

Article

Exploring the Coordinated Evolution Mechanism of Regional Sustainable Development and Tourism in China's "Beautiful China" Initiative

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Abstract: As the world's largest developing country, China first proposed the construction of a Beautiful China initiative in 2012, with the aim of exploring Chinese solutions for sustainable regional development. The construction of a beautiful China is based on the guiding ideology of the Five-sphere Integrated Plan in China, that is, the overall plan for building socialism with Chinese characteristics, including economic construction, political construction, cultural construction, social construction and ecological civilization construction. This paper aims to understand the coupling relationship, as well as the spatial and temporal changes, between China's sustainable development under the *Beautiful China* initiative and tourism. Using data from the China Statistical Yearbook database, we constructed an evaluation index system to measure both the construction of beautiful China and tourism development using a literature review, statistical analysis, the entropy method and GIS-based spatial analysis methods. Furthermore, using the 31 Chinese provinces as the research subject, we further analyzed the state of Beautiful China construction and tourism development, as well as their coupling relationships of the two systems. Our results show that firstly, the economic "hard power" plays the most prominent role in the process of building a beautiful China under the sustainable development regime, while the status of cultural "soft power" has also been well reflected. Secondly, the weight ranking of tourism evaluation indicators and the spatial distribution of tourism development levels both reflect the central and fundamental role of tourism market demand in tourism development. Third, the weight ranking of tourism evaluation indicators ranks the highest in the mean value of the coupling coordination degree of society, ecology and tourism in the Beautiful China subsystem, which reflects the harmony between society and ecology and the significant livelihood function of tourism as a happiness industry in the new era. Fourth, the spatial and temporal relationship between the coupled and coordinated development of the Beautiful China and tourism systems varies, indicating that there is a regional imbalance in China's sustainable development. This further indicates the need to adapt to local conditions, and to build on strengths and avoid weaknesses to achieve regional sustainable development. The study highlights China's contribution to global sustainable development. It also provides theoretical and practical guidance for the promotion of the coordinated development of both Beautiful China and tourism.

Keywords: regional sustainable development; the Beautiful China initiative; regional differences; coupling coordination



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1. Introduction

Sustainable development, first proposed by the World Commission on Environment and Development in 1987, is formally defined as “meeting current development needs as far as possible without compromising the ability of future generations to meet their own needs [1].” In recent decades, sustainable development has long been a hot issue of global and regional concern, and has been widely considered by academia and industry [2]. In 2015, the UNTWO launched the 2030 Agenda for Sustainable Development, proposing 17 goals for sustainable social, economic and environmental development. As a global framework for improving people’s well-being, tourism was ranked first among the “five happiness industries”, and there is no doubt that tourism plays a pivotal role in promoting sustainable development [3]. Accordingly, UNTWO has designated 2017 as the International Year of Sustainable Tourism for Development, with sustainable development increasingly becoming a top priority for tourism research [4–6]. The high-quality development of tourism is conducive to promoting economic and social development and thus accelerating the achievement of the Sustainable Development Goal (SDGs). For example, tourism is crucial in eradicating poverty, promoting gender equality, stimulating consumption and production and protecting the environment.

Regional sustainable development has received a positive response globally, with various countries or organizations taking measures and working tirelessly to promote sustainable development [7]. Specifically, previous studies have assessed sustainability in the tropical regions of developing countries, such as Costa Rica [8], Indonesia [9], Colombia [10] and Mexico [11,12]. Despite the different crises and challenges, researchers believe that assessing sustainability through regional development seems to be the most objective and reasonable [13,14]. For example, the Amazon region of Ecuador actively explored the attitudes and perceptions of communities and key stakeholders towards science tourism and identified science tourism as an important local strategy to achieve sustainable development goals [15]. In another example, for Southeast Asian economic development, tourism has made outstanding contributions to the sustainable development of local poverty reduction [16].

As the largest developing country in the world, China fully embraces its role in the process of sustainable development. In 2012, the Chinese government first put forward the important strategic idea of “Building a beautiful China” [17], which refers to strategic measures to achieve effective protection of the ecological environment, sustainable use of natural resources, and harmonious coexistence between man and nature within a specific period of time [18]. In 2017, China further clarified the overall requirements for building a beautiful China and the goals of China’s sustainable development plan guided by the concept of ecological civilization. Before the outbreak of COVID-19, tourism accounted for one-tenth of global GDP, and China, as a world tourism powerhouse, had the highest growth in tourism in the world [19]. As an important embodiment of people’s demand for higher standards, the development of tourism is inseparable from the improvement of local comprehensive development level. Beautiful China is an important way to achieve regional coordinated development and a basic guarantee for China’s tourism development. It is clear that the construction of Beautiful China is a localized practice for sustainable development in China, and this plan also provides a variety of examples for regional and global sustainable development.

The existing research on regional sustainable development and tourism focuses on measuring the level of sustainability achieved by human activities through empirical research, such as the impact of regional economy, culture and ecological environment on tourism. Research on Beautiful China started late, and focused on the relationship between Beautiful China and tourism; the content remained focused on the discussion of individual indicators, mainly the impact or correlation between beautiful China and tourism, and examinations of the coupling and coordination relationship between these two systems are rare.

Considering the research gaps in the literature, this study aims to explore the mechanisms of the spatial and temporal evolution of regional sustainable development and tourism development. Specifically, our research addressed the following research questions:

- RQ1. What indicators are used to establish the evaluation system of Beautiful China and tourism in the context of regional sustainable development?
- RQ2. How can we measure the spatial and temporal differences in the level of development of Beautiful China and tourism?
- RQ3. What is the coupling and coordination relationship between the construction of a beautiful China and tourism development?

To answer these questions, this study is based on the theory of sustainable development and coupled coordination theory, the overall layout of the Five-sphere Integrated Plan in China (the construction of economy, politic, culture, society and ecological civilization) and the supply–demand perspective. The regional sustainable development and tourism evaluation index system is constructed by collecting data from 31 provinces in China from 2013 to 2017, using the entropy method to measure the level of Beautiful China construction and tourism development, and analyzing the coupling and coordination relationship between the two systems in 31 provinces in China through the coupling and coordination model. Taking this into account, the main objectives of this paper are (1) to construct an evaluation index system for the “beauty degree” of Beautiful China and tourism under the background of the Chinese practice of sustainable regional tourism development; (2) to explore the spatiotemporal evolution mechanism of the coupling and coordination between the two systems of Beautiful China and tourism and (3) to propose policy implications for the coupled and coordinated development of Beautiful China and tourism and to provide a theoretical basis for promoting sustainable regional development and high-quality tourism development in countries and regions around the world.

The rest of the paper is organized as follows. The next section explores the relationship between regional sustainable development and tourism as well as the theoretical basis for the construction of Beautiful China and tourism development. Section 3 describes the research objects and methods of this paper. Section 4 carries out the calculation and analysis process of the data. Section 5 presents the research results, including regional sustainable development level, tourism development level and coupled coordinated development. Section 6 discusses and analyzes research findings, including an analysis of the weight ranking of the evaluation indicators, the main influencing factors of the coupling and coordination of the two systems and the implications for practice. The last section presents some conclusions, as well as some theoretical and practical implications for the coordinated development between sustainable development and tourism in the global context.

2. Literature Review

2.1. Regional Sustainable Development and Tourism Research

Regional sustainable development refers to the dynamic over the complex system of nature, economy and society within a certain time and space scale to continuously improve the quality of human life without exceeding the resources and environmental carrying capacity, thereby meeting the development needs of contemporary people and the region while not threatening future generations and other regions. Tourism and regional sustainable development have a certain interactive coupling relationship, and tourism plays an important role in accelerating regional sustainable development. Research on regional tourism development mainly carries out quantitative research on regional tourism economic development and tourism competitiveness. International research on regional tourism development started earlier, and the research content is extensive and in depth, mainly focusing on the evaluation of regional tourism competitiveness and tourism destination case studies. For example, Crouch and Ritchie [20] drew on the Porter Diamond Model to develop a sustainable competitiveness model for tourism destinations. Dwyer [21] investigated the competitiveness of 19 Australian destinations. Based on destination attributes and tourist preferences indicators, Kim [22] uses multi-dimensional scale analysis

and alternating least squares method to explore the competitiveness of Chinese mainland residents in choosing outbound tourism destinations. Furthermore, Leung [23] used multidimensional scaling and clustering analysis to assess the tourism competitiveness of 16 Asia-Pacific countries and regions. In addition, based on interdisciplinary perspectives, the previous research uses spatial autocorrelation and geographically weighted regression to explore the tourism development progress, regional differences and influencing factors at the national, provincial, city and county levels [24,25].

With the development of regional ecological civilization, sustainable development theory has come into being. It was first proposed in the report “Our Common Future” published by Norwegian Prime Minister Jean-Claude Brundtland in 1987, and it includes the principles of equity, continuity and commonality. Researchers carry out exploration based on the concept of sustainable development, and the relationship between the regional economy, ecological environment and tourism industry is the focus of their research. On the one hand, tourism is closely related to the regional economy, and early studies on tourism’s economic effects, foreign exchange earning effects and multiplier effects are fruitful. Khan [26] pointed out that Singapore’s higher tourism multiplier helps spur economic growth. Lee [27] used heterogeneous panel cointegration technology to study the relationship between tourism development and economic growth in OECD and non-OECD countries from 1990 to 2002 and found that there was a positive relationship between the two different types of countries. In addition, some scholars have conducted empirical studies on Spain, Malaysia and Latin America and found that tourism can promote regional economic growth [28,29]. In recent years, many studies have been conducted on the interaction mechanism between tourism and region-related systems through regression analysis, Granger causality tests, VAR models, cointegration equations, principal component analysis, panel analysis and coupling coordination models [30]. On the other hand, the relationship between tourism and ecology is relatively complex, and different tourism development models can have different impacts on the local environment. Saleh [31] found that large-scale tourism development and hotel construction had a negative impact on local mangrove forests. Ozturk [32] used the environmental Kuznets curve to explore the relationship between tourism and the ecological footprint. With the deepening of research, the interaction among economic, ecological and tourism systems have received increasing attention. Therefore, this study explores the coupling and coordination between regional sustainable development and tourism to enrich the theoretical and practical basis.

2.2. Construction of Beautiful China and Development of Tourism

With the official promulgation of “China’s Agenda 21” in 1993, sustainable development has been identified as an important strategic decision for China’s future development. Under the background of regional sustainable development and high-quality tourism development, Beautiful China is proposed based on China’s situation, and its connotation is defined from various perspectives. It is worth noting that the building of Beautiful China is in line with China’s sustainable development strategy and represents China’s best practice in promoting global sustainable development. The study of Beautiful China stems from the existing theory of ecological civilization. The term “ecological civilization” came from the *Silent Spring* in the 1960s. Taking a global perspective, the research content of ecological civilization evaluation mainly includes the evaluation system of sustainable development and ecology [33,34], the regional human development index and the evaluation of sustainable development level [35–37]. In recent years, scholars have investigated ecological civilization from various perspectives, mainly focusing on the concept and connotation of ecological civilization [38,39], the construction of an ecological civilization evaluation index system [40], and the practice of ecological civilization construction [41].

In addition, as two interrelated systems, the relationship between beautiful China and tourism is inseparable from the support of coupling and coordination theory. The concept of “coupling” is derived from physics and refers to the phenomena and states between two or more systems that affect each other through interaction [42]. “Coupling” includes

advantages and disadvantages. When each system or element promotes each other and complements each other, it is positively coupled; that is, each system or element moves in an orderly direction. When each system or element is resistant to each other, it is negatively coupled, and each system or element will move from order to disorder. “Coordination” refers to a benign correlation between two or more kinds of systems or system elements, which means a harmonious, unified and benign cooperative relationship between systems or elements within the system, and the higher coupling co-scheduling is, the more orderly the system becomes. Therefore, based on the global sustainable development strategy, this study takes the construction of Beautiful China as an example to deeply explore the positive actions of China as the world’s largest developing country to provide a theoretical basis for promoting regional sustainability and high-quality tourism development.

3. Materials and Methods

3.1. Study Area

In this paper, the 31 provincial administrative regions (including urban and rural areas) of mainland China are divided into four major parts, namely, the Northeast, East, Central and West China, according to the geographical location and the natural and human geography characteristics of China. Among them, Northeast China includes three provinces, namely, Liaoning, Jilin and Heilongjiang. The Eastern Region covers 10 provinces and municipalities directly under the Central Government, namely, Beijing, Tianjin, Hebei, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian, Guangdong and Hainan. The Central Region covers 6 provinces in Shanxi, Henan, Hubei, Hunan, Jiangxi and Anhui. The Western Region contains 12 provinces and municipalities directly under the Central Government, namely Chongqing, Sichuan, Guangxi, Guizhou, Yunnan, Shaanxi, Gansu, Inner Mongolia, Ningxia, Xinjiang, Qinghai, and Tibet. In this paper, the administrative region map of China is drawn by RS/GIS method, as shown in Figure 1. Remote Sensing/Geographic Information System (RS/GIS) can provide information about predicted social and nature events in order to facilitate early prediction and planning and to build up an improved management system. Thus, effective and efficient planning with the help of research models and methods using geospatial techniques for urban management was well adopted in some urban areas of the world [43].

3.2. Data Used

The study covers the period from 2013 to 2017, and this time period was chosen for two reasons: first, the Chinese government proposed to build the Beautiful China in 2012; Second, COVID-19 has had a strong impact on socio-economic development, especially on tourism, and the data after the outbreak of the epidemic in late 2019 do not reflect China’s sustainable development and tourism development well. The subjects of this study include 31 provinces in China (excluding Hong Kong, Macao and Taiwan). The data are obtained from the official websites of the National Bureau of Statistics, the Ministry of Culture and Tourism, the cultural and tourism departments of all provinces, the Statistical Yearbook, the Statistical Bulletin on National Economic and Social Development, the official website of Baidu Index, the Statistical Materials on the Situation of Chinese Women and Children, the Tourism Statistical Yearbook and the Legal Statistical Yearbook and the Legal Development Report of China.

3.3. Methodology

Figure 2 shows the research framework. According to the technical framework, this study is conducted using the theoretical method of coupling and coordination, which is the study of the phenomenon and mechanism of interaction between two or more systems. Coupling, which originates from the physical sciences, is a phenomenon in which two or more systems influence each other through various interactions [44]. In recent years, the coupling coordination degree model (CCDM) has often been used in studies of the eco-environment and urbanization [45]. The steps to construct this model include

establishing the evaluation index system of the two systems, calculating the evaluation index of the comprehensive development of the two systems through the entropy method, and calculating the coupling degree index and the coupling coordination index.



Figure 1. Map of China's administrative divisions.

The entropy method is based on information theory; it has been widely used in environment science, urbanization and eco-environment for designing the weights of indicators in a variety of studies. Entropy theory is an objective method of weight determination. According to the variation degree of each index, the weight is determined by the size of the information provided by the entropy, which can reflect the original information of the index and enhance the objectivity of the evaluation [46]. Through computational analysis, the state of coupling and coordination between the Beautiful China and tourism systems is explored, and the quantitative results are used to describe the current situation, summarize the characteristics and sort out their evolution. The method is an objective weight determination method that has been widely used in comprehensive evaluations.

The other main research method in this paper is RS/GIS analysis. The employment of RS-GIS technology has helped to improve the accuracy of research activities and areas [47]. The research object of this paper is 31 provincial administrative regions of mainland China, discussing the temporal and spatial evolution of regional sustainable development and tourism development and coupling coordination. Thus, to facilitate data collection and study area delineation, QGIS Version 3.28 Desktop was used in this paper to complete data preprocessing, analysis, visualization and mapping.

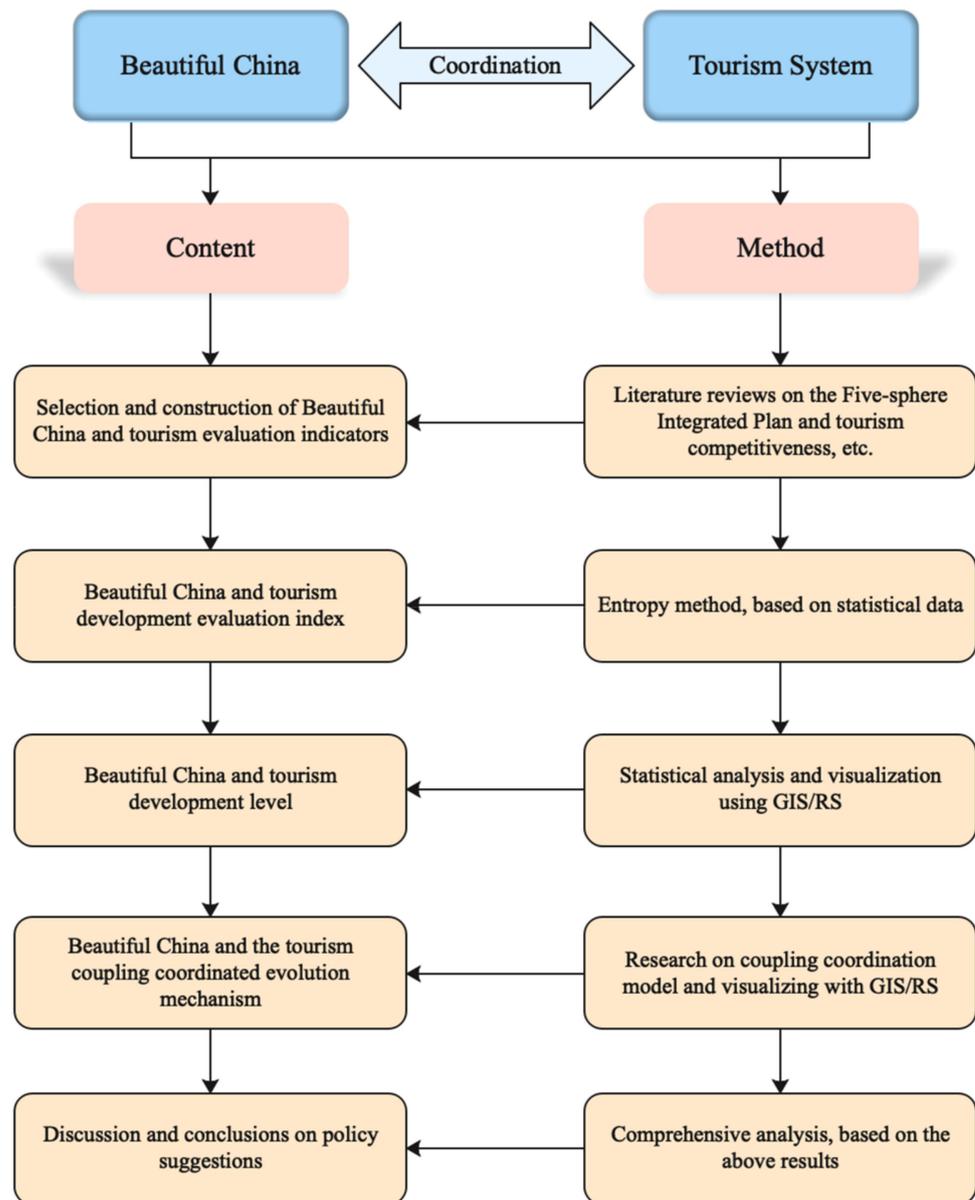


Figure 2. Research framework.

4. Data Processing and Calculations

4.1. Regional Sustainable Development and Tourism Evaluation Index System Construction

This paper systematically summarizes the existing domestic and foreign indicators of sustainable development [48–50], the ecological civilization evaluation index [51], the Beautiful China evaluation index [18,52], tourism destination competitiveness [53], tourism economic development [54] and regional tourism development [55]. Accordingly, based on the Five-sphere Integrated Plan guiding ideology and supply–demand thinking, combined with comprehensive, systematic, scientific and data availability factors, this paper constructs the “beauty degree” and tourism evaluation index system of Beautiful China (see Table 1).

Table 1. Beautiful China “beauty degree” and tourism evaluation index system.

Evaluation Index System	Primary Indicators	Secondary Indicators	Unit	Index Properties
Beautiful China “beautiful degree” evaluation index system	Economy	GDP per capita	RMB/person	Positive
		Per capita disposable income	RMB/person	Positive
		Resident consumption level	RMB	Positive
		Research and experimental development (R&D) funding intensity	%	Positive
		Technology market turnover	Million RMB	Positive
		Total investment in fixed assets	Million RMB	Positive
		Local government revenues per capita	Million RMB	Positive
	Politics	Baidu index of Rule by Law	—	Positive
		Baidu index of Service Government	—	Positive
		Baidu index of Chinese Socialism	—	Positive
		Baidu index of Poverty Alleviation	—	Positive
		Baidu index of Anti-corruption	—	Negative
	Culture	Per capita holdings of public libraries	Volume/person	Positive
		Average number of college students per one hundred thousand population	Person	Positive
		Teacher–student ratio of colleges	%	Positive
		Audience number for art performance in venues	Per thousand people	Positive
		Consumer price index of entertainment, education, and culture	%	Positive
		Museum numbers	Number	Positive
		Local financial expenditure on education	Million RMB	Positive
	Baidu search index of Beautiful China	—	Positive	
	Society	Urban population density	People/km ²	Negative
		Registered urban unemployment rate	%	Negative
		Number of medical institution beds per one hundred thousand population	Number	Positive
		Number of rural residents guaranteed minimum living standards	Person	Positive
		Internet penetration rate	%	Positive
		Endowment insurance coverage	%	Positive
		Health insurance coverage	%	Positive
		Ratio of consumption level between urban and rural residents	%	Positive
		Ecology	Electricity consumption per unit of GDP	kilowatt-hour/RMB
	Forest coverage		%	Positive
	Total discharge of wastewater		Per 10,000 tons	Negative
	Sulfur dioxide emissions		Tons	Negative
Decontamination rate of domestic waste	%		Positive	
Completed investment in industrial pollution control per unit GDP	RMB		Positive	
Per capita area of park green space	m ² /person		Positive	
Number of days the air quality reaches the standard	Day		Positive	
Baidu search index of Ecological Civilization	—	Positive		
Tourism evaluation index system	Tourism resource carrier	Number of tourist attractions	Number	Positive
		Number of 5A tourist attractions	Number	Positive
		Number of national scenic spots	Number	Positive
		Number of world heritage sites	Number	Positive
	Tourism industry support	Number of star-rated hotels	Number	Positive
		Number of five-star hotels	Number	Positive
		Number of star hotel beds	Number	Positive
		Number of travel agencies	Number	Positive

Table 1. Cont.

Evaluation Index System	Primary Indicators	Secondary Indicators	Unit	Index Properties
Tourism evaluation index system	Tourism market demand	Domestic tourist number	Ten thousand people	Positive
		Domestic tourism revenue	Million RMB	Positive
		Reception of international tourists	Million people	Positive
		Foreign exchange earnings from international tourism	Million dollars	Positive
	Effect of tourism industry	Number of employees in tourism enterprises	Person	Positive
		The proportion of tourism employees in the total employed population	%	Positive
		Gross tourism income	Million RMB	Positive
		Proportion of total tourism revenue in GDP	%	Positive
		Proportion of total tourism revenue to output value of tertiary industry	%	Positive

4.2. Comprehensive Development Index Model Construction

Based on the background of regional sustainable development and high-quality development of tourism, the comprehensive development level of Beautiful China and the tourism system is calculated by the entropy method. The specific steps are as follows:

1. Data standardization. Due to the inconsistency of the units of measurement of the indicators and the forward and reverse of the data, it is necessary to standardize the data in order to make the data uniformly measured. This article mainly uses range standardization to standardize the data. First, assume that there are n regions, m metrics, which make up the indicator data matrix $X = (x_{ij}), i = 1, 2, \dots, n; j = 1, 2, \dots, m; x_{ij}$ is the value of the i region j metrics. The standardization formula is as follows:

$$\text{Positive indicator: } X'_{ij} = (x_i - x_{min}) / (x_{max} - x_{min})$$

$$\text{Negative indicator: } X''_{ij} = (x_{max} - x_i) / (x_{max} - x_{min})$$

2. Transformation of specific gravity. Calculate the proportion of item j in region i , and the formula is $Y_{ij} = \frac{X_{ij}}{\sum_{i=1}^n X_{ij}}$.
3. Calculate the information entropy of each index. According to the definition of information entropy in information theory, the information entropy of a set of data is: $e_{ij} = -k \sum_{i=1}^n Y_{ij} \ln(Y_{ij})$, where $k = \frac{1}{\ln(n)}$.
4. Weight of each indicator. The weight coefficient of each index is obtained through the formula $W_j = \frac{1 - e_j}{\sum_{j=1}^m (1 - e_j)}$.
5. The comprehensive scores of "beauty degree" and tourism development of each province and region shall be calculated. According to the obtained proportion transformation value and weight coefficient and the formula $S_{ij} = \sum_{i=1}^n W_j Y_{ij}$, the "beauty degree" and the comprehensive score of tourism development are calculated.
6. According to the comprehensive scores of "beauty degree" and tourism development of each province, the stages shall be divided according to the standards in Table 2.

4.3. Construction of the Coupling Coordination Model

Based on previous studies [38,39], the steps to construct the coupling coordination model are as follows:

1. Calculate the comprehensive development evaluation indices of the two systems. Based on the results of the entropy method, the comprehensive development evaluation index of Beautiful China and the tourism system is calculated by the formula

$$H_j = \sum_{i=1}^n W_j X'_{ij} \tag{1}$$

where $f(x) = H_j$ or $y(y) = H_j.f(x)$ and $y(y)$ represent the comprehensive development evaluation functions of Beautiful China and the tourism system, respectively.

Table 2. Criteria for classifying the integrated development levels of the two systems.

Score of Comprehensive Development Level of Two Systems	Developmental Stage
[0, 0.2)	Lagging development
[0.2, 0.3)	Primary development
[0.3, 0.4)	Intermediate development
[0.4, 0.5)	Sound development
[0.5, 1]	High-quality development

2. Introduce the coupling model. The degree of coupling is suitable for measuring the degree of interaction between two or more systems and the factors within the system, and there is also interaction and influence between the two systems of Beautiful China and tourism. The formula is as follows:

$$C_m = \{(u_1, u_2, \dots, u_n) | \prod (u_i + u_j)\}^{1/m} \tag{2}$$

When $m = 2$, the coupling model representing the Beautiful China tourism system is:

$$C_2 = \sqrt{\frac{f(x) \times y(y)}{(f(x) + y(y))(f(x) + y(y))}} \tag{3}$$

where C represents the coupling between $[0, 1]$, as shown in Table 3. When $C = 0$, the system will tend to be out of order; when $0 < C \leq 0.3$, the system will be in the low-level coupling stage; when $0.3 < C \leq 0.5$, the system will be in the antagonistic stage; when $0.5 < C \leq 0.8$, the system will be in the running-in stage; when $0.8 < C \leq 1$, the system will be in the high-level coupling stage; and when $C = 1$, the coupling degree will be the highest, completely ordered state, forming a benign resonance.

Table 3. Coupling rating standards.

Coupling C Value	Coupling Stage	Coupling C Value	Coupling Stage
0	Disorder state	(0.5, 0.8]	Running-in stage
(0, 0.3]	Low-level coupling stage	(0.8, 1]	High-level coupling stage
(0.3, 0.5]	Antagonistic stage	1	Benign resonance state

3. Establish a coupling coordination model. Because the coupling model can only explain the interaction between the two systems, it is difficult to reflect the synergistic effect of the two systems. Therefore, the principle of a deviation model is used to construct the coupling coordination model of Beautiful China and the tourism system. As shown below:

$$D = \sqrt{C \times T} \tag{4}$$

$$T = \alpha f(x) + \beta y(y) \tag{5}$$

where D is the coupling coordination degree, T is the comprehensive coordination index of 2 systems, and α and β are undetermined coefficient. Based on the above elaboration of the

correlation between the two systems, referring to the research results of other researchers, the $\alpha = 0.50$ and $\beta = 0.50$ were selected to reflect the importance of the two systems, and the value range of D is $[0, 1]$. By setting standards to divide the coupling coordination degree of the two systems (see Table 4), the coupling coordination between the two systems can be more clearly distinguished.

Table 4. Coupling coordination ranking criteria.

Serial Number	Coupling Coordination Degree D Range	Coupling Degree of Coordination	Serial Number	Coupling Coordination Degree D Range	Coupling Degree of Coordination
1	0.00 – 0.09	Extreme disharmony	6	0.50 – 0.59	Reluctant coordination
2	0.10 – 0.19	Severe disharmony	7	0.60 – 0.69	Primary coordination
3	0.20 – 0.29	Moderate disharmony	8	0.70 – 0.79	Intermediate coordination
4	0.30 – 0.39	Mildly disharmony	9	0.80 – 0.89	Good coordination
5	0.40 – 0.49	Borderline disharmony	10	0.90 – 1.00	Premium coordination

5. Results

By constructing an evaluation index for Beautiful China and tourism, this paper can evaluate the development of two system through the entropy method, and probe the development situation of the coupling coordination situation between them by constructing coupling coordination model, which enable the development progress and the coupling coordination relationship of the two systems to be investigated.

5.1. Results of Evaluation of Regional Sustainable Development Level

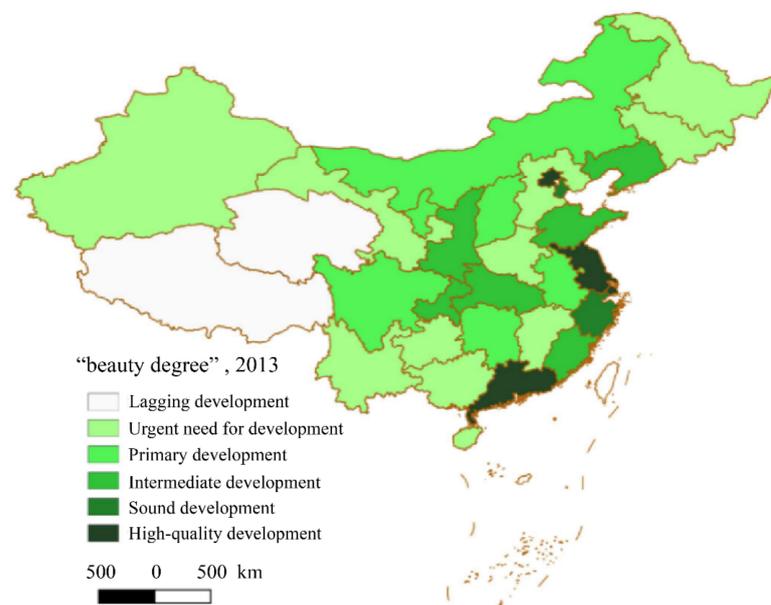
The results of data processing and calculation show that the weights of each index are economy > culture > society > ecology > politics, reflecting the important supporting role of economy and culture in the construction of Beautiful China. Due to the excessive concentration of provinces within the range of 0.02–0.03, taking into account the balance of regional division, the region is divided again within this range: 0.02–0.025 is divided into areas to be rapidly developed, and 0.025–0.03 is divided into areas to be preliminarily developed. The “beauty degree” of each province can be seen in Table 5. In addition, QGIS 3.28 software is used to visually present the results of the comprehensive assessment of the “beauty degree” of all provinces nationwide in 2013 and 2017. As shown in Figure 3, the “beauty degree” of all provinces is generally distributed in different regions; the “beauty degree” of Eastern China is quite high; Shaanxi, Chongqing, Sichuan, Hubei and Liaoning are next; and the “beauty degree” of the other provinces is at a lower level. In the past five years, the fluctuation of the level of “beauty degree” in each province has been small, with the figures in Eastern and Western China rising and falling, in Central China increasing slightly, and in Northeast China seeing a negligible change.

Table 5. “Beauty degree” development stages by province, 2013 and 2017.

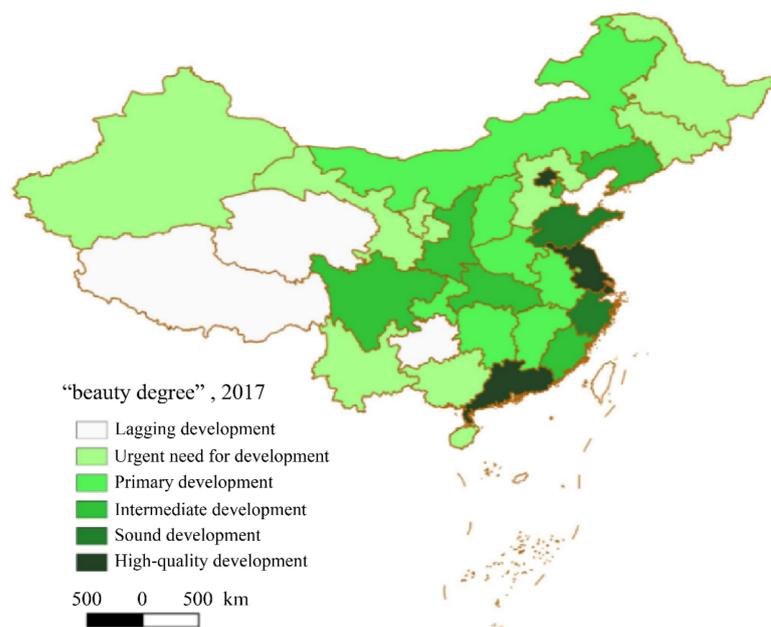
“Beauty Degree” Development Stage	2013	“Beauty Degree” Development Stage	2017
High-quality development	Beijing, Shanghai, Jiangsu, Guangdong	High-quality development	Beijing, Shanghai, Jiangsu, Guangdong
Sound development	Zhejiang, Tianjin	Sound development	Zhejiang, Shandong, Hubei
Intermediate development	Shandong, Shaanxi, Hubei, Liaoning, Fujian	Intermediate development	Tianjin, Sichuan, Shaanxi, Henan, Liaoning, Fujian

Table 5. Cont.

“Beauty Degree” Development Stage	2013	“Beauty Degree” Development Stage	2017
Primary development	Sichuan, Chongqing, Shanxi, Anhui, Inner Mongolia, Hunan, Henan	Primary development	Hunan, Shanxi, Anhui, Inner Mongolia, Chongqing, Jiangxi
Urgent need for development	Hainan, Ningxia, Jiangxi, Jilin, Heilongjiang, Hebei, Yunnan, Guangxi, Gansu, Guizhou, Xinjiang	Urgent need for development	Jilin, Yunnan, Hebei, Guangxi, Heilongjiang, Ningxia, Guizhou, Gansu, Xinjiang
Lagging development	Tibet, Qinghai	Lagging development	Qinghai, Hainan, Tibet



(a)



(b)

Figure 3. Level of “beauty degree” of each province in 2013 and 2017; (a,b).

5.2. Evaluation of Tourism Development Level

According to the calculation results of the entropy method, in recent years, the weight coefficient of tourism market demand has regularly been higher than other indicators. In 2017, the internal weight ranking of the tourism industry was tourism market demand > tourism industry effect > tourism industry support > tourism resource carrier. It is clear that tourism market demand played an important role, the remaining three gaps were small, and the development level of tourism was more affected by tourism flow and income. Provincial tourism development levels are shown in Table 6. In addition, QGIS 3.28 software is used to visualize the comprehensive development level of tourism in all provinces and regions in 2013 and 2017 (see Figure 4). From 2013 to 2017, the comprehensive development level of tourism in China presented a trend of regional aggregation. On the whole, it decreases from southeast to northwest. The distribution of provinces with higher tourism development levels is in line with the distribution trend of population density in China, indicating the important position of population and geographical factors in the development of tourism. In the past five years, the tourism industry of each province has been developing towards a more balanced situation, the gap among provinces has been narrowed, the tourism development level of some western provinces such as Yunnan, Guizhou, Guangxi and Shaanxi has increased rapidly, the eastern and central regions saw a slight change, and the tourism development level of northeastern and western regions still needs to be further improved.

Table 6. Stages of tourism development by province, 2013 and 2017.

Stage of Tourism Development	2013	Stage of Tourism Development	2017
High-quality development	Guangdong, Zhejiang, Beijing, Jiangsu, Shanghai	High-quality development	Guangdong, Zhejiang, Beijing, Jiangsu, Shandong
Sound development	Shandong, Fujian, Liaoning	Sound development	Fujian, Yunnan, Shanghai
Intermediate development	Yunnan, Sichuan, Anhui, Hubei, Hunan	Intermediate development	Sichuan, Anhui, Hunan, Guangxi, Hubei, Shaanxi, Liaoning, Jiangxi, Guizhou
Primary development	Henan, Shaanxi, Hebei, Guangxi, Shanxi, Chongqing, Jiangxi, Guizhou, Xinjiang	Primary development	Hebei, Henan, Chongqing, Shanxi
Lagging development	Tianjin, Inner Mongolia, Hainan, Jilin, Heilongjiang, Gansu, Tibet, Ningxia, Qinghai	Lagging development	Xinjiang, Inner Mongolia, Tianjin, Jilin, Hainan, Gansu, Heilongjiang, Qinghai, Tibet, Ningxia

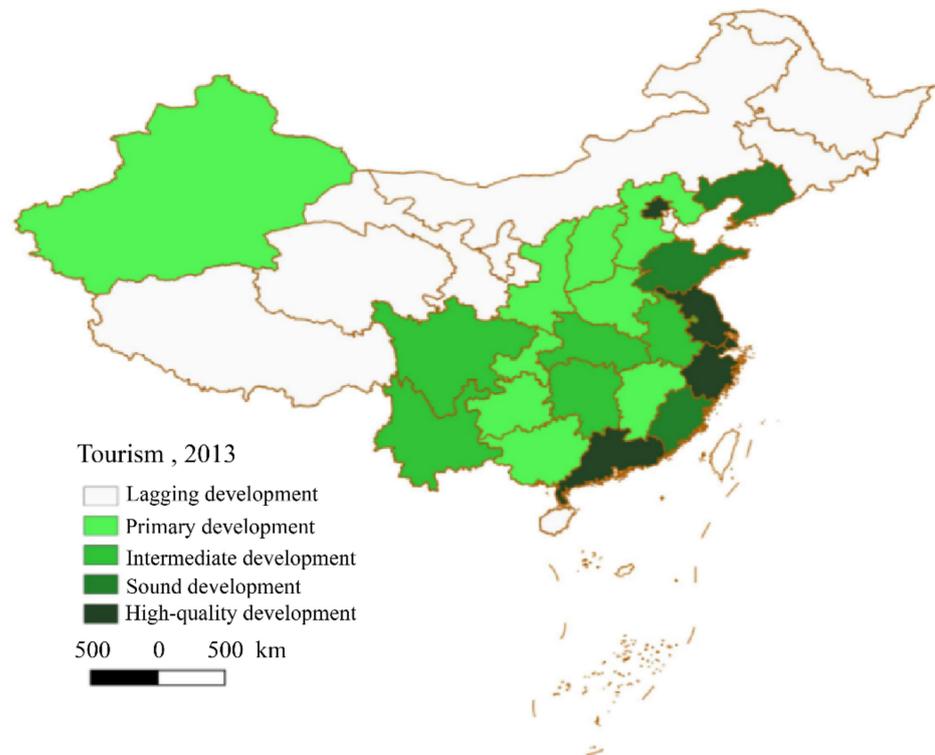
5.3. Analysis of the Coordinated Development of Coupling

Based on the evaluation of regional sustainable development and the comprehensive development level of tourism, a coupling coordination model is constructed to study the coupling and coordination development of Beautiful China and tourism, and the coupling and coordination development of the two systems is explored from the perspectives of the overall spatiotemporal evolution, the coupling and coordination development of the Five-sphere Integrated Plan subsystem and tourism, and the coupling coordination degree cluster analysis.

5.3.1. General Spatiotemporal Evolution Analysis

To further explore the coordination relationship between systems, the coupling coordination degree is adopted to analyze the coordination relationship. Except for Ningxia, the coupling degree of each province in 2017 is between 0.8 and 1, which is in the high-level coupling stage. Based on this, we further explore the coordination relationship between the systems and calculate the coupling coordination between the two systems (see Table 7). In addition, to observe regional differences in the coupling coordination degree among

provinces from a more intuitive spatial perspective, QGIS 3.28 is used to display changes in the coupling coordination degree in 2013 and 2017 (see Figure 5).



(a)



(b)

Figure 4. Level of comprehensive development of tourism in each province in 2013 and 2017; (a,b).

Table 7. Stage of coordination between Beautiful China and tourism systems by province, 2013 and 2017.

Coupling Coordination Degree	2013	Coupling Coordination Degree	2017
Intermediate coordination	Beijing, Jiangsu, Zhejiang, Guangdong	Intermediate coordination	Beijing, Zhejiang, Guangdong
Primary coordination	Shanghai, Shandong	Primary coordination	Shanghai, Shandong, Jiangsu, Sichuan
Reluctant coordination	Hebei, Shanxi, Liaoning, Anhui, Fujian, Henan, Hubei, Hunan, Chongqing, Sichuan, Yunnan, Shaanxi	Reluctant coordination	Hebei, Shanxi, Liaoning, Anhui, Fujian, Jiangxi, Henan, Hubei, Hunan, Guangxi, Guizhou, Yunnan, Shaanxi
Borderline disharmony	Tianjin, Inner Mongolia, Jilin, Heilongjiang, Jiangxi, Guangxi, Hainan, Guizhou, Xinjiang	Borderline disharmony	Tianjin, Inner Mongolia, Jilin, Heilongjiang, Hainan, Chongqing, Gansu, Xinjiang
Mild disharmony	Gansu, Ningxia	Mild disharmony	Tibet, Qinghai
Moderate disharmony	Tibet, Qinghai	Moderate disharmony	Ningxia

As shown in Figure 5, there are obvious regional differences in the coordination degree of coupling between Beautiful China and the tourism industry system in all provinces and regions of the country. On the whole, the coordination degree is from the intermediate level to the intermediate level. Among the 10 levels of the coordination degree of the coupling degree of the coordination degree, there are 6 levels, showing a decreasing trend from east to west. The relationship between the eastern and central areas is mainly coordinated, and the relationship between the northeastern and western areas is mostly in an imbalanced stage. Among them, the eastern provinces are at a higher level of development of tourism; the two systems present a higher level of coupling and coordination and the two systems are at a benign resonance stage. In the eastern region, the economy is more developed compared to other regions of the country, the overall social development level is higher, and the population is dense, which provides a good condition for the development of tourism. The tourism industry is more mature, and the two systems are closely linked, forming a positive relationship of mutual promotion and coordinated development. In addition, most of the two systems in the central region are in the stage of middling coordination, and the level of beauty and tourism development is at a medium level, and the relationship between the two is in the stage of coordination.

Overall, the coupling coordination degree in the eastern region is at a relatively high level and has remained stable in the past five years; the coupling coordination degree in the central region is at a medium level and has risen slightly in the past five years but has not significantly progressed overall; the coupling coordination degree in the western and northeastern regions is relatively low, among which the coupling coordination degree in the northeastern regions has changed little in the past five years; the coupling coordination relationship between the two major systems is at a low level and stable; the coupling coordination degree in the western regions has been greatly improved; the coupling coordination degree in most provinces has been improved by leaps and bounds; and the coupling coordination degree between Beautiful China and tourism systems has been continuously strengthened but is still in a relatively backwards stage.

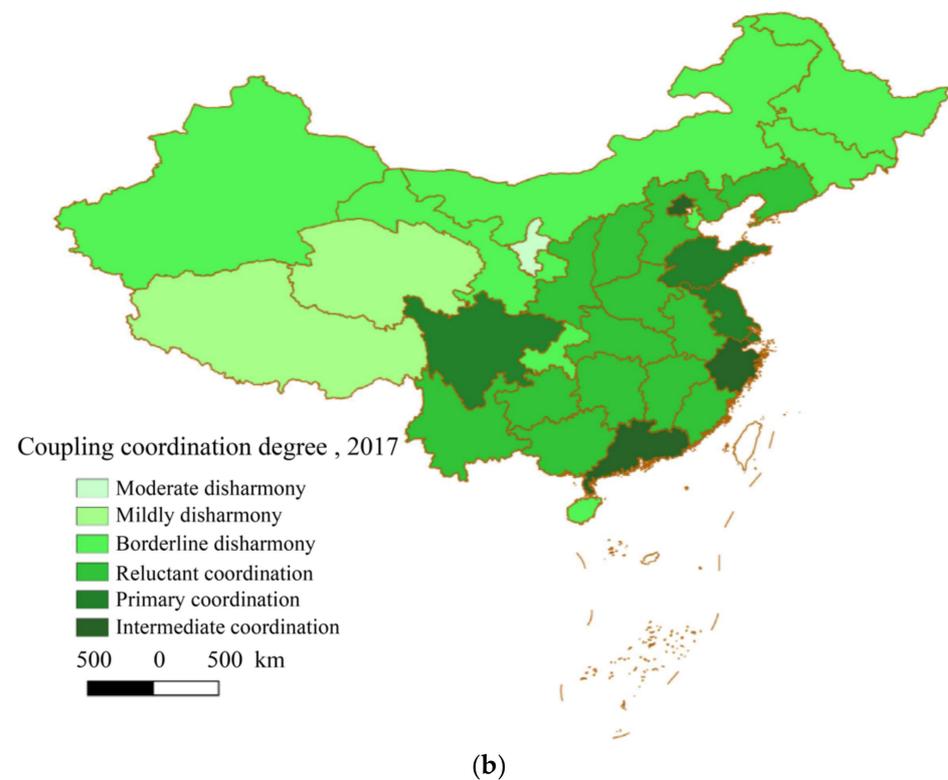
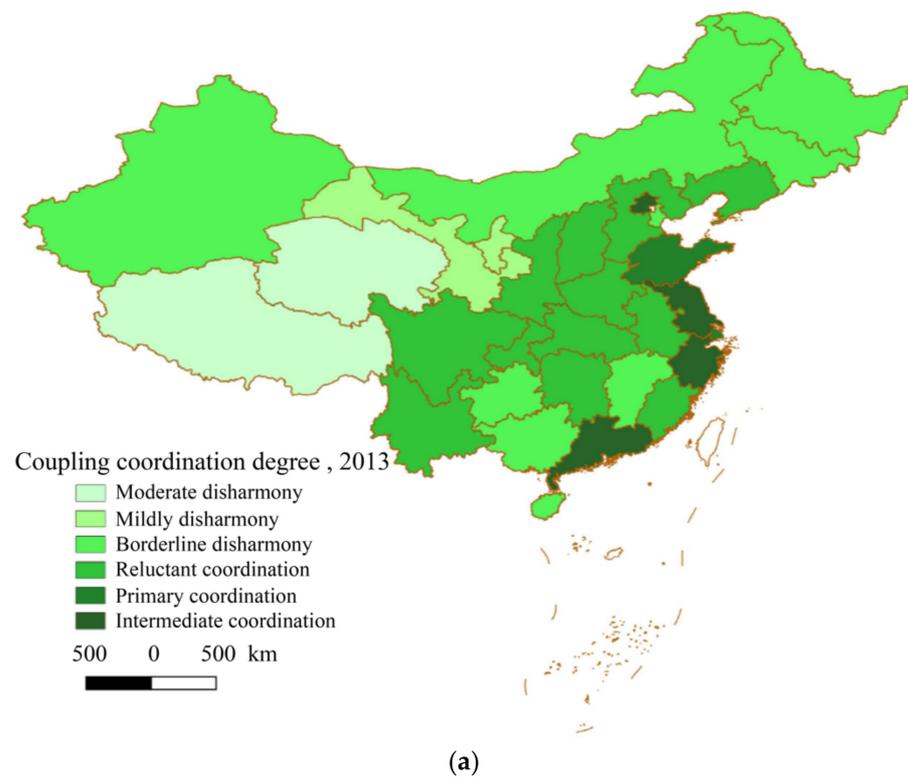


Figure 5. Coupling coordination between the two systems in 2013 and 2017; (a,b).

5.3.2. Research on the Five-Sphere Integrated Plan Subsystem and Tourism Coupling Coordination Degree

Based on the calculation results, the indices of the Five-sphere Integrated Plan of Beautiful China and the mean value of the Coordination Degree of Tourism Coupling are compared. Figure 6 shows the mean value of the coordination degree of the Beautiful

China subsystem. It can be seen that the tourism coupling coordination degree changed from ecology > society > politics > culture > economy in 2013 to society > ecology > politics > culture > economy in 2017. The coordination degree between subsystem and tourism coupling has improved.

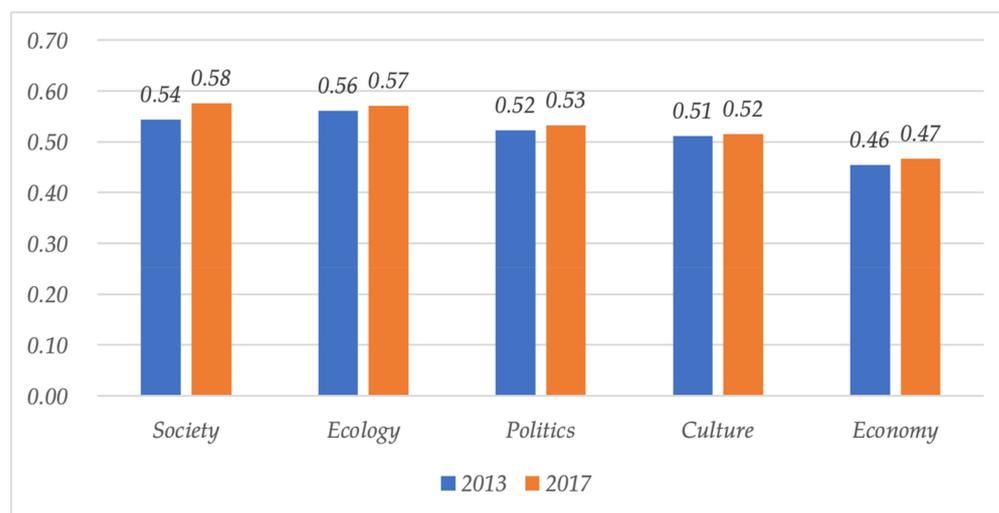


Figure 6. Comparison of mean value of coordination degree between the Beautiful China subsystem and tourism industry in 2013 and 2017.

Beautiful China's Five-sphere Integrated Plan index and the tourism industry of the coupling degree of coordination average ranking reflect Beautiful China and the tourism industry in the coupling degree of coordination. The coupling and coordination of society and tourism rank first, fully illustrating that tourism, as a prominent function of the happiness industry, contributes to a harmonious society. At present, with high-quality development in China, satisfying the people's needs for a better life is the basis for vigorous development of tourism. The coupling and coordination of ecology and tourism ranked second, reflecting the dual functions of ecology as both the environment and the resource of tourism. The coupling and coordination of politics and tourism ranks third, providing a safe and stable environment for tourism. Culture is the soul of tourism development and the embodiment of soft power, but the display of culture has certain difficulties and processes, and it is also necessary to enhance the role of culture in the integrated development of culture and tourism. The coupling and coordination of economy and tourism ranked last because, on the one hand, the coupling and coordination between economy and tourism needs to be objectively understood. In the past, too much emphasis was attached to the national economy, which led to some misunderstandings: without a strong economy, tourism cannot be developed. However, we can see from a large number of cases in which rural areas have been lifted out of poverty that there is no need for a greater economic contribution, because the original local folk customs are the best scenery and the best tourist attraction. On the one hand, tourism can be successfully developed and meet the needs of local people's livelihood. Tourism also provides a large number of opportunities for visits to developed areas, though there are not a large number of public parks. On the other hand, in the past few years of development, China has overemphasized the economic contribution of tourism, which has led to excessive investment in tourism in many areas and has partially contributed to operating activities such as an inflated ticket economy or ripping off tourists, resulting in many contradictions in tourism and social development. Therefore, it is not difficult to find that more attention should be given to the social, ecological and cultural functions of tourism. Tourism is both a profit-making and a public welfare industry.

5.3.3. Cluster Analysis of Coupling Compatibility

In view of the coupling coordination relationship between the Beautiful China system as a whole and the Five-sphere Integrated Plan subsystems and tourism, further cluster analysis is performed on the coupling coordination degree between the Beautiful China system and tourism. In this study, the three elements of beauty level, tourism development level and coupling coordination level of two major systems are linked together to comprehensively present the coupling and coordination development of provincial Beautiful China and tourism.

According to the classification standards, in light of the actual situation of all provinces in China, and considering the balance of the region and the reality of development, the three elements are divided into three levels: high, medium and low. Among them, the criteria for dividing “beauty degree” and tourism development level are: the high-quality and good development stage is high level, the intermediate development stage is medium level, the lagging development/primary development stage is low level. The criteria for dividing the coupling coordination degree are: the primary coordination/intermediate coordination stage is high level, the bare coordination stage is medium level, the moderate imbalance/near disorder stage is low level, the high and medium levels are the coordination stage, and the low level is the disorder stage. The situation of coupling and coordinated development of all provinces and regions according to the level of beauty—tourism development level—and the arrangement of the two coupling coordination stages is shown in Table 8.

Table 8. Coordinated development of Beautiful China and tourism systems by province, 2013 and 2017.

Coordinated Development of Coupling		2013	Coordinated Development of Coupling		2017
High-level coupling coordination	High-high-high	Beijing, Shanghai, Jiangsu, Zhejiang, Guangdong	High-level coupling coordination	High-high-high	Beijing, Shanghai, Jiangsu, Zhejiang, Shandong, Guangdong
	Mid-high-high	Shandong		Mid-high-high	/
	Mid-Mid-High	/		Mid-Mid-High	Sichuan
Medium-level coupling coordination	Mid-High-Mid	Fujian, Liaoning	Medium-level coupling coordination	Mid-High-Mid	Fujian
	Mid-Mid-Mid	Hubei		Mid-Mid-Mid	Liaoning, Hubei, Shaanxi
	Mid-Low-Mid	Chongqing, Shaanxi		Mid-Low-Mid	/
	Low-high-Mid	/		Low-high-Mid	Yunnan
	Low-Mid-Mid	Anhui, Hunan, Sichuan, Yunnan		Low-Mid-Mid	Anhui, Jiangxi, Hunan, Guizhou, Guangxi
Low-level coupling coordination	Low-Low-Mid	Hebei, Henan, Shanxi	Low-level coupling coordination	Low-Low-Mid	Hebei, Shanxi, Henan
	High-Low-Low	Tianjin		High-Low-Low	/
	Mid-Low-Low	/		Mid-Low-Low	Tianjin
Low-level coupling coordination	Low-Low-Low	Inner Mongolia, Jilin, Heilongjiang, Jiangxi, Guangxi, Hainan, Guizhou, Tibet, Gansu, Qinghai, Ningxia, Xinjiang	Low-level coupling coordination	Low-Low-Low	Inner Mongolia, Jilin, Heilongjiang, Hainan, Chongqing, Tibet, Gansu, Qinghai, Ningxia, Xinjiang

1. Difference in the spatial distribution characteristics of the coupling coordination degree
First, the high-level coupling coordination type is characterized by double high driving, high coordination, medium high driving and high coordination. Specifically, a high level

of beauty and tourism development drives the two systems to achieve a high level of coupling coordination. The two systems achieve balanced and high-quality development and promote the coupling coordination degree to reach a high level. A medium level of beauty and a high level of tourism development can drive provinces to achieve a high level of coordination between the two systems. Individual provinces at the middle level of beauty and tourism development can also drive provinces to achieve a high level of coordination between the two systems.

Second, the moderate level of the coordinated type of coupling shows the characteristics of diversification and differentiation. Specifically, first, there are great differences in the development level of “beauty degree” and tourism between the provinces where the coupling coordination degree is in the middle. The provinces with moderate coupling coordination degrees are mainly located in Central China, and some provinces are located in Western China. There is a large gap between the “beauty degree” and the tourism development level within the provinces; the “beauty degree” is at the medium and low levels. The comprehensive development strength is relatively weak. The tourism development level crosses the high, medium and low stages, and the gap is large. Second, the development of the two systems in some provinces is imbalanced, and there is a large gap between them, which leads to moderate coupling and coordinated development. These provinces include Fujian, Liaoning, Chongqing, Shaanxi and other provinces. Third, the middle-level and low-level balanced development of provincial “beauty degree” and tourism, such as Hubei and Liaoning, promotes the two systems to keep the middle level.

Third, the type of maladjustment most responds to two-wheel drive fatigue. Specifically, contrary to the high-level coupling type of a two-wheel drive, the maladjusted type of most provinces’ “beauty degree” and tourism development are at a low level, with two-wheel drive fatigue. Looking at the provincial cities, this is especially obvious in the western and northeastern regions. Their beauty level and tourism development level are lagging behind and cannot give play to the positive interaction between the two systems.

2. Differences in time variation characteristics

First, from 2013 to 2017, the coordinated development of the coupling between Beautiful China and the tourism system in all provinces fluctuated. The “three high” types continue to lead the country, and the characteristics of sustainable development are obvious. Beauty and tourism have achieved a high level of development in the province and have also maintained a high level of coupling and coordination, leading to the quality of development and provincial sustainable development characteristics. For example, the five provinces of Beijing, Shanghai, Jiangsu, Zhejiang and Guangdong have maintained their advantages in development, and the level of beauty and tourism development has been in a leading position in the country. The two systems are at the primary or intermediate level of coupling and coordination, and the two systems have achieved better mutual promotion and coordinated development, with the two developing towards higher quality and sustainable development.

Second, some provinces promote the upgrading of the coupling coordination degree mainly by a single core drive. The development of the coupling and coordination between Beautiful China and the tourism system in some provinces presents the characteristics of single-core driving, among which Sichuan presents the characteristics of Beautiful China driving, and Jiangxi, Guangxi and Guizhou present the characteristics of tourism driving. The promotion of a single system promotes the relationship between the two systems and promotes coupling and coordination between the two systems to allow them to develop in a coordinated and benign way.

Finally, the coupling coordination degree is degraded due to some provincial single-core obstructions. Only a few provinces have the characteristics of mononuclear disorder. For example, Chongqing is characterized by the hindrance of the Beautiful China system. The development level of the tourism industry remains unchanged, and the level of beauty has dropped from medium to low, with a decline of the beauty level reflecting a hindrance related to the coupling and coordination relationship between the two systems.

6. Discussion

6.1. Research Innovation

In recent years, in the upsurge of global regional sustainable development, tourism is regarded as one of the advantageous industries to promote regional sustainable development [4–6,56]. This paper explores the case of sustainable regional development in China by measuring the level of development and the coupling and coordination relationship between the two systems of the Beautiful China construction and tourism development. First, according to the literature combining the strategy of the five elements of Beautiful China, the evaluation index system of the degree of beauty of Beautiful China is constructed, including 37 indicators in five dimensions (economic, social, political, cultural and ecological civilization), and 17 index systems in four dimensions of tourism (resources carrier, tourism industry support, tourism market demand and tourism industry effect). The selection of indicators takes into account the systematization and availability of core elements and statistical data in all aspects of regional and tourism development, and draws on existing indicators at home and abroad. The entropy method was used to measure the evaluation indicators, providing a more comprehensive assessment of the development of Beautiful China construction and tourism. The index system utilized in this study provides a better representation of the relationship between the two systems, enabling us to explore their relationship and make informed conclusions.

Unlike previous studies on regional sustainable development, this paper makes the following three innovations. First, this study presents a Chinese case for regional sustainable development, taking the construction of Beautiful China as an example. Based on the evaluation index system of the degree of beauty of Beautiful China and the weights measured by the objective entropy method, it is found that the economy always occupies the most important “leading” position in the construction of Beautiful China, which is the “hard power” in the construction of Beautiful China. At the same time, culture ranks second; it represents “soft power”. Most previous studies have only emphasized the “hard power” status of the economy, and the research results on the economic effect, foreign-exchange earning effect and multiplier effect of regional tourism development have been fruitful [20,22,28,29]. For example, Kim [22] explored the important factors in the choice of outbound tourism destinations for mainland Chinese residents through multidimensional scale analysis and alternating least squares. Other empirical studies have been conducted in several places around the world, including Malaysia, Spain and Latin America [28,29], all of which have shown that tourism has significant incremental effects on regional economic development. It can be seen that most of the previous studies have neglected the “soft power” effect of culture. This study further proposes that in the process of regional sustainable development, we should pay attention to the two-wheel driving role of “hard power” and “soft power”. The weighting coefficient of tourism market demand in the tourism index is consistently higher than in all other indicators, indicating a more significant market orientation of tourism.

Further, research on the coupling and coordination relationship between Beautiful China and tourism found that society and ecology are at the forefront. According to the concept of regional sustainable development, the coupling and coordination relationship between the Beautiful China subsystem and tourism should fully balance the relationship between society and nature. Most of the previous studies and business practices only emphasize the income and multiplier effects of tourism, leading to negative effects such as over-investment and commercialization [26,27,29]. As a low-profit industry or even a part of the public welfare industry, the economic function of tourism should be re-understood objectively and rationally.

Finally, by clustering and analyzing the coupled and coordinated development of the Beautiful China and tourism systems, the study found that the double-high pattern of the two systems is conducive to the stable development of the system, while the unbalanced development of the two systems has the coupled coordination at a medium-low level and widens the gap. This study clarifies that the coupling and coordination of the two systems

not only needs to improve the development level of the two systems, but also needs to promote the coordinated development and benign resonance between them to achieve sustainable development.

6.2. Suggestions to Improve the Coupling and Coordinated Development of the Two Systems of Beautiful China and Tourism

First, regional sustainable development should consider local conditions to achieve comprehensive and balanced sustainable development. On the one hand, for the eastern regions with a high level of Beautiful China construction, it is necessary to fully coordinate the shortcomings of the available resources in the region. On the other hand, for the central, western and northeastern provinces with a low level of Beautiful China construction, it is necessary to fully learn from the mature experience of the provinces with a high level of beauty and formulate strategies according to their own development needs, such as the “One Belt, One Road” strategy, which should be used to achieve coordinated development in the central and western regions, and the “Rise of Central China” strategy which should be used to promote the rapid development of the central provinces.

Second, all provinces in China should fully tap the advantages of their own tourism resources, formulate tourism development strategies in line with local characteristics, and achieve high-quality development of tourism. Specifically, all regions should give full play to the role of society and ecology in tourism development, improve various infrastructure services, vigorously develop a green and environmentally friendly tourism industry, and protect and enhance the local ecological environment. In addition, the role of politics and culture in tourism development should be enhanced, relevant institutional policies should be improved, a sound tourism management system should be established, local characteristics and culture should be fully explored, and the deep integration of culture and tourism should be realized. In addition, they should actively benefit from the outcomes of economic development in the tourism business, promote the development of tourism products and resources, and broaden the tourism consumption market.

Third, in the context of sustainable regional development, the role of coordination between regional development and tourism development should be fully considered. While considering the differences of various regions, combined with the guidance of policies, the authorities should strengthen intraregional linkage and narrow the development gap between regions, so as to achieve the level of coupling and coordinated development between regions in an all-round way. As China is the world’s largest developing country, the findings of this study are intended to provide practical experience for the sustainable development of tourism in other developing countries and even in various countries and regions around the world.

6.3. Limitations and Future Work

The construction of the beauty evaluation index system is limited by the lack of political index statistics. However, as more authoritative and feasible methods are developed and index statistics improve, the evaluation index system can be further refined. The research time span is relatively short, and to gain a more complete understanding of the development level of the two systems and the evolution of their coupling and coordination relationship, it may be beneficial to extend the research timespan in the future. While this paper studies the coupling and coordination relationship between the two systems, it does not explore the coupling and coordination relationship between the indicators within the systems. Future research could consider investigating the coupling and coordination relationship between the indicators within the Beautiful China and tourism systems.

7. Conclusions

Against the backdrop of global sustainable development and high-quality tourism development, this paper constructs a “beauty degree” and tourism evaluation index system for Beautiful China. Using the entropy method, it measures the level of construction and

tourism development of Beautiful China, studies the coupling coordination relationship between the two systems through the coupling coordination model, and arrives at the following conclusions.

Firstly, the construction of Beautiful China exhibits a decreasing trend from east to west. The weights of each index for Beautiful China's construction are economy, culture, society, ecology, and politics, reflecting the significant role of economic "hard power" and cultural "soft power". The overall level of China's tourism industry declines from southeast to northwest. The internal weights of the tourism industry are ranked as follows: tourism market demand, tourism industry effect, tourism industry support, and tourism resource carrier, with the tourism market demand playing the most significant role.

Secondly, the research on the coupling degree between Beautiful China and the tourism system as a whole show that from 2013 to 2017, the coupling coordination degree of major systems and tourism in all provinces and regions displayed a decreasing trend from east to west, with the coupling coordination degree of the two major systems in the western region maintaining a greater improvement while the other regions saw slight changes. Investigating the coupling coordination degree of the Beautiful China subsystem and the tourism industry, it was found that in 2017, the average level of the coupling coordination degree of the Beautiful China subsystem and the tourism industry could be ranked: society, ecology, politics, culture, and economy. The tourism industry's social benefits are remarkable, and its function as a happiness industry is outstanding.

Thirdly, from the perspective of spatial distribution, high-level coupling coordination showed double-high drive high coordination and medium-high drive high coordination characteristics, medium-level coupling coordination showed differentiated characteristics, and most of the offset types reacted to weak two-wheel drive. From the perspective of time changes, in the period of 2013 to 2017, the coupling and coordinated development of Beautiful China and the tourism system in all provinces showed a certain fluctuation dynamic, which was reflected in the characteristics of the "three highs" continuing to lead the country, single-core driving to promote upgrading, and single-core obstruction leading to downgrading.

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