2020); other core variables such as the real trade index (Wang and Tao, 2011) and

the added value of the tourist industry (Wei and Peng, 2019) are also used. In studies, it is difficult to conduct a comprehensive measurement of tourism development quality using the core variable method. Therefore, many scholars advocate that the development quality of tourism should be measured by constructing a comprehensive index system. For instance, Liu et al. (2016) measured the quality of tourism economic growth in China from three aspects: efficiency, structure, and environmental quality. Li et al. (2019) selected indicators based on tourism products, services, markets, environment, and other elements to evaluate coastal cities' tourism development quality in China. Moreover, scholars often use the Theil index, the Gini coefficient, the spatial dependence test, kernel density estimation, standard deviational ellipse, and other methods to conduct studies of spatio-temporal evolution characteristics (Xiao et al., 2021). In the study of influencing factors, scholars have begun to discuss the effect degree and mechanism of resource endowment, ecological environment, economic level, factor structure, institutional environment, technological innovation, and other factors on the development quality of tourism using qualitative analysis (Sun et al., 2021) or an econometric model (Liu et al., 2016; Yang, 2020).

Due to the new situation and mission of tourism development, scholars begin to rethink the connotation of tourism development quality, so the HQDT has rapidly become a research hotspot. The topics covered in current relevant studies include tourism economy (Liu and Han, 2020), rural tourism (Xiao et al., 2021), integration of culture and tourism (Cui et al., 2020), red tourism (Song et al., 2021), and regional tourism (Zhang et al., 2020). Scholars have multiple perspectives on connotation analysis, including input-output and supply-demand matching perspective (Yang, 2020), nostalgic perspective (Xiao et al., 2021), and the development concepts of innovation, coordination, green, openness and sharing (Zhang et al., 2020). The connotation of high-quality development is quite multidimensional, therefore the index system method is more favored by researchers in measurement research. Most of the existing studies qualitatively expound on the connotation, the present situation, the problems, and the promotion path of the HQDT. Only a few have used quantitative research to measure the HQDT and to analyze its influencing factors (Liu and Han, 2020). As the study of the

HQDT is still at the initial stage, the following problems need to be solved so as to consolidate the theoretical basis of the research: first, the connotation of the HQDT is not yet clear and needs to be clarified urgently. Second, in order to provide a tool for grasping the current situation of HQDT, evaluation index system needs to be established. Third, there are many studies researching the influencing factors of quantity of tourism (i.e., tourism development scale, abbreviated as TDS), but few exploring those of quality of tourism (i.e., HQDT). Therefore, the purpose of this study is to deepen the connotation research of HQDT, build an objective evaluation index system to measure the level of HQDT of provinces in China, identify the influencing factors of HQDT and compare them with those of TDS. In practice, we hope to provide theoretical support for policy-making of relevant departments, promoting the transformation of China's tourism industry from extensive growth to connotative growth as well as providing reference experience for the sustainable development of tourism in other countries.

2 Connotation Definition and Index System Construction

2.1 Definition of high-quality development of tourism

There are difficulties in the definition of HQDT because of the complexity of tourism and the multi-dimensionality of high-quality development goals. The academic community has carried out a fruitful exploration of the definition of high-quality development, providing a good research foundation for clarifying the definition of HQDT. Although different scholars have different understandings of the definition of high-quality development, they have the following consensus: 1) high-quality development aims to meet the people's needs for a better life (Jin, 2018); 2) high-quality development should be led and judged by the development concepts of innovation, coordination, green, openness and sharing (Liu, 2018; Li and Liu, 2022); 3) the difference and connection between 'quantity' and 'quality' should be the focus of attention, and the coordinated development between the quantity and the quality of economic growth should be taken seriously (Ren and Wen, 2018).

Therefore, based on the relevant research results, taking the development concepts of innovation, coordina-

tion, green, openness and sharing as the guidance, and considering the organic unity of quantity and quality (Liu and Han, 2020), this paper holds that: HQDT should be based on the economic stability to guarantee the healthy development of industry, on innovation as the momentum to drive efficient and multiple development, on coordination as a means to promote the interconnected development of industries, on a green orientation to practice sustainable development, on openness as the direction to promote cooperative development, and on sharing as the purpose to promote harmonious development. The HQDT should deepen supply-side structural reform and resolve the problem of unbalanced and inadequate tourism supply, effectively meeting the growing demand for better-quality tourism.

2.2 Construction of index system for high-quality development level of tourism measurement

Based on the connotation of HQDT given above, with the help of relevant academic research results (Ou et al., 2020; Xiao et al., 2021), and adhering to the principles of systematicness, scientificity, representativeness, and availability, this paper constructed an evaluation index system for HQDT measurement of six dimensions which contains 17 factor layers with 45 indexes (Table 1).

(1) Economic stability dimension: high-quality development emphasizes quality on the basis of quantity, which is the unity of the two (Ren and Wen, 2018). Therefore, this paper regards economic stability dimension as the basis of HQDT, and measures it from three aspects: economic support, industrial operation, and industrial efficiency. Among the above three, economic support represents the macroeconomic basis of HQDT. As the tourism system is an open organic entirety (Wu, 1998), its development will be affected by the economic foundation of the region. This paper selects the per capita consumption expenditure and per capita culture and tourism expenditure that can not only represent the level of regional economic development, but also play an important supporting role in tourism development to measure this aspect. In terms of the quality of tourism economic growth, improving the operation level and efficiency of industry is not only the premise of giving full play to the economic benefits of tourism, but also the guarantee of fully releasing the ecological and social benefits of it. In the previous evaluation research, the operation status and development efficiency of tour-

ism have attracted the attention of scholars (Zhong et al., 2014; Liu and Han, 2020). The condition of industrial operation is measured by the rate of tourism revenue growth and the level of tourism industrial agglomeration (Liu et al., 2013), representing the vitality and specialization of tourism economic growth respectively. Industrial efficiency mainly refers to the labor productivity of the three core tourism enterprises: tourist attractions, travel agencies, and star hotels (Wang and Lu, 2020).

(2) Innovation driving dimension include three aspects: knowledge innovation, science and technology innovation, and institutional innovation (Liu, 2002). Knowledge innovation provides a theoretical source for tourism development, which is measured by the number of academic tourism papers and the number of higher education students. Scientific and technological innovation leads to the innovation of products and services. In this study, the input and output level of science and technology innovation are measured by the per capita tourism scientific research funds and the number of tourism patents per 10 000 people respectively. Since there is no directly related statistical data on tourism research funds, it is estimated by the proportion of total tourism revenue in GDP (Liu and Song, 2018). Institutional innovation provides a good environment for tourism development. In this study, the marketization index (Wang et al., 2019) and government fiscal expenditure in GDP (Li et al., 2022) are used to characterize efficient market and efficient government, respectively.

(3) Coordination and linkage dimension include two aspects: one is the relationship between industries, the other is the relationship between urban and rural areas (Wang, 2022). This paper measures the coordination at the industrial level from the two aspects of industrial structure and industrial integration, which are of great significance for the product value chain extension and industry upgrade. The former includes the rationalization of tourism in the regional economic structure and the rationalization of the internal structure of tourism, mainly measured by the proportion of total tourism revenue in regional GDP, the proportion of it in the output value of the tertiary industries, and the reasonability of the proportion of high-star hotels (Liu et al., 2016). Industrial integration is not only an important embodiment of the HQDT, but also a realization path (Cui et al., 2020). It is conducive to the diversification of tour-

Table 1 Evaluation index system and index weight of high-quality development of tourism

Objective level	Criterion layer	Factor layer	Index layer	Attribute	Weight
High-quality development level of tourism	Economic stability	Economic support	Per capita consumption expenditure / yuan (RMB)	+	0.0247
			Per capita cultural and tourism expenditure / yuan	+	0.0212
		Industrial operation	Rate of tourism revenue growth / %	+	0.0074
			Level of tourism industrial agglomeration	+	0.0200
		Industrial efficiency	Total labor productivity of star hotels /10^4 yuan per person	+	0.0149
			Total labor productivity of travel agencies / 10^4 yuan per person	+	0.0260
			Total labor productivity of tourist attractions / 10^4 yuan per person	+	0.0181
	Innovation driving	Knowledge innovation	Number of academic tourism papers per 10000 people	+	0.0206
			Number of higher education students per 10000 people	+	0.0201
		Science and technology innovation	Number of tourism patents per 10000 people	+	0.0216
			Per capita tourism scientific research fund / yuan	+	0.0442
		Institutional innovation	Marketization index	+	0.0296
			Proportion of government fiscal expenditure in GDP / %	+	0.0303
	Coordination and linkage	Industrial structure	Proportion of total tourism revenue in GDP / %	+	0.0163
			Proportion of total tourism revenue in output value of tertiary industries / %	+	0.0165
			Reasonability of the proportion of high-star hotels	+	0.0456
		Industrial integration	Integration between cultural industry and tourism industry	+	0.0285
			Integration between primary industry and tourism industry	+	0.0417
			Integration between secondary industry and tourism industry	+	0.0350
			Integration between tertiary industry and tourism industry	+	0.0318
		Urban-rural coordination	Urban-rural per capita disposable income ratio	−	0.0215
			Urban-rural tourism Engel coefficient ratio	−	0.0199
	Green and sustainability	Energy consumption	Usage of coal per unit output value in tourism / t per 10^4 yuan	−	0.0082
			Usage of oil per unit output value in tourism / t per 10^4 yuan	−	0.0123
			Usage of electricity per unit output value in tourism / kWh per 10^4 yuan	−	0.0079
		Environmental management	Rate of good quality of air / %	+	0.0062
			Rate of harmless disposal of domestic garbage / %	+	0.0194
			Proportion of investment on environmental infrastructure in GDP / %	+	0.0274
		Ecological construction	Per capita green space area / m²	+	0.0265
			Greenery coverage of urban area / %	+	0.0168
	Openness and cooperation	Cultural exchange	Number of sister cities	+	0.0231
			Number of foreign performances of art performance groups	+	0.0057
		Open tourism	Proportion of tourism foreign currency earnings in GDP / %	+	0.0353
			Proportion of inbound tourists in the resident population of each province / %	+	0.0437
			Proportion of international travel agencies in the total number of travel agencies / %	+	0.0224
	Sharing and harmony	Public facilities	Traffic density / (km / 10^4 km²)	+	0.0370
			Number of public toilets per 10^4 people	+	0.0178
			Number of hospital beds per 10^4 people	+	0.0360
			Rate of Internet availability / %	+	0.0305
		Tourist reception	Sharing index of star hotels	+	0.0183
			Sharing index of travel agencies	+	0.0128
			Sharing index of tourist attractions	+	0.0079
		Achievement sharing	Proportion of tourism employment in total employment / %	+	0.0229
			Elasticity index of urban residents' income growth	+	0.0033
			Elasticity index of rural residents' income growth	+	0.0034

Notes: the weight of each index was calculated by the improved entropy method and the specific introduction is shown in part 3.2.1

ism and the linkage between supply and demand to meet the needs of tourists. This paper uses the coupling coordination degree of tourism and culture industry, as well as the degree of tourism with primary, secondary, and tertiary industries to measure the industrial integration (Weng and Li, 2016). The core requirement of the coordinated development of tourism is the narrowing of the urban-rural gap in terms of income and tourism expenses, which is measured by the ratio of urban-rural per capita of disposable income and the ratio of urban-rural tourism Engel coefficient (Sun and Yang, 2014). The larger the ratio, the larger the gap and the poorer the coordination.

(4) Green and sustainability dimension: the HQDT needs the support of the high-quality environment of a region, which is measured from three aspects: energy consumption, environmental management, and ecological construction (Huang et al., 2019; Zhang et al., 2022). Energy consumption is mainly used to indicate whether the observed area could realize energy saving by intensive management of the process of developing tourism. In this study, the usage of coal, oil and electricity per unit output value in tourism are used to measure the level of tourism energy consumption. The smaller the value, the higher the energy utilization rate of tourism and the lower the corresponding carbon emissions. The energy consumption of tourism is stripped from the energy balance table of each province by using the stripping coefficient of tourism consumption (Huang et al., 2019). Environmental management and ecological construction directly affect the attractiveness of a region to potential tourists and the perceived comfort of actual tourists, thereby affecting creation of economic value and the sustainable development level of tourism.

(5) Openness and cooperation dimension: in recent years, China's tourism trade deficit has intensified, reflecting the prominent problem of China's weak international tourism competitiveness, which is not conducive to the promotion of tourism foreign exchange, but also hinders the flow of tourism funds, technology, talents and information, so it is imperative to deepen tourism opening and cooperation. In this study, openness and cooperation dimension are considered from two aspects: cultural exchange and open tourism. Cultural exchange is an important channel for deepening tourism opening and cooperation, which is measured by the number of

sister cities concluded and the number of foreign performances of art performance groups. The former has proved to be significant in promoting the development of inbound tourism (Gil, 2022), while the latter is an important way of cultural communication, which helps to enhance the attraction of Chinese culture and deepen communication with tourist source countries and regions, stimulating the potential needs of international tourists. Open tourism refers to the measurement of tourism international competitiveness, including the regional inbound tourism reception level, reception scale and foreign exchange earning ability.

(6) Sharing and harmony dimension: with the popularity of the concept of people-oriented, tourism, as a happiness industry, needs to adjust its functional positioning and consider both industrial nature and career nature (Song, 2020). In view of this, this dimension considers the economic and social benefits generated by tourism development from three aspects: public facilities, tourist reception and achievement sharing. The co-construction and sharing of public facilities and tourist reception facilities will directly affect the satisfaction of tourists and the leisure quality of local residents. It is the direct embodiment of the harmonious development of tourism and the region (Feng and Xia, 2018), which is mainly used to measure the social benefits of tourism development. Achievement sharing refers to the economic benefits of tourism development, mainly measured from two aspects: the employment promotion and residents' income driving effect of tourism. In terms of specific indicators, public facilities include traffic density (TD) (Yu et al., 2021), public toilets, hospital beds, and Internet. The tourist reception facilities are the core supporting elements of tourism development, which are expressed as the ratio of the weighted sum scores of star hotels, travel agencies, and tourist attractions to the local population (i.e. sharing index). Achievement sharing is measured by proportion of tourism employment in total employment (Liu and Yao, 2020) and elasticity index of residents' income growth (Ma and Sun, 2011).

3　Materials and Methods

3.1　Study area and data sources

This paper took 30 Chinese provincial regions (due to the lack of data, Tibet, Taiwan, Hong Kong, and Macao were not included) as the study area. According to the

regulations of the National Bureau of Statistics (2011), they were divided into four regions, including eastern, central, western, and northeastern China (Fig. 1). The research period was from 2010 to 2019; the original data were mainly collected from the China Statistical Yearbook (2011–2020) (National Bureau of Statistics of China, 2011–2020a), the China Statistical Yearbook of the Tertiary Industry (2011–2020) (National Bureau of Statistics of China, 2011–2020b), the Yearbook of China Tourism Statistics (2011–2018) (National Tourism Administration of the People's Republic of China, 2011–2017; Ministry of Culture and Tourism of the People's Republic of China, 2018a), Statistical Yearbook of Chinese Cultural Relics (2011–2018) (Ministry of Culture of the People's Republic of China, 2011–2017; Ministry of Culture and Tourism of the People's Republic of China, 2018b), Statistical Yearbook of Chinese Cultural Relics and Tourism (2019–2020) (Ministry of Culture and Tourism of the People's Republic of China, 2019–2020), the China Energy Statistical Yearbook (2011–2020) (National Bureau of Statistics of China, 2011–2020c), the China Statistical Yearbook on Science and Technology (2011; 2016; 2020) (National Bureau of Statistics of China and Department of Strategy and Planning Ministry of Science and Technology, 2011; 2016; 2020); Provincial Statistical Bulletin on National Economic and Social Development (2010–2019). Missing data were supplemented by interpolation.

3.2   Methods

3.2.1   Improved entropy method and linear weighted summation method

As an objective weighting method, entropy method can avoid the influence of subjective factors and retain the original information of indicators. This paper used an improved entropy method to determine the weight of each evaluation index. The precise steps are in reference (Xu and Deng, 2012). Then, the comprehensive score of HQDT was calculated using the linear weighted summation method. The formula can be seen in reference (Li et al., 2012).

3.2.2   Theil index

Theil index can effectively measure regional differences and decompose the overall differences into inter-regional differences and intra-regional differences. This paper used Theil index to analyze the regional differences in the level of China's HQDT, and identified the main sources and evolution characteristics of the overall differences by decomposing this variable. The formulas are in reference (Wang et al., 2021).

3.2.3   Gravity center analysis

The gravity center model is an important method to explore the spatial evolution characteristics of a certain

Fig. 1   Distribution geographical regions in China. Excluding Tibet, Taiwan, Hong Kong and Macao of China due to lacking data

element, which was used to analyze the characteristics of China's HQDT in this paper. The formulas are in reference (Shang et al., 2022).

3.2.4 Geodetector

Geodetector is a new statistical method to detect spatial differentiation and reveal the driving factors behind it. Its core idea assumes that if an independent variable has an important impact on a dependent variable, the spatial distribution of the independent variable and the dependent variable should be similar (Wang and Xu, 2017). This paper used Geodetector to reveal the driving effect of various factors on the spatial differentiation of China's HQDT. The model is in reference (Wang et al., 2010).

4 Results

4.1 Spatio-temporal evolution characteristics of high-quality development of tourism

4.1.1 Temporal evolution characteristics of the comprehensive level of high-quality development of tourism

The HQDT of China and China's four major regions is on the rise, but there are obvious differences between regions (Fig. 2). Nationally, the average has risen from 3.196 to 3.480, with different development characteristics in different stages. Specifically, the period from 2010 to 2012 was a period of steady improvement. The period from 2013 to 2015 was a time of rapid increase, and the promotion speed of HQDT accelerated year by year. The pace of improvement of HQDT gradually slowed from 2016 to 2019, indicating that China's HQDT has entered a period of slow increase. In terms of regions, the HQDT in the eastern, central, western, and northeastern regions has improved, with an average annual growth rate of 0.72%, 1.09%, 1.19%, and 0.65%, respectively. The HQDT in the eastern region is far higher than the national average, playing a significant role in stimulating the overall level of the country. The development level of the central, western, and northeastern regions continues to be lower than the national average. During the period of this research, the inter-regional ranking changed from east > northeast > center > west to east > center > west > northeast. Central and western regions accelerated their improvement, showing good development momentum. The HQDT in the northeastern region has improved slowly, being gradually surpassed by the central and western regions, and
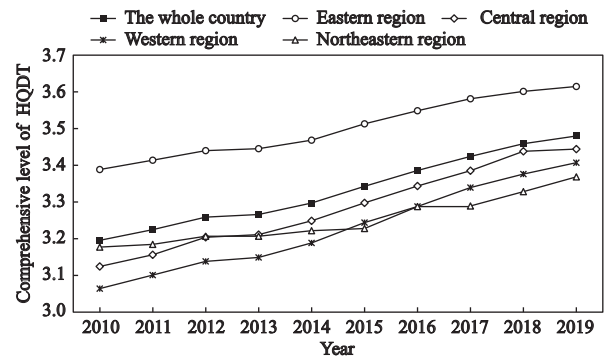

Fig. 2 Average value of comprehensive level of high-quality development of tourism (HQDT) in the whole country and the four regions of China from 2010 to 2019

the gap with the national average has widened.

In order to explore the temporal evolution of regional differences of HQDT, Theil index and its decomposition results were calculated (Fig. 3). During the study period, the Theil index within and between regions in China showed a downward trend, indicating that the regional balance of China's HQDT was significantly improved. The decline of the inter-regional Theil index is greater than that of intra-regional Theil index, and the contribution rates have changed from 51.93% and 48.07% in 2010 to 39.90% and 60.10% in 2019. Narrowing the development gap within regions is the key to promoting the coordinated development of China's tourism. Comparing the Theil index within each region, it is found that the differences in the eastern region are always the main components of the intra-regional differences, and the contribution rate of the Theil index within this region to the total Theil index is always more than 30% (except 2011). The main reason lies in the great bipolar differentiation there. Specifically, the level of Beijing, Shanghai, Guangdong, Jiangsu and Zhejiang ranks among the top five in China, while Hebei and Hainan rank lower in China. The contribution rates of Theil index within western region has always ranked second among the four regions, and increased greatly during the study period, which reached 25.39% in 2019 from 9.01% in 2010, indicating that the provincial gap in western China is widening and the imbalance is becoming more and more prominent. The contribution rate of Theil index within the northeast region gradually decreased from 3.31% in 2010 to 0.49% in 2019. However, the level of three northeast provinces' HQDT is relatively backward in the country, so the low Theil index within the region is the result of the low-low
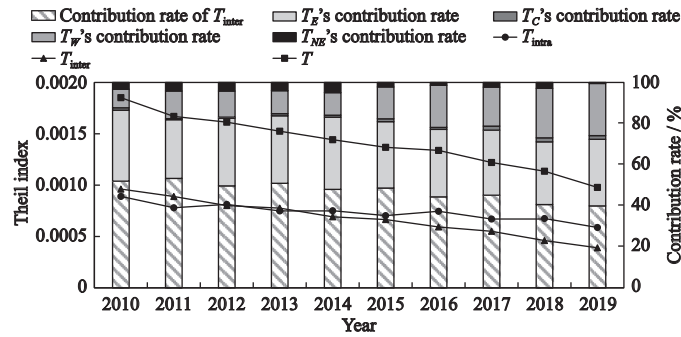
Fig. 3 Theil index and its decomposition results of the high-quality development of tourism (HQDT) from 2010 to 2019. T represents the overall Theil index; T_{inter} is the inter-regional Theil index; T_{intra} is the intra-regional Theil index and can be decomposed into the respective Theil indexes in the eastern, central, western, and northeastern regions, named as T_E, T_C, T_W and T_{NE}, respectively

matching of three provinces. The contribution rate of Theil index within the central region has been below 2%, indicating that the HQDT in the central region is generally coordinated.

4.1.2 Spatial characteristics of the comprehensive level of high-quality development of tourism

In order to investigate the spatial pattern evolution trend of the HQDT in China, the provincial comprehensive levels from 2010, 2015, and 2019 were selected and divided into five categories by the K-Means clustering algorithm of SPSS software, namely lower level (< 2.9471), low level (2.9472–3.2067), medium level (3.2068–3.3955), high level (3.3956–3.6035), and higher level (> 3.6036). The visualization diagram was mapped based on the clustering results (Fig. 4); the average annual growth rates were mapped in Fig. 4b (2010–2015) and Fig. 4c (2015–2019).

As shown in Fig. 4, China's HQDT presents a spatial pattern of higher in the east and lower in the west, and there is obvious differentiation along the Hu Line over

time. In 2010 (Fig. 4a), the number of provinces at all levels from high to low was two, three, four, eighteen, and three. The medium-level and above provinces were distributed in strips along the coast. However, the lower-level and low-level provinces accounted for more than half of the total, and they were concentrated in central, western, and northeastern China. From 2010 to 2015 (Fig. 4b), the levels of most regions rose. Gansu, Qinghai, and Ningxia moved from lower level to low level. Low-level provinces in the central and western regions (except Xinjiang) changed to medium level, but the level of the three northeastern provinces remained unchanged. In 2019 (Fig. 4c), studied regions in China reached the medium level or above. Beijing and Shanghai, always the important cores of HQDT in China, maintained the higher level, and Jiangsu, Zhejiang, and Guangdong also attained the higher level in 2019. In general, the pattern of HQDT in China has gradually evolved from dual-core to multi-core. Medium-level provinces were mainly distributed on the northwest side
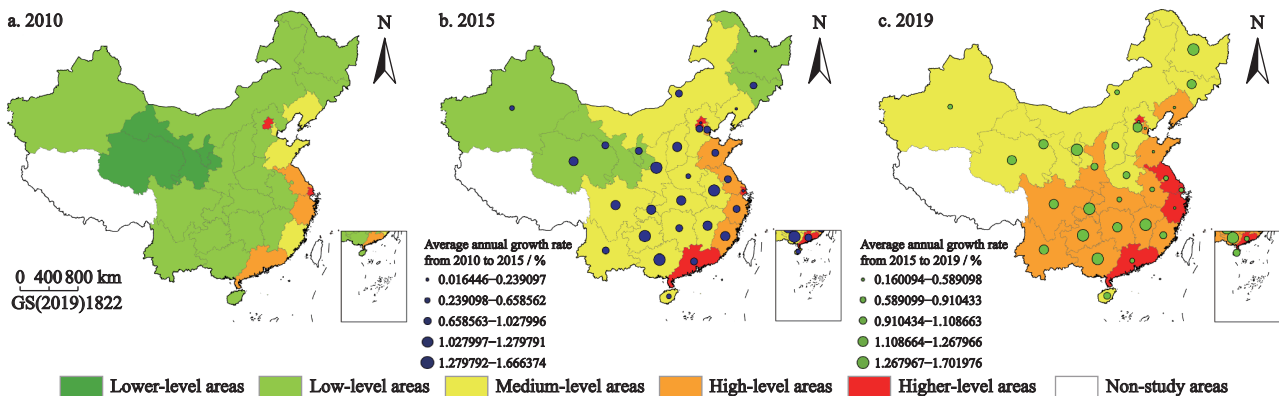

Fig. 4 Spatial pattern evolution of China's high-quality development of tourism (HQDT) in 2010, 2015 and 2019. The average annual growth rates are classified by Jenks natural breaks using ArcGIS 10.2, and the grades from high to low are named the first to fifth gradients respectively

of the Hu Line, while high-level provinces were distributed on the southeast side of it. The reason for this phenomenon was that the location conditions, economic base, tourism resources, development conditions, and innovation ability in the southeast side were better than those in the northwest side of the Hu Line, providing a more favorable environment for tourism development.

As can be seen from Fig. 4b and Fig. 4c, the average annual growth rates of China's HQDT have obvious spatial differentiation, showing the characteristic of high in the west and low in the east, which promotes the narrowing of east-west differentiation of China's HQDT. In terms of rates from 2010 to 2015 (Fig. 4b), the provinces with the growth rates in the first and second gradients are in the central and western regions (except Fujian), the growth rates of most provinces in eastern region are in the third gradient, and the overall growth rate in the northeast region is low. During the period from 2015 to 2019 (Fig. 4b), the provinces with the first to third gradient of annual growth rates are mainly in the central, western and northeastern regions. Compared with the previous stage (from 2010 to 2015), the corresponding gradient of annual growth rates in eastern provinces decreased as a whole, and most provinces are located in the fourth or fifth gradient. With the evolution of time, the central, western and northeastern provinces have accelerated to catch up with the provinces in the east, reflecting a certain catch-up effect in China's HQDT.

The gravity center of China's HQDT in 2010, 2015 and 2019 and the geographic center were calculated by ArcGIS 10.2 (Fig. 5). It can be seen from the Fig. 5 that during the study period, gravity center of China's HQDT in 2010 (112.37°E, 33.85°N), 2015 (112.31°E, 33.79°N) and 2019 (112.28°E, 33.77°N) has always been located in the southeast of the geographic center (112.13°E, 33.89°N). The main reason is that the level of the HQDT in eastern region, especially Shanghai, Jiangsu, Zhejiang and Guangdong, is in a leading position, driving the gravity center of the HQDT to the southeast of the geographic center. In terms of moving trajectory, the gravity center of China's HQDT has gradually moved towards the southwest during the study period owing to the rapid improvement of the HQDT in western region, especially Chongqing, Guizhou and Guangxi. The characteristics of the moving track also further prove the catch-up effect of China's HQDT.
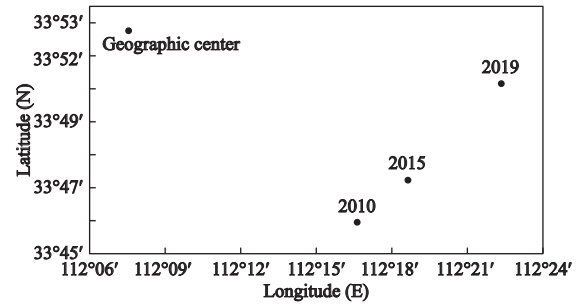

Fig. 5 Gravity center of China's high-quality development of tourism (HQDT) in 2010, 2015 and 2019

4.1.3 *Spatio-temporal evolution characteristics of each dimension of criterion layers of the high-quality development of tourism*

Based on the scores in 2010 and 2019, and the average annual growth rates from 2010 to 2019 of six dimensions of provincial HQDT in Fig. 6, the spatio-temporal evolution characteristics of each dimension were explored.

In terms of the 'economic stability' dimension, the solid economic foundation of the eastern coastal areas has created favorable conditions for the development of tourism. Therefore, the tourism industry in eastern region has been developing steadily, and the quality and efficiency have improved quickly. The level of this dimension in the central, western and northeastern regions was low; only Guizhou, Sichuan and Chongqing in western region gathered to form high-score areas. Combining the scores with the average annual growth rates, it can be seen that the provinces with high (low) scores tend to have high (low) annual growth rates, indicating that there is Matthew effect in this dimension, so its spatial pattern has not changed significantly.

The development speed of the 'innovation driving' dimension shows obvious differentiation along the Hu Line, resulting that the spatial differentiation characteristics of higher in the east and lower in the west are increasingly strengthened. The Beijing-Tianjin District, the Yangtze River Delta, and the Pearl River Delta have become important core areas for innovation-driven HQDT in China. However, the overall strength of tourism innovation in the western and northeastern region is weak.

The spatial pattern of the 'coordination and linkage' dimension has changed significantly during the study period. In 2010, the provinces with scores in the first and second gradients showed the characteristics of wide
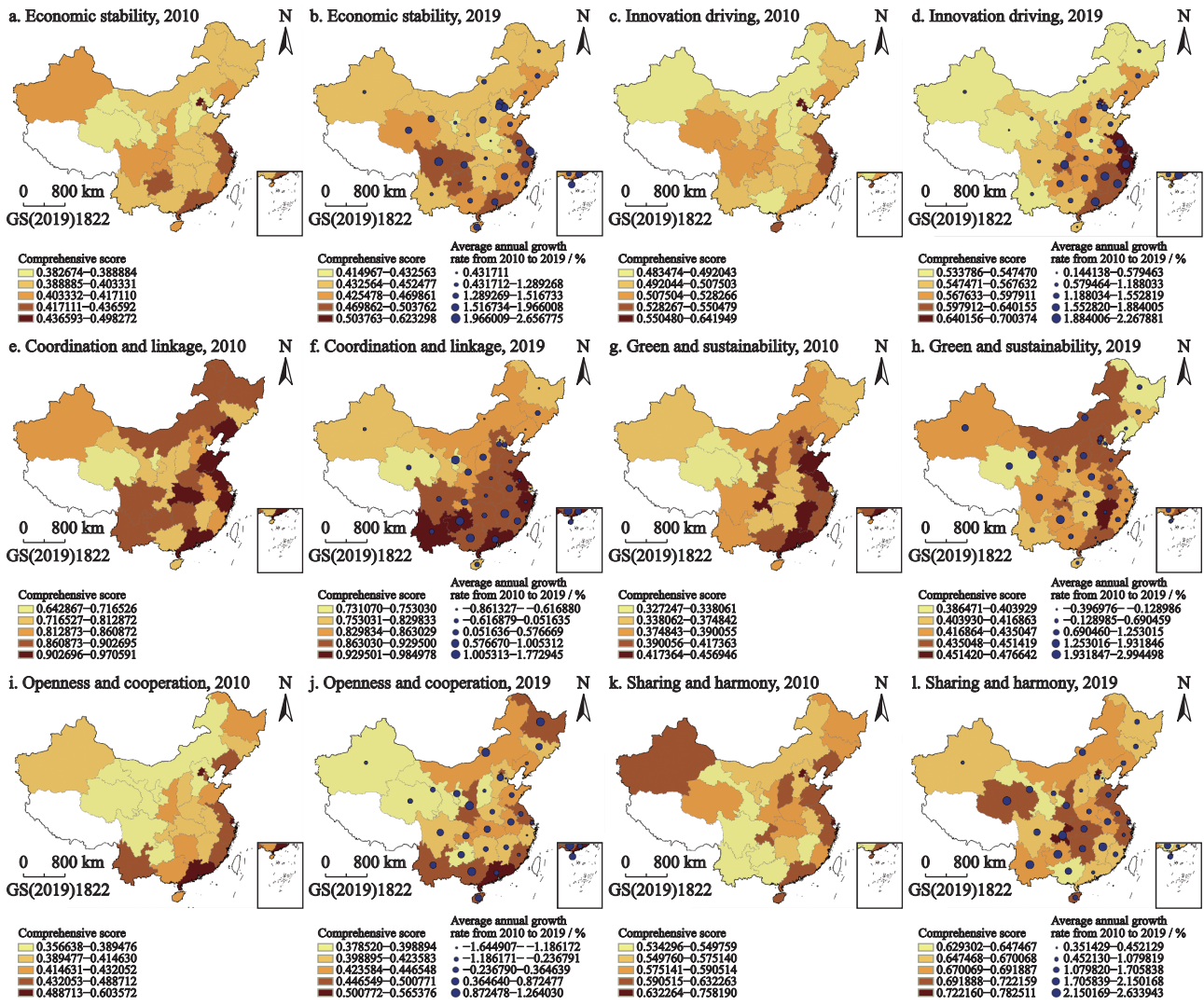
Fig. 6 Spatio-temporal evolution of six dimensions of China's high-quality development of tourism (HQDT) from 2010 to 2019. The comprehensive scores and average annual growth rates are classified by Jenks natural breaks using ArcGIS 10.2; the grades from high to low are named the first to fifth gradients respectively

distribution and part concentration; multiple agglomeration areas were formed around the Bohai rim, the Yangtze River Delta, the Pearl River Delta, and the area of Yunnan-Guizhou-Sichuan. During the study period, the east-west differentiation of this dimension has intensified. The first and second gradient provinces are concentrated and distributed in the southeast of Hu line, while the provinces below the third gradient are mainly distributed in the northwest of the line, which is highly consistent with the spatial pattern of China's HQDT.

In terms of the 'green and sustainability' dimension, at the beginning of the study, the high-score provinces of this dimension were mainly concentrated in the eastern region and its adjacent provinces. However, during the study period, the high-score provinces of this dimension were mainly concentrated in the east-

the study period, the eastern region has improved slowly, where the average annual growth rates of provinces are in the fourth and fifth gradients except Beijing and Fujian. Particularly, Guangdong province shows noticeable negative growth, indicating that the contradiction between tourism development and eco-environmental protection has begun to appear. The overall optimization speed of the central and western regions is relatively fast, where the provinces with rates in the first gradient are located, reducing the east-west differentiation of this dimension significantly. It should be noted that the level of northeastern region has always been low; more attention should be paid to the improvement of energy efficiency and ecological environment.

From the perspective of the 'openness and cooperation' dimension, the prominent advantages of the eastern region have been reduced, which is reflected in the negative growth of the eastern provinces and cities except Hebei, Shandong and Hainan. The space-time compression effect produced by transportation and information technology has accelerated the pace of interaction and tourism cooperation between the central-western regions and other countries. In particular, the border provinces have seized the overseas tourism market share of the eastern coastal provinces, for example Heilongjiang, Inner Mongolia, Guangxi and Yunnan, prompting the degree of regional differentiation of 'openness and cooperation' to shrink.

Finally, from the perspective of the 'sharing and harmony' dimension, in the early stage of the study, the level of this dimension showed a decreasing trend from east to west. The eastern provinces' infrastructure conditions were relatively complete, the level of tourism resources development was relatively high, and the tourism industry played an important role in stimulating employment and increasing incomes, making eastern provinces ranked high in the country in this dimension. The spatial distribution pattern characteristics of this dimension's average annual growth rates were opposite to those of the scores in 2010; the characteristics of faster in the west and slower in the east have continuously reduced the overall spatial differentiation. During the research, the establishment of the status of tourism as a strategic pillar industry of the national economy has attracted widespread attention of provinces; government departments have given more policy support to tourism industry. A series of national action plans have been proposed such as all-for-one tourism (a new regional coordinated development mode, where treats a whole region as a tourist destination with everything needed to satisfy tourists and to achieve the integration of indoor and outdoor tourist attractions) (Jiang et al., 2018) and toilet revolution (a step-wise campaign which tries to ensure acceptable standards of hygiene, comfort, and environmentally responsible public toilet facilities) (Cheng et al., 2018), leading to the improvement of facilities supporting tourism and the effective utilization of characteristic tourism resources countrywide. As a result, the spatial differentiation of this dimension is significantly reduced.

4.2 Driving factors of high-quality development of tourism

The HQDT is affected by multiple factors. Based on relevant research results (Liu et al., 2016; Liu and Han, 2020; Sun et al., 2021; Yin et al., 2019; Wang et al., 2020), considering the availability of data, this paper selected 13 independent variables. Tourism resource endowment (TRE) is expressed by the number of National 4A and 5A tourist attractions. Tourism capital investment (TCI) is expressed by the original value of fixed assets of star hotels and travel agencies. The regional economic level (REL) is expressed in per capita GDP. The regional consumption level (RCL) is expressed by the per capita disposable income of urban residents. The TD is expressed by the proportion of the sum of railway mileage and highway mileage in the land area. The marketization level (ML) is expressed by the marketization index (Wang et al., 2019). Government investment (GI) is expressed by the proportion of government financial expenditure in GDP. Human capital (HC) is expressed by the number of college students per 10 000 people. The openness degree (OD) is expressed by the proportion of total imports and exports to GDP. The industrial structure (IS) is expressed by the proportion of the tertiary industrial output value to GDP. The informatization level (IL) is expressed by the number of broadband subscriber's port of Internet. Technological progress (TP) is expressed by R&D intensity. Eco-environment management (EEM) is expressed based on the investment in environmental infrastructure construction. To explore the driving factors of HQDT, taking the above factors as independent variables and the comprehensive scores of HQDT as dependent variable, three time spans in 2010, 2015, and 2019 were selected for geographical exploration. Before exploration, the independent variables were discretized by Jenks natural breaks. To clarify the similarities and differences between the driving factors of quality (i.e., HQDT) and quantity (i.e., TDS) of tourism development, this paper explored the issue by using the gross revenue of tourism to represent the TDS, which is used as a dependent variable for detection by Geodetector, and then comparing the detection results of TDS with those for HQDT.

Table 2 shows that although the ranking of factors of HQDT such as ML, OD, RCL, REL, TP, TCI, and GI has changed slightly, but on the whole, it is relatively

high, indicating that China's HQDT is the result of above factors. In terms of ML, a fair, inclusive, and open market-oriented environment can effectively activate the vitality of tourism enterprises and other related subjects, improve the efficiency of tourism resource allocation, and enhance the effectiveness of the utilization of tourism resources and related facilities. Opening to the outside world can create a good external environment for the HQDT and establish good cooperative relations with other countries in trade exchanges, thereby attracting more investment for tourism, stimulating international tourism demand and improving the internationalization level of regional tourism. Provinces with high RCL usually have high tourism consumption potential, which can drive tourism producers and operators to speed up the exploration and innovation of tourism products and service modes, helping them to adapt to the diversified, personalized, and high-end tourism consumption demand. In addition, in order to satisfy the needs of tourists and drive regional economic growth, local government departments tend to provide a better development environment for tourism, thereby promoting the overall HQDT. As the macro-sustained element for tourism, the REL can provide an economic foundation for HQDT. TP is an important driving force for the

HQDT as the technological support can not only improve the production efficiency of tourism, but also create conditions for the innovation of tourism products and services to better meet the needs of tourists, accelerating the HQDT from the supply side. Moreover, the application of technology in tourism promotes the facilitation and diversification of tourists' consumption patterns, thereby optimizing tourists' consumption experience. TCI reflects the production capacity of regional tourism and directly affects the level of regional tourism reception. Therefore, it is an important material basis for the HQDT. From the perspective of time evolution, in 2010, the primary driving factor for the HQDT was the ML, indicating that the open and inclusive market environment in this period became the main driving force for the HQDT. In 2015, the RCL played an important role in the HQDT. In 2019, GI became the primary driving factor. In recent years, the promotion of the HQDT has advanced rapidly from central to local government. Many documents have been issued by China's provincial governments to promote the HQDT. Therefore, the key role of the government in promoting the HQDT is becoming more and more prominent.

Comparative analysis shows that the TDS and the HQDT were all driven by multiple factors. As was the

Table 2 Driving force and corresponding ranking of factors for the tourism development scale (TDS) and the high-quality development of tourism (HQDT)

Factors	2010		2015		2019	
	TDS	HQDT	TDS	HQDT	TDS	HQDT
TRE	0.598 (5)	0.251 (13)	0.731 (2)	0.253 (13)	0.584 (2)	0.339 (13)
TCI	0.753 (3)	0.584 (6)	0.612 (3)	0.761 (3)	0.455 (4)	0.710 (5)
REL	0.525 (7)	0.704 (4)	0.255 (11)	0.660 (6)	0.145 (13)	0.692 (6)
RCL	0.522 (8)	0.783 (3)	0.395 (8)	0.814 (1)	0.235 (6)	0.715 (4)
TD	0.491 (9)	0.474 (9)	0.428 (6)	0.538 (7)	0.328 (5)	0.439 (8)
ML	0.774 (2)	0.826 (1)	0.410 (7)	0.745 (4)	0.170 (12)	0.679 (7)
GI	0.606 (4)	0.317 (11)	0.476 (4)	0.295 (11)	0.187 (8)	0.736 (1)
HC	0.199 (12)	0.509 (7)	0.182 (12)	0.422 (10)	0.202 (7)	0.396 (12)
OD	0.476 (10)	0.796 (2)	0.343 (10)	0.802 (2)	0.187 (9)	0.736 (2)
IS	0.140 (13)	0.475 (8)	0.053 (13)	0.424 (9)	0.181 (10)	0.427 (9)
IL	0.806 (1)	0.383 (10)	0.838 (1)	0.456 (8)	0.670 (1)	0.427 (10)
TP	0.581 (6)	0.680 (5)	0.474 (5)	0.718 (5)	0.172 (11)	0.724 (3)
EEM	0.435 (11)	0.262 (12)	0.375 (9)	0.294 (12)	0.459 (3)	0.406 (11)

Note: the corresponding ranking of driving forces of each factor is enclosed in parentheses. TRE, tourism capital endowment; TCL, tourism capital investment; REL, regional economic level; RCL, regional consumption level; TD, traffic density; ML, marketization level; GI, govenment investment; HC, Human capital; OD, openness degree; IS, industrial structure; IL, informatization level; TP, technological progress; EEM, eco-envirnment management

case with HQDT, ML also had an important influence on TDS in 2010. However, the influence of ML on TDS and HQDT declined gradually over time. Over the whole study period, RCL has a strong driving force for TDS and HQDT especially the latter, suggesting that consumption can not only drive the expansion of the tourism's scale but also promote the improvement of its quality through the forced mechanism. The ranking of TCI for TDS and HQDT changed from third and sixth place in 2010 to fourth and fifth place in 2019, respectively, indicating that capital is the basic factor of the TDS and HQDT. In contrast, there were some differences in driving factors between the TDS and the HQDT. IL has always played an important role in driving TDS during the study; the Internet provides a new channel for tourism marketing promotion and an important source of information for tourism decision-making. In particular, the vigorous development of online travel agencies has made IL an important driving force of TDS. However, the role of IL in promoting HQDT has not been apparent; in-depth integration between the Internet and tourism still needs to be further promoted. The HQDT has been more driven by GI, TP and OD, indicating that government guidance, innovation driving force, and opening promotion have played an increasingly prominent role in driving HQDT over time. However, for the TDS, the influence of GI and TP decreased significantly. The ranking of these two factors decreased from fourth and sixth place to eighth and eleventh place, respectively. In addition, the influence of OD on the TDS has always been weak. The main driving factors of TDS are more biased toward capital elements and hardware facilities such as IL, TRE, EEM, TCI and TD. IL, TCI and TRE have always dominated, and the driving forces of TD and EEM have increased significantly, while the above five factors, especially IL, TRE, TD and EEM are relatively lower in the ranking of driving factors for HQDT.

5　Discussion

5.1　Connotation and measurement
A lot of research has been done on the connotation and measurement of tourism quality by using models based on first-hand data. Taking demand as the starting point to explore tourism quality is more inclined to excavate the subjective psychological factors and can reflect the supply quality of tourism, which is often associated with tourists' loyalty, satisfaction and behavior (Suhartanto et al., 2019; Cetin, 2020). However, this type of research has the deficiency of over focusing on tourism products and services but ignoring other aspects. Besides, it presents a certain subjectivity and is inconvenient to carry out long time serial exploration. Comparatively, the connotation interpretation perspective of tourism development quality is more comprehensive and diversified than tourism quality, and the measurement research is usually conducted based on second-hand data from an objective perspective. However, the existing research lacks rethinking on the HQDT based on the background of the new era. Hence, this paper creatively constructed an evaluation system of HQDT, which provides a new research model of tourism development quality in China and abroad. Notably, Supply and demand are two sides of the same coin, so they should not be separated. Both subjective feelings and objective reflection are powerful basis for evaluating the quality of tourism development. There is a deficiency in the existing research on the combination of the above two, which is also the inadequacy of this paper. In future research, mixed research methods should be adopted to explore this proposition.

5.2　Driving factors
The influencing factors of TDS have always been the focus of academic attention, but the research on the driving factors of tourism development quality is scarce. This paper not only explored the driving factors of TDS, but also further compared the similarities and differences between the driving factors of TDS and HQDT, which is the innovation of this paper. The results show that the TDS is driven by multiple factors such as tourism resource endowment, tourism investment and infrastructure, indicating that capital elements and hardware are the main driving forces to promote the scale expansion and quantity growth of tourism. This has been confirmed in previous studies (Wei et al., 2020; Zha et al., 2020). Compared with the TDS, the HQDT is more driven by factors such as science and technology, openness and government investment. The conclusion has important reference and guiding significance for realizing the high-quality and sustainable development of tourism.

5.3 Research scale and study area

Many geographical studies show that the spatio-temporal evolution characteristics of an economic geography phenomenon usually have scale sensitivity (Wu et al., 2020), that is, there may be differences in the conclusions of studies at different scales. This paper quantitatively measured the HQDT at the provincial level in China, but there was a lack of research on the small, medium, and micro scales, which is the deficiency of this paper. Therefore, multiscale research should be the focus of future research such as city-scale and county-scale studies, case studies, and multi-scale comparative studies. The boundaries of administrative divisions should be weaken when selecting study area, and pay more attention to the natural or human elements.

5.4 Coordination of tourism development

The coordination of development has always been the focus of research, including the coupling and coordination among subsystems of high-quality development (Liu et al., 2020), the relationship between tourism scale and efficiency (Fang and Huang, 2020), and the relationship between tourism quantity and quality (Castillo-Manzano et al., 2020; Schubert and Schamel, 2020). This paper explored the driving factors of TDS and HQDT. However, the following deficiencies remain: first, there has been no in-depth discussion on the evolution of the relationship between quantity and quality and the driving mechanism of evolution, and second, there is a lack of exploration on the relationship between subsystems in the HQDT. In future research, it will be of vital importance to strengthen the relevant theoretical research on evolution laws and mechanisms, thereby providing theoretical guidance for empirical research and practice.

6 Conclusions and Implications

Based on the existing relevant research and the reality of China's tourism development, guided by the development concepts of innovation, coordination, green, openness and sharing, and considering the organic unity of quantity and quality, this paper defined the HQDT and constructed an evaluation index system based on connotation, using the improved entropy method and linear weighted summation method to measure the HQDT of 30 provinces from 2010 to 2019. This paper explored the spatio-temporal evolution characteristics of China's HQDT, and found that there were obvious differences between the driving factors of HQDT and TDS. The conclusions are as follows:

(1) During the study period, China's HQDT has generally showed an upward trend, with a steady improvement period from 2010 to 2012, an accelerated improvement period from 2013 to 2015, and a slow improvement period from 2016 to 2019. The HQDT in the four regions has improved, but there is apparent differentiation among regions. The HQDT in the eastern region is much higher than the national average level. However, the HQDT of central, western, and northeastern China is lower than the national average. Regional differences in China's HQDT have decreased significantly. Intra-regional differences, which are mainly composed of the differences within the eastern and western regions, have replaced inter-regional differences as the main source of regional differences.

(2) China's HQDT presents a spatial pattern of higher in the east and lower in the west, clearly differentiated along the Hu Line, and the development pattern has gradually evolved from dual-core to multi-core, making the gravity center of China's HQDT located in the southeast of the geographic center. However, the promotion speed of China's HQDT is faster in the west and slower in the east, which has contributed to the decline of east-west differentiation of China's HQDT and the movement of the gravity center towards southwest.

(3) In terms of dimensions, there is Matthew effect in the development of the three dimensions: 'economic stability', 'innovation driving', and 'coordination and linkage'. Precisely, regions with high dimension scores develop faster, while the regions with low dimension scores develop slower. In contrast, the other three dimensions' development level and their promotion speed are spatially inversely distributed, including 'green and sustainability', 'openness and cooperation', and 'sharing and harmony' dimensions. Unlike each dimension's level which shows the characteristics of higher in the east and lower in the west, the promotion speed of each dimension is faster in the west and slower in the east. The central and western regions have accelerated to catch up with the eastern region in the above three dimensions, leading to the narrowing of the east-west spatial differentiation of China's HQDT. It is noticing that the development level of the each dimension except the

'openness and cooperation' in northeastern China is low, and their development speed is slow, therefore northeastern region should be the priority area supported by nation.

(4) The results of driving factor analysis show that China's HQDT is the result of multiple factors. Factors such as ML, OD, RCL, REL, TP, TCI, and GI play an important driving role in improving China's HQDT. Both HQDT and TDS are obviously driven by TCI and RCL. Comparatively speaking, the HQDT is more driven by government guidance, innovation driving force, and opening up, while the main driving factors of TDS are more biased toward capital elements and hardware, including IL, TRE, TD, and EEM.

The research results of this paper can provide some guidance for promoting the HQDT: first, in the process of HQDT, the development concepts of innovation, co-ordination, green, openness and sharing should be ap-plied. Tourism operators should enhance the applica-tion and transformation ability of tourism innovation elements to play its role in industrial upgrading. Indus-trial integration should be accelerated to promote mutu-al promotion between tourism and regional economy. Government departments should coordinate the relation-ship between the development of tourism economy and the protection of ecological environment by increasing the investment in funds and talents for environmental governance, so as to achieve the energy conservation and consumption reduction in tourism. It is crucial to optimize the policy environment for promoting the in-ternational cultural exchanges and tourism cooperation, so as to further enhance the internationalization level of regional tourism. In order to realize the sharing of tour-ism achievements, the local infrastructure and tourism reception conditions should be continuously improved, and the tourism employment and entrepreneurship mechanism should be optimized. Second, it is neces-sary to narrow development differentiation to optimize the pattern of the HQDT and promote regional harmoni-ous development. For this purpose, the establishment of inter-regional and intra-regional normalized tourism co-operation mechanisms should be accelerated. Finally, the government's ability of tourism planning and gov-ernance should be improved. The government should no longer rely solely on investment and capital to drive the scale expansion of tourism industry, but should rely on

technological innovation, opening-up and scientific guidance to promote the HQDT. Currently, the most ur-gent task for the global tourism industry is to improve its resilience to sudden disturbances. The government should create good environments for tourism through differentiated rather than one-size-fits-all prevention and control policies for coping with the COVID-19. Policies should be made to support tourism enterprises out of difficulties and guide them to meet the new demands of tourists through the innovation of business forms, ser-vice modes and management models.

The theoretical contribution of this paper is the ex-ploration of the concept, evaluation system and driving factors of the HQDT. First, under the guidance of the development concepts of innovation, coordination, green, openness and sharing, this paper clarifies the basis, momentum, means, orientation, direction and pur-pose of the HQDT, and then forms a systematic con-notation analysis framework. This framework is not only a deepening of the research on the quality of tour-ism development, but also a useful supplement to the current research on tourism quality from the perspect-ive of tourists. Second, the index system established in this paper provides a methodological tool for exploring the level, spatio-temporal pattern and influencing factors of the HQDT. Third, the exploring of the similarities and differences between driving factors of HQDT and TDS is an expansion of the previous research perspect-ive. This paper can provide new ideas and entry points for the research of tourism competitiveness, tourism re-silience and sustainable development, tourism planning and development, tourism destination governance and other related fields. In order to improve the practical guidance of the research on the HQDT under the back-ground of the normalization of the prevention and con-trol for the COVID-19, special research can be carried out in future research from the following aspects: 1) the research on the impact of emergencies on the quality of tourism development should be explored to clarify the nonlinear evolution trend and mechanism of the tour-ism system from the quality perspective; 2) attention should be paid to the relationship between the HQDT and the improvement of tourism resilience from the as-pects of driving mechanism, logical relationship, inter-active mechanism and realization path of the above two. The exploration of the above proposition will help to

promote a new round of interaction and integration between tourism and other disciplines such as geography, economics, ecology and politics.

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