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Research Article

Coupling and Coordination of the Regional Economy, Tourism Industry, and Exhibition Industry of China's Provinces

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There is a close correlation between regional economy, tourism, and exhibition industry. By constructing a system of evaluation indicators for the regional economy, tourism industry, and exhibition industry, the coupled coordination degree model was used to calculate the degree of synergy of the regional economy, tourism industry, and exhibition industry in China from 2013 to 2019. In addition, the influencing factors of the degree of synergy were analyzed by gray correlation analysis. As shown by the results, the comprehensive development scores of regional economy, tourism industry, and exhibition industry show an overall growth trend, while the development level index presents a spatial distribution pattern of decreasing gradient from coastal area to inland in space. Apart from that, the integration and development of regional economy, tourism industry, and exhibition industry show a continuous coordinated and benign development. On a national scale, the degree of integration of the regional economy-tourism industry-exhibition industry in China has gradually developed and improved from bare coordination to good coordination. Besides, the degree of coupling and coordination of regional economy-tourism-exhibition industry varies greatly among provinces. Moreover, all the indexes have a strong impact on the coupling and coordination degree of the regional economy-tourism industry-exhibition industry. Compared with the exhibition industry system, the economic system and tourism system have a stronger impact on the coupling and coordination degree of the regional economy-tourism industry-exhibition industry.

1. Introduction

Regional economy is not only the foundation and prerequisite for the development of tourism and exhibition industry but also the guarantee for the development of the other two industries [1, 2]. The tourism industry, as a comprehensive industry, involves several industries and sectors and exerts a pulling effect on economic development [3, 4]. At present, the exhibition industry is gradually developing into a hot spot that drives regional and global economic development [5]. This paper has discussed the coupling and coordination of the economy, tourism, and exhibition industry, the purpose of which is to promote the synergistic development of them, so that the structure of the economy, tourism, and exhibition system can be more reasonable and powerful, and the effect of "$1 + 1 > 2$" can be achieved to better promote economic growth.

The current research focuses on the relationship between them. Firstly, the relationship between the economy and tourism is focused [1, 6, 7]. Some researchers found that tourism development has a significantly positive impact on economic growth in China [7]. By using a coupling and coordination model, some scholars studied the coordination between the economy and tourism, and demonstrated a significant interaction between the two [1, 6]. Secondly, the relationship between the economy and exhibition industry is focused [8, 9]. Dwyer et al. measured the impact of exhibition activities on the economy of the place where they were held, and found that the exhibition activities could positively affect the regional economy [8]. As pointed out by Luo, the exhibition industry can promote the development of the economy through spatial econometric analysis [9]. Thirdly, the relationship between tourism and the exhibition industry is focused [10]. Yin and Yang studied the coordination relationship between tourism and exhibition industry

using the coupling and coordination model. Then, the results proved that there is a significant coupling relationship between them [10]. In summary, fewer studies have been conducted to investigate the coupling relationship between regional economy, tourism, and exhibition industry for quantitative analysis. The contributions of this study are as follows: (1) first, this paper integrates the coupling and coordination model to analyze the coupling relationship between economy, tourism, and exhibition industry in 29 provinces in China and explore the characteristics of their spatial evolution patterns. (2) Second, the method of gray correlation is used to analyze the factors that affect the coupling coordination degree.

2. Data and Methods

2.1. Index Construction. Indictors of regional economy are based on Ref. [2, 11–14], indicators of tourism industry are based on Ref. [15–18], and indicators of the exhibition industry are based on Ref. [19, 20]. Besides, the development level of the regional economy is measured from the perspectives of economic quality, economic structure, and economic sustainability. Additionally, economic quality is measured by two indexes of GDP per capita and per capita disposable income. Meanwhile, the economic structure is measured by two perspectives of industry scale and industry efficiency, and economic sustainability is measured by two indexes of fiscal revenue and GDP growth rate. Apart from that, the development level of the exhibition and tourism industry is measured from two perspectives of industry scale and industry efficiency. What's more, the scale of the tourism industry is measured by two indexes of domestic tourist income and international tourist income. Furthermore, the effect of the tourism industry is measured by three indexes of the number of travel agencies, the number of A-grade scenic spots, and the number of starred hotels. The scale of the exhibition industry is measured by the number of exhibitions and the exhibition area. At the same time, the efficiency of exhibition industry is measured by two indexes: the number of professional exhibitions and the area of professional exhibition halls (see the index system in 1).

2.2. Research Methods and Measurement Models

2.2.1. Entropy Evaluation Method. The entropy evaluation method is a comprehensive evaluation method that objectively assigns weights to each index by analyzing the degree of correlation between indexes and the amount of information provided based on the original information of the objective environment. To a certain extent, it can reduce the bias caused by the subjective method and improve the scientificity of the evaluation results [21]. In order to avoid the impact of different dimensions on the calculation results, the data of the evaluation indexes of the regional economy-tourism industry-exhibition industry system are nondimensional by using the range standardization method before the use of the entropy evaluation weight method. Beyond that, the calculation formula can be expressed as follows.

2.2.2. Comprehensive Development Index. The integrated evaluation function of the regional economic-tourism industry-exhibition system is specified by

$$\mathrm{Xi} = \sum_{i=1}^{n} w_i x_i^*, \mathrm{i} = 1, 2, 3. \tag{1}$$

2.2.3. Coupling and Coordination Degree Model. Although the coupling degree index C indicates the tightness of the coupling of the three systems, it cannot reflect the actual interaction and coordination degree of the three systems. Therefore, the coupling and coordination degree index D should be introduced to measure the degree of interaction of the three systems. To be specific, the regional economy-tourism industry-exhibition industry system coupling model has been constructed with the following formula:

$$T = \alpha u_1 + \beta u_2 + \lambda u_3, \tag{2}$$

$$D = \sqrt{C \cdot T}. \tag{3}$$

Here, D represents the coupling and coordination index, which indicates the degree of coordination and interaction of the systems. In addition, T represents the comprehensive evaluation index of the three systems, which reflects the overall effectiveness of the three systems. Apart from that, α, β, and γ represent the weights to be determined, $\alpha + \beta + \gamma = 1$. It is generally considered that the three systems are equally important. Thus, the values of α, β, and γ are the same, and all values are taken as 1/3 in this paper [22]. In this research, the "ten-point method" evaluation grade of coupling coordination degree is adopted [23].

2.3. Gray Correlation Model. Gray correlation analysis, as a part of gray system theory, is effective in analyzing the degree of association of various factors of a system. It has been applied in multiple fields of disciplinary research and is widely adopted by scholars. Indeed, the gray correlation analysis method is not affected by the number of samples or the regularity of the samples. The basic idea is to judge whether the connection is as close as possible based on the similarity of the geometric shape of the sequence curves. Generally speaking, the closer the curves are, the greater the correlation between the corresponding sequences, and vice versa. Therefore, this method can be used to measure the relative importance of the impact of each factor on the coordination degree of the system, so as to guide the determination of the relative key influencing factors [24]. In this paper, this method is used to analyze the degree of impact of each index in the regional economy-tourism industry-exhibition industry coordination evaluation index system on the coupling and coordination degree. Beyond that, the correlation value reflects the extent to which the change in coordination is influenced by a factor. The calculation process of gray correlation mainly consists of three steps: initialization of the original data, calculation of the absolute difference between the comparison series and the

reference series, calculation of the gray correlation degree, and the ranking of the correlation order:

(1) Initialization of original data

Given that there are some differences in the meaning, content, and value criteria of each index, the data tend to have different scales, which are not favorable to uniform comparison. In order to make it comparable, the application of the gray correlation method generally requires the nondimensional processing of the data as well as the elimination of the individual valid factors of each datum. In that way, it is a standardized order of magnitude nondimensional data under a unified measurement scale, to facilitate the comparative analysis of each index. Therefore, the influencing factor data and the reference sequence need to be nondimensionalized prior to the subsequent analysis. In this paper, the data are normalized through the equalization process.

$$x_i'(k) = \frac{x_i(k)}{\overline{x_i}}. \tag{4}$$

(2) Calculation of the absolute difference between the comparison sequence and the reference sequence.

$$\Delta_i(k) = \left|x_0'(k) - x_i'(k)\right|. \tag{5}$$

The comparison sequence is a sequence of data consisting of factors that influence the behavior of the system, which is constructed using the values taken from the evaluation indexes of each evaluated object.

(3) Gray coefficient and gray correlation degree of the index system

The gray correlation coefficient refers to the expression of correlation in gray theory. In essence, correlation denotes the degree of difference in geometry between the curves. Therefore, the size of the difference between the curves can be adopted as the dimension to measure the degree of correlation. In the gray correlation analysis method, the correlation coefficient refers to the geometric distance between the reference sequence and the comparison sequence at each point in time. The larger the value is, the greater the degree of correlation between the two index series on the corresponding indexes. Its calculation formula can be expressed as follows:

$$\gamma\left(x_0(k), x_i(k)\right) = \frac{\min_j \min_k \Delta_i(k)\xi + \min_j \min_k}{\Delta_i(k) + \xi \min_j \min_k \Delta_i(k)}. \tag{6}$$

Among them, D represents a constant, which is usually taken as 0.5 and is 0.5 in this paper.

Since the correlation coefficient is the degree of correlation between the reference sequence and the comparison sequence, as well as the degree of correlation at different points in time, there is more than one correlation coefficient and the distribution is scattered. Thus, making a uniform comparison is impossible. The gray correlation degree is the value obtained by pooling these correlation coefficients via certain methods, which can reflect the degree of correlation between the reference sequence and other indexes in general. In general, the larger the value of gray correlation degree, the stronger the correlation.

The formula for calculating the comprehensive gray correlation degree can be expressed as follows:

$$\gamma\left(x_0, x_i\right) = \frac{1}{n}\sum_{k=1}^{n} \gamma\left(x_0(k), x_i(k)\right). \tag{7}$$

2.4. Data Sources. The data used in this paper include both socio-economic statistics and basic geographic map data. Specifically, 29 provinces (districts and cities) in 2013 are selected as the benchmark, in which Tianjing, Tibet, Taiwan Province, Hong Kong Special Administrative Region, and Macao Special Administrative Region are excluded. In addition, Tibet and Tianjin are not included due to missing data. Apart from that, the data of GDP per capita, per capita disposable income, the proportion of the secondary industry, the proportion of the tertiary industry, fiscal revenue, and GDP growth rate of each place are obtained from *China Statistical Yearbook* and CSMAR from 2013 to 2019. Moreover, the data on domestic tourist revenue, international tourist revenue, number of travel agencies, number of A-grade scenic spots, and number of starred hotels are mainly acquired from *China Tourism Statistical Yearbook* from 2013 to 2019. In addition, the data on the number of exhibitions, exhibition area, number of professional exhibition venues, and area of professional exhibition venues are mainly obtained from the *China Exhibition Data Statistical Report* from 2013 to 2019 (Table 1).

2.5. Analysis of the Results

2.5.1. Analysis of the Comprehensive Development Level Measurement of Regional Economy, Tourism Industry, and Exhibition Industry. The regional economic development level indexes in 2013, 2015, 2017, and 2019 are divided into five levels of low, relatively low, medium, relatively high, and high by the natural break method of ArcGIS software and then spatially visualized (Figure 1). Obviously, the development pattern of the four periods does not change greatly, and the development pattern as a whole presents a spatial distribution pattern of decreasing gradient from the coast to the inland. As shown in Figure 1, in six years, a province upgrades, and Hubei rises from medium to relatively high. Besides, 8 provinces downgrade. Shaanxi and Chongqing decrease from relatively high to medium; Inner Mongolia and Liaoning decrease from higher to relatively low; Qinghai, Sichuan, and Yunnan reduce from medium to relatively low; and Gansu and Jilin decrease from relatively low to low. Additionally, Shanghai, Beijing, Jiangsu, Zhejiang, and Guangdong do not change and remain high, and Xinjiang and Heilongjiang are low without changes.

Table 1: The index system.

Subsystem	Primary indexes	Secondary indexes
Regional economy	Economic quality	GDP per capita
		Per capita disposable income
	Economic structure	The proportion of secondary industry
		The proportion of tertiary industry
	Economic sustainability	Fiscal revenue
		GDP growth rate
Tourism industry	Industry scale	Number of travel agencies
		Number of A-grade scenic spots
		Number of starred hotels
	Industry efficiency	Domestic tourist income
		International tourist income
Exhibition industry	Industry scale	Number of exhibitions
		Exhibition area
	Industry efficiency	Number of professional venues
		Area of professional venues

The tourism development level indexes in 2013, 2015, 2017, and 2019 are divided into five grades, low, relatively low, medium, relatively high, and high by the natural break method of ArcGIS software, and then visualized spatially (Figure 2). It is obvious that six provinces have increased in rank over the last six years, Qinghai from low to high, Sichuan and Yunnan from medium to relatively high, Guangxi from relatively low to relatively high, and Guizhou and Jiangxi from relatively low to medium. However, one province is downgraded, with Liaoning declining from relatively high to medium. Other provinces are more stable, and the eastern coastal provinces of Shandong, Jiangsu, Zhejiang, and Guangdong have been in the high value area. Nonetheless, Gansu, Xinjiang, Heilongjiang, and Jilin have been in the low level, which are poorly located and far away from the main customer markets.

The development level indexes of the exhibition industry in 2013, 2015, 2017, and 2019 are divided into 5 levels, low, relatively low, medium, relatively high, and high by the natural break method of ArcGIS software, and then visualized spatially (Figure 3). Obviously, 5 provinces are upgraded in 6 years, with Henan from medium to relatively high, Hubei and Hunan from relatively low to medium, Yunnan from low to medium, and Jiangxi from low to relatively low. In addition, 2 provinces are downgraded, with Beijing from relatively high to medium and Shaanxi from medium to relatively low. Furthermore, Shandong, Jiangsu, Guangdong, and Shanghai have been in the highest grade without changes, with more frequent economic activities in these areas and more stable development of the exhibition industry. Apart from that, Gansu, Xinjiang, and Qinghai have been in the lowest grade, with inactive economic activities and underdeveloped exhibition industry development.

2.6. General Dynamics of the Coupling and Coordination of Regional Economy-Tourism Industry-Exhibition Industry. This study measures the level of coupling and coordination development of the national economy, tourism industry, and exhibition industry from 2013 to 2019 (see the specific results in Table 2 and Figure 4). The coupling and coordination degree of China's economy, tourism industry, and exhibition industry has changed significantly from 2013 to 2019 (from 0.508 in 2014 to 0.850 in 2019). The coordination level of the economy, tourism industry, and exhibition industry tends to be benign, and the degree of coordinated development is gradually improved.

In order to better analyze the spatially differentiated characteristics of the coupling and coordination degree, this paper studies the coupling and coordination degree of the levels of the regional economy, tourism industry, and exhibition industry in 2013, 2015, 2017, and 2019, respectively. In 2013, in the eastern region, Guangdong has the highest coupling and coordination degree, reaching the intermediate coordination stage. Beyond that, Shandong, Zhejiang, and Jiangsu are at the initial coordination stage. Liaoning in the Northeast is at the bare coordination stage, while Heilongjiang and Jilin are at the mild imbalance stage. At the same time, Anhui, Henan, and Hubei in the central region are on the verge of the imbalance stage, while Shanxi, Hunan, and Jiangxi are at the mild imbalance stage. Most western provinces such as Guizhou, Guangxi, Yunnan, Shaanxi, and Inner Mongolia are at the stage of mild imbalance stage. Xinjiang and Gansu are at mild imbalance stage. Besides, Qinghai and Ningxia are at a severe imbalance stage.

Guangdong in the eastern region still has the highest level of coordination in 2019, developing from the intermediate coordination to the good coordination stage. Compared with 2013, Shandong, Zhejiang, and Jiangsu reach to the next level, developing from the initial coordination stage to the intermediate coordination stage. After six years of development, Shanghai and Beijing have developed from bare coordination stage to the initial coordination stage. Anhui and Henan in the central region progress from on the verge of imbalance to bare coordination. Apart from that, Jiangxi and Hunan develop from mild imbalance to on the verge of imbalance. It is noteworthy that Liaoning, Jilin, and Heilongjiang in the Northeast region have no change in the coupling and coordination stage, which is more directly

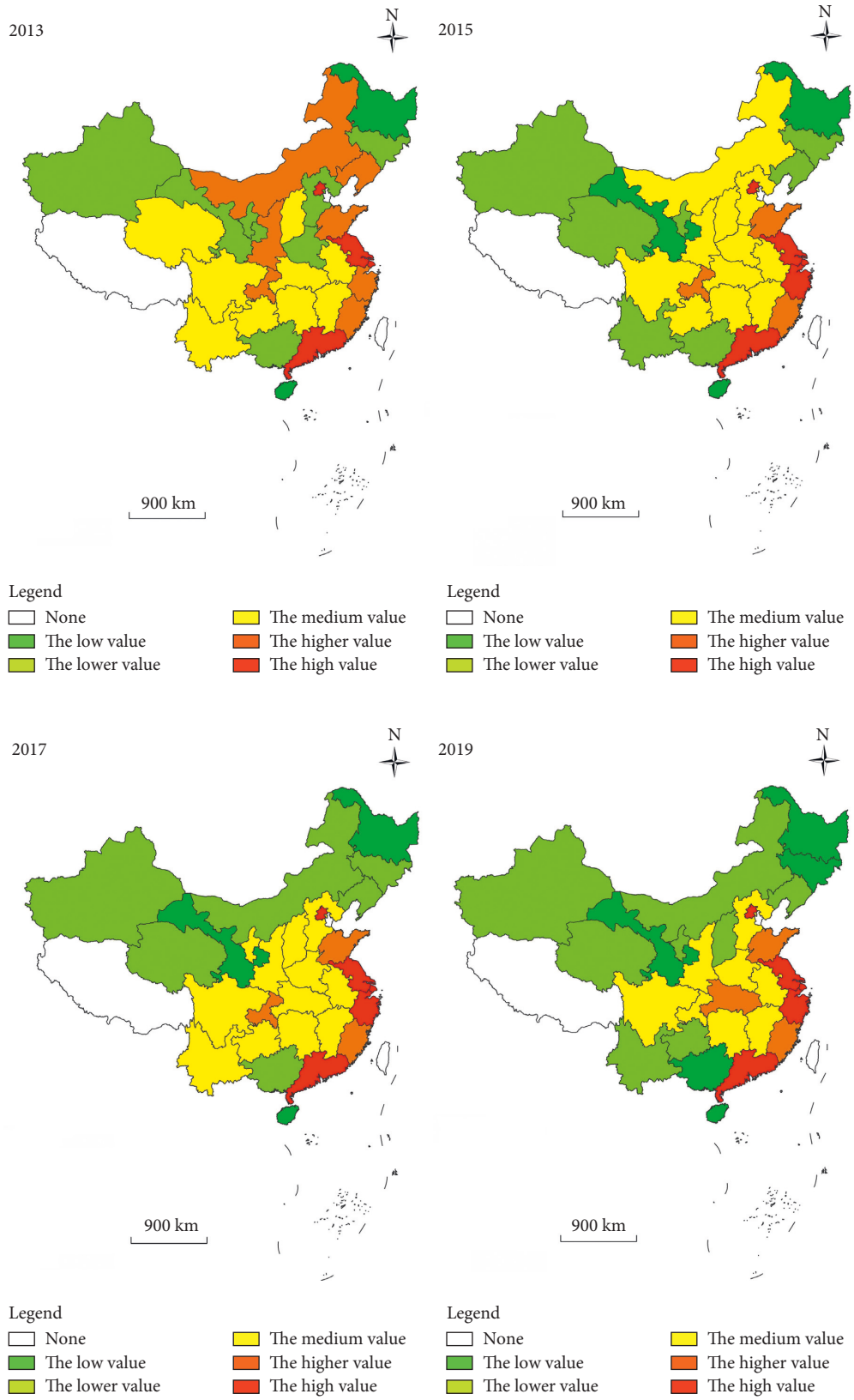

Figure 1: 2013–2019 provincial regional economy development level.

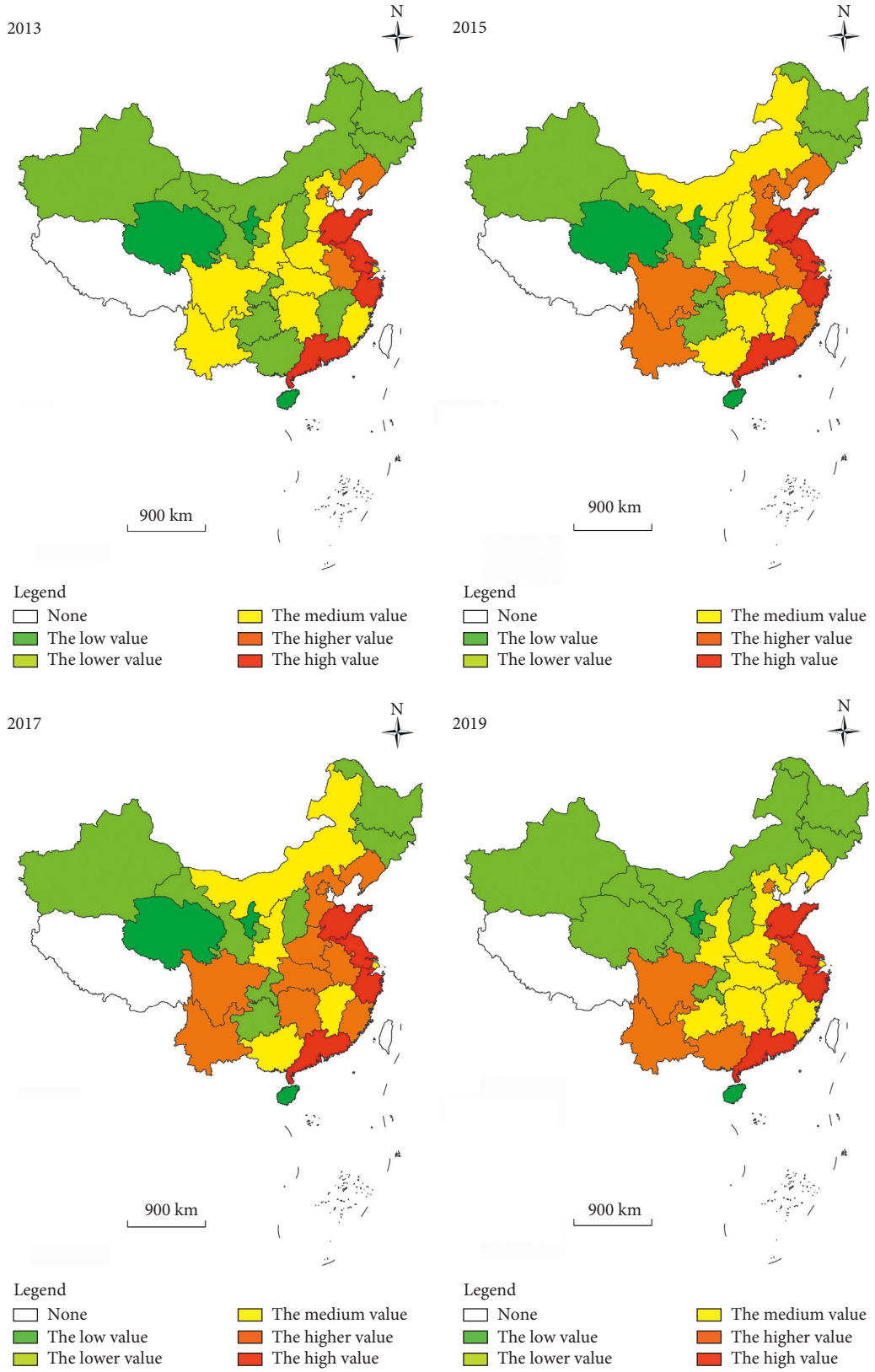

Figure 2: 2013–2019 provincial tourism industry development level.

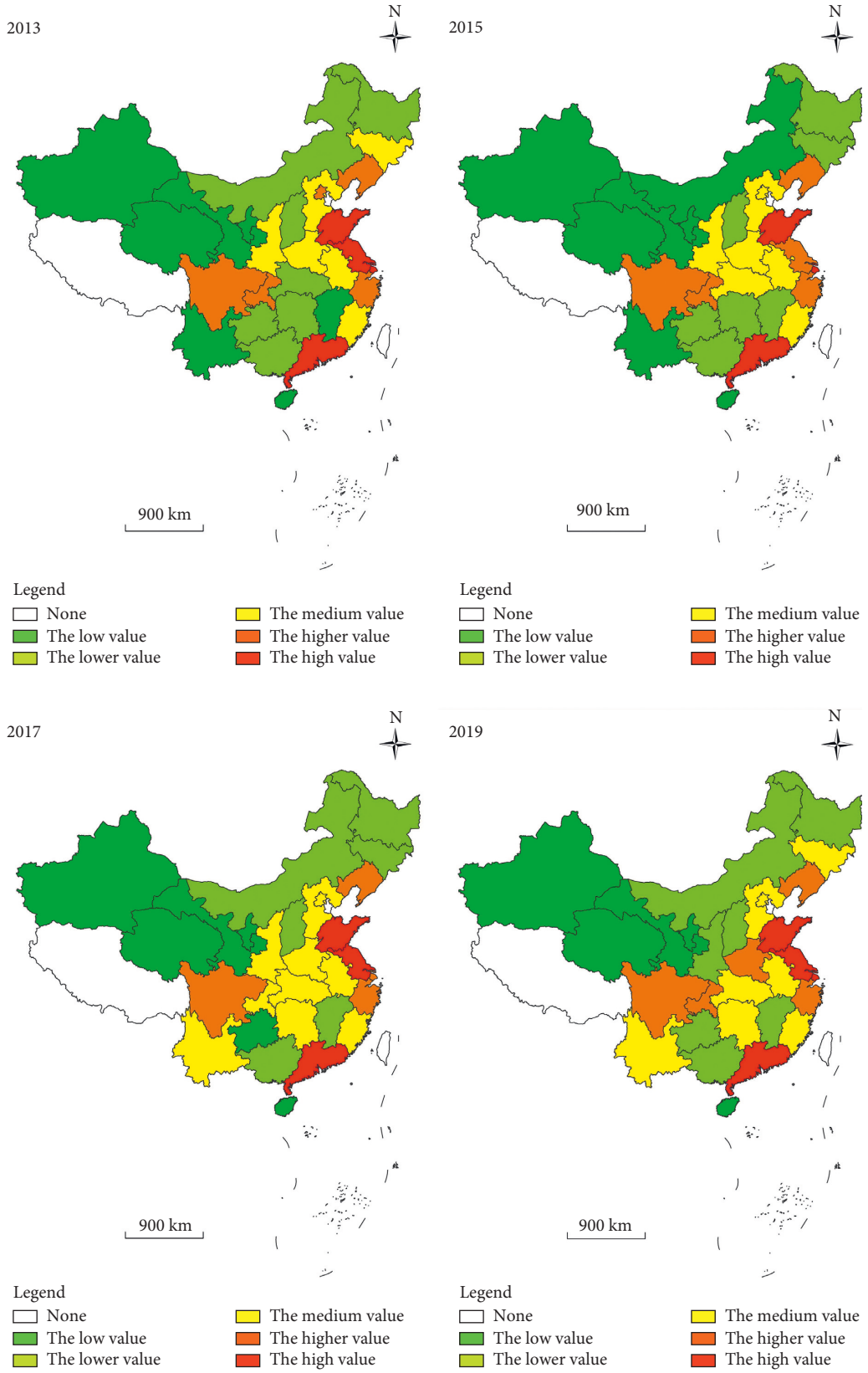

Figure 3: 2013–2019 provincial exhibition industry development level.

Table 2: The classification of coupling coordination degree of economy-tourism-exhibition.

Coupling and coordination	Interval	Province (2013)	Province (2015)	Province (2017)	Province (2019)
Wonderful coordination	0.9001–1				
Good coordination	0.8001–0.9000				Guangdong
Intermediate coordination	0.7001–0.8000	Guangdong	Guangdong, Shandong	Guangdong, Shandong Jiangsu	Shandong, Zhejiang, Jiangsu
Initial coordination	0.6001–0.7000	Shandong, Zhejiang, Jiangsu	Shanghai,, Zhejiang, Jiangsu	Shanghai, Zhejiang, Sichuan	Shanghai, Sichuan, Beijing
Bare coordination	0.5001–0.6000	Shanghai, Liaoning, Beijing, Sichuan	Sichuan, Liaoning, Beijing,	Liaoning, Beijing, Henan, Fujian, Anhui, Hunan	Chongqing, Liaoning, Henan, Fujian, Hebei, Anhui, Yunnan
On the verge of imbalance	0.4001–0.5000	Chongqing, Henan, Fujian, Hebei, Shaanxi, Anhui, Hubei	Chongqing, Henan Hubei, Fujian, Hebei, Shaanxi, Anhui, Guangxi	Chongqing, Hubei, Hebei, Shaanxi, Jilin, Jiangxi, Guangxi, Yunnan, Shanxi, Guangxi	Hubei, Shaanxi, Hunan, Guizhou, Jiangxi, Guangxi
Mild imbalance	0.3001–0.4000	Heilongjiang, Jilin, Hunan, Guizhou, Jiangxi, Guangxi, Yunnan, Shanxi, Inner Mongolia	Heilongjiang, Jilin, Hunan, Guizhou, Jiangxi, Yunnan, Shanxi, Inner Mongolia, Xinjiang	Heilongjiang, Guizhou, Inner Mongolia, Xinjiang, Gansu	Shanxi, Heilongjiang, Jilin, Inner Mongolia Xinjiang, Gansu
Moderate imbalance	0.2001–0.3000	Xinjiang, Hainan, Gansu	Hainan, Gansu,	Hainan, Qinghai	Hainan, Qinghai
Severe imbalance	0.1001–0.2000				Qinghai
Extreme imbalance	0.0000–0.1000	Qinghai, Ningxia	Qinghai, Ningxia	Qinghai, Ningxia	Ningxia

related to their dramatic decline in economic growth as well as slower development of tourism industry and exhibition industry. In the western region, Sichuan reaches to the next level, from the bare coordination to initial coordination. What's more, Guizhou, Shaanxi, and Guangxi develop from the mild imbalance to on the verge of imbalance. Yunnan develops more rapidly, from the mild imbalance to the bare coordination stage.

2.7. Gray Correlation. The basic idea of the gray correlation analysis method is to determine whether the sequence curves are closely related based on the similarity of their geometric shapes [22]. Generally speaking, the more similar the curves are, the greater the correlation between the corresponding sequences, and vice versa. With sample data from 29 provinces in China, respectively, this paper uses the time sequence data of coordination degree of the regional economy-tourism industry-exhibition industry from 2013 to 2019 as the reference series and conducts the gray correlation analysis to examine the degree of coupling and coordination between the regional economy-tourism industry-exhibition industry with indexes at each level. Apart from that, the primary indexes and secondary indexes are used as the influencing factors. The results of the gray correlation analysis of the coupling and coordination degree of the regional economy-tourism industry-exhibition industry with the primary and secondary indexes are displayed in Tables 3 and 4, respectively.

According to the results of the correlation measurement in Tables 3 and 4, the correlation between the coordination degree of regional economy-tourism industry-exhibition industry and 7 primary indexes and 15 secondary indexes is all above 0.6, indicating that all the indexes in the index system exert a greater impact on the coordination degree of regional economy-tourism industry-exhibition industry. The coupling and coordination degree of regional economy-tourism industry-exhibition industry is ranked in the order of correlation with seven primary indexes: economic structure, economic quality, the scale of tourism industry, economic sustainability, the efficiency of tourism industry, the scale of exhibition industry, and the efficiency of exhibition industry, in which the maximum value is 0.923 and the minimum value is 0.863.

The maximum correlation of the six secondary indexes of the economic system is 0.927, whereas the minimum correlation is 0.904. The correlation of the index of per capita disposable income is 0.923, the correlation of the index of per capita GDP is 0.922, the correlation of the index of the share of secondary industry is 0.918, and the correlation of the index of fiscal revenue is 0.910. In addition, the index with the smallest correlation among the five secondary indexes of the tourism system is the international tourist income with the value of correlation of 0.849, while the largest correlation is the number of starred hotels with the correlation of 0.929, the number of travel agencies with the correlation of 0.928, the number of A-grade scenic spots with the correlation of 0.922, and the domestic tourist income with the correlation of 0.895. The four secondary indexes of the exhibition industry system in the order of correlation from the highest to the lowest are as follows: the number of exhibitions, the area of professional exhibition venues, the area of exhibition venues, and the number of professional exhibition venues.

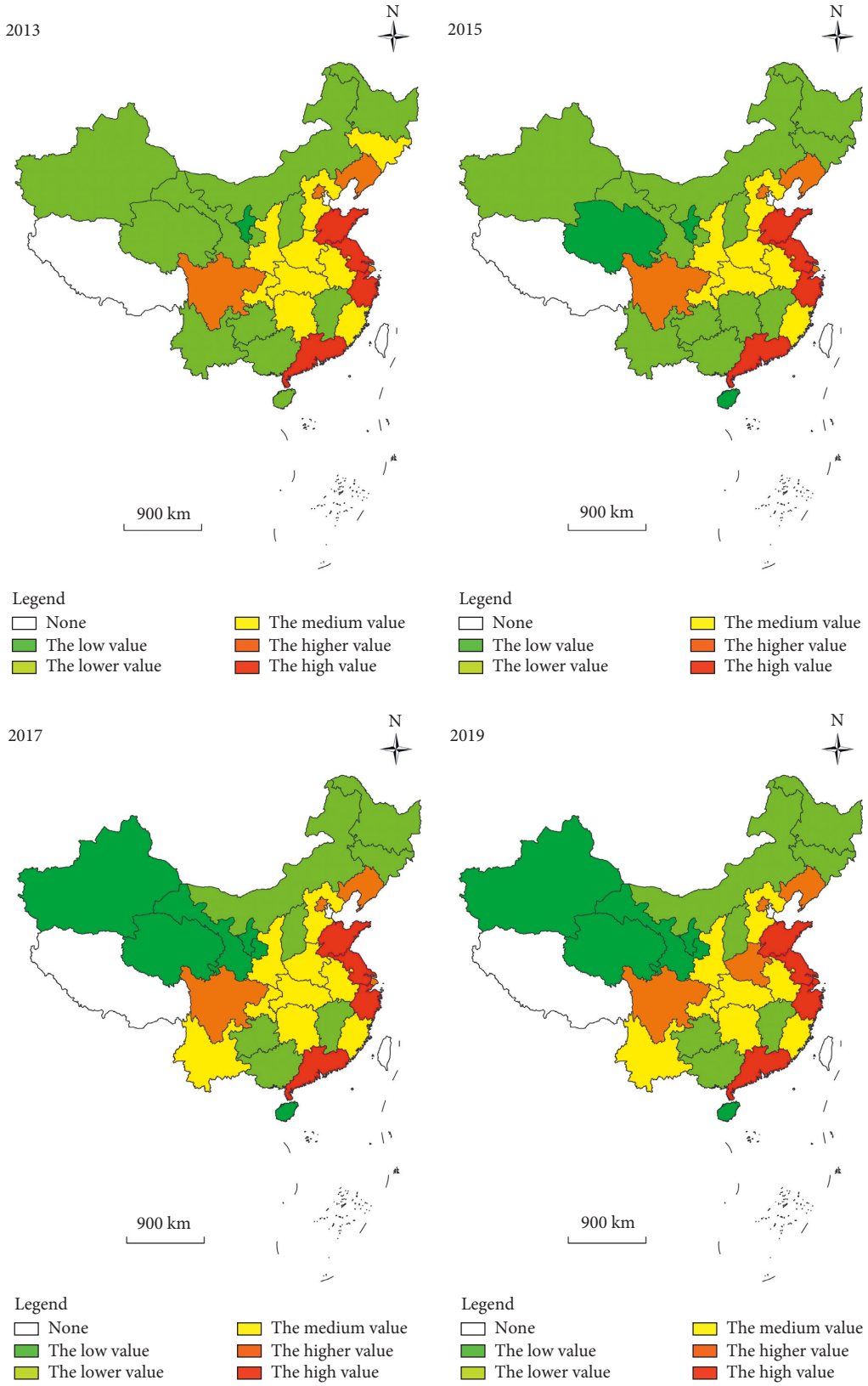

Figure 4: 2013–2019 provincial coupling and coordination level.

Table 3: Results of gray correlation analysis of measurement of primary indexes.

Subsystem	Primary indexes	Degree of association
Economic system	Economic quality	0.922
	Economic structure	0.923
	Economic sustainability	0.907
Tourism industry	Industry scale	0.920
	Industry efficiency	0.872
Exhibition industry	Industry scale	0.863
	Industry efficiency	0.863

Table 4: Results of gray correlation analysis of measurement of secondary indexes.

Subsystem	Primary indexes	Secondary indexes	Degree of association
Economic system	Economic quality	GDP per capita	0.922
		Per capita disposable income	0.923
	Economic structure	The proportion of secondary industry	0.918
		The proportion of tertiary industry	0.927
	Economic sustainability	Fiscal revenue	0.910
		GDP growth rate	0.904
Tourism industry	Industry scale	Number of travel agencies	0.928
		Number of A-grade scenic spots	0.902
		Number of starred hotels	0.929
	Industry efficiency	Domestic tourist income	0.895
		International tourist income	0.849
Exhibition industry	Industry scale	Number of exhibitions	0.864
		Exhibition area	0.862
	Industry efficiency	Number of professional venues	0.862
		Area of professional venues	0.863

3. Conclusion

This paper has examined the comprehensive development degree of the regional economy, tourism industry, and exhibition industry as well as the level of coupling and coordination of 29 provinces from 2013 to 2019 by constructing an evaluation index system for the coupling and coordination development of regional economy-tourism industry-exhibition industry.

(1) According to the results of the comprehensive development score, the regional economic development of each province, tourism industry, and exhibition industry shows a generally growing trend. Beyond that, the development level index presents a spatial distribution pattern of decreasing gradient from coast to inland in space.

(2) The integration of the economy-tourism industry and exhibition industry shows a continuous coordinated and benign development. On a national scale, the degree of integration and development of regional economy-tourism industry-exhibition industry in China has gradually developed and improved from bare coordination to good coordination. Apart from that, the degree of coupling and coordination of regional economy-tourism-exhibition industry varies greatly among provinces. Besides, the coupled and coordinated development of regional economy-tourism industry-exhibition industry in each province has obvious spatial characteristics, which generally shows the spatial characteristics of low in the central and western regions and high in the eastern region. Although some scholars have studied the coupling relationship between regional economy, tourism, and exhibition industry [1, 6, 7, 9, 10], they lack the research of the relationship between the three. In this study, the coupling coordination degree relationship between the three has been investigated.

(3) The gray correlation analysis has been made to explore the impact of the primary and secondary indexes in the coordination degree evaluation system on the coupling and coordination degree of regional economy-tourism industry-exhibition industry. As shown by the results, all the indexes could strongly influence the coupling and coordination degree of regional economy-tourism industry-exhibition industry. Compared with the exhibition industry system, the economic system and tourism system exert a stronger impact on the coupling and coordination degree of regional economy-tourism industry-exhibition industry.

This paper has two practical implications. First, the government makes a high degree of overall planning and strengthens the top-level design of "multicompliance." In this regard, the government should make an overall plan and formulate a "multiregulatory integration" plan that

integrates the national economy, tourism, exhibition industry, etc. Second, different regions should adjust measures according to local conditions. With a high degree of coupling and coordination, the eastern region continues to maintain the momentum of integration and development. In the central region, the coupling coordination degree is in the process of development. Thus, the central provinces should constantly improve the development level of coupling coordination. In addition, most of the western provinces have a low level of coupling and coordination. Hence, it is essential to speed up the improvement of the coupling and coordination level of these provinces.

Data Availability

The datasets used and/or analyzed during the current study are available from the author on reasonable request.

Conflicts of Interest

The author declares no conflicts of interest with respect to the research, authorship, and/or publication of this article.

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