

# Research on the Measurement and Improvement Strategy of Integration of Agriculture, Culture and Tourism in Hebei Province Under the Strategy of Rural Revitalization

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## Abstract

Under the background of the rural revitalization strategy, in order to improve the level of integrated development of agriculture, culture, and Tourism, the Evaluation Index System of integrated development of agriculture, culture, and tourism in Hebei province is constructed. By using the method of coupling coordination degree and entropy value, the development level and the evolution of coupling coordination degree of agricultural, cultural, and tourism integration in Hebei province were obtained by combining qualitative analysis with Quantitative analysis method. In view of the development level of integration of agriculture, culture, and tourism in Hebei province and the evolution of coupling and coordination degree, this paper analyzes the characteristics of the agricultural, cultural, and tourism industries in Hebei province, including three stages of integration development and six stages of coupling and coordination degree change. According to the existing development mode and path, the paper puts forward some suggestions on infrastructure, development path, talent strategy, and innovation means.

## Keywords

Integration of agriculture, culture, and tourism, Coupling co-scheduling, Entropy method, Suggestions for countermeasures

## Introduction

At present, China is in the primary stage of the comprehensive implementation of the rural revitalization strategy, this stage is an important period to achieve the integrated development of agriculture, culture, and tourism, the study of the integrated development of agriculture, culture, and tourism is of great significance at the practical level.

The research on example analyses focuses on the agriculture, culture, and tourism industry and its integration, and most of them will construct and empower the industry development index system. From the aspect of the research area, the research on the integration of agriculture, culture, and tourism has been analyzed for all levels of areas, for example, Wang Ying uses SWOT to analyze the integration of culture and tourism in Zhengzhou City [1]. From the perspective of research objects, the integration of agriculture, culture, and tourism has been analyzed in the agricultural, cultural, and tourism industries, as well as in comprehensive studies. For example, Pang Jing analyzed the development level and integration level of agriculture, culture, and tourism in Ankang City [2]. In terms of research methodology, there are more research methods on the integration of agriculture, culture, and tourism. For example, Zhang Ivana used the field survey method to evaluate the four counties in Qiang District as a whole, and the hierarchical analysis method (AHP) to evaluate the integration level of one city and three villages [3]. Although scholars

have analyzed the research on agriculture, culture, and tourism in their own ways, there is a lack of quantitative analysis on the integration of agriculture, culture, and tourism in Hebei Province, which is in urgent need of further research and exploration.

To sum up, exploring the level of integrated development of agriculture, culture, and tourism in Hebei Province of China and the characteristics of coupled and coordinated development is an important measure to promote the sustainability of the overall coordination of urban-rural integrated development and the coordinated development of the strategy of rural revitalization. Therefore, combining the form of China's rural development in the new era and the existing theoretical research, plus the research on the factors and resources of the agriculture, culture, and tourism industry, with the help of the coupling coordination model and entropy value method, quantitatively explore the level of the integrated development of agriculture, culture and tourism and the characteristics of the coupling coordinated development in Hebei Province.

## 1. Research methodology and indicator system

### 1.1 Data sources

Most of the basic data for each evaluation indicator come from the Hebei Provincial Statistical Yearbook, the China Statistical Yearbook, and the reports of the Ministry of Culture and Tourism in previous years, which are prepared by authoritative organizations. Missing basic data are improved by relevant means such as searching government websites and supplementing missing values.

### 1.2 Indicator System for Agricultural, Cultural, and Tourism Integration Constructing the Indicator System

Regarding the selection of indicators, scholars have their own opinions. For example, from various aspects such as resource situation, practitioners, and a number of institutions, Weng Jiangmin et al. analyzed the coupling coordination degree of the culture and tourism industry [4]. Zhang Wanxin assessed the coupling coordination degree of the integrated development of agriculture and tourism in Qinglong Manchu Autonomous County [5]. Wang Jiaming improved the coupling coordination degree model and constructed the agriculture, culture, and tourism indicators for the development of agriculture, culture, and tourism integration in Shandong Province [6].

This study, based on the relevant indicators provided by the above literature, combined with the actual development of Hebei Province, constructed, for example, three systems for the agricultural industry, the cultural industry, the tourism industry, the existence of each industry, the industrial base, human capital and industrial efficiency of the three first-level indicators, agricultural, forestry and water financial expenditures, the ownership of agricultural machinery, the area of crop cultivation, afforestation and orchard area, the number of people employed in agriculture and the per capita disposable income of rural residents, Cultivated land area food production, total output value of agriculture, forestry, animal husbandry and fishery, expenditure on culture, tourism, sports and media, number of cultural institutions, number of public libraries, number of cultural relics and tourism employees, added value of the cultural industry, number of performances at art performance venues, number of A-grade scenic spots, number of star-rated hotels, number of travel agencies, number of travel agency employees, number of employees at star-rated hotels, total number of tourists received, total tourism income, a total of 21 Specific evaluation indicators were used to measure the level of integrated development of agricultural, cultural and tourism industries in Hebei Province.

Through the establishment of the coupling degree function to measure the coupling and coordination degree of agriculture, culture, and tourism industries, and through the entropy value method for each industry assignment, so as to arrive at the Hebei Province, agriculture, culture and tourism industry integration and development of the coupling and coordination degree evaluation index system weights.

In the agricultural industrial base, the financial expenditure on agriculture, forestry, and water is 3.437 percent, the ownership of agricultural machinery is 3.625 percent, the area under crop cultivation is 5.022 percent, the area of afforestation and orchards is 8.434 percent; in human capital, the number of people employed in agriculture is 4.111 percent; and in the industrial efficiency, the per capita disposable income of the rural population is 4.052 percent, the grain production of cultivated land is 4.203 percent, and the total output value of agriculture, forestry, animal husbandry, and fishery is 5.044 percent.

Of the cultural industry base, the expenditure on culture, tourism, sports, and media is 4.26 percent, the number of cultural institutions is 6.085 percent, and the number of public libraries is 11.755 percent; of the human capital, the number of employees in the field of cultural heritage and tourism is 3.204 percent; and of the industrial benefits, the value added of the cultural industry is 5.304 percent, and the number of performances at performing arts venues is 2.295 percent.

The number of A-grade scenic spots in the tourism industry base is 4.54 percent, the number of star-rated hotels is 3.286 percent, and the number of travel agencies is 4.076 percent; the number of employees in travel agencies is 3.643 percent, and the number of employees in star-rated hotels is 3.52 percent of the human capital;

The industrial benefits include 3.487 percent of the total number of tourists received and 5.235 percent of the total income from tourism.

This paper selects the data related to the agriculture, culture, and tourism industry in Hebei Province from 2012 to 2021 to quantitatively analyze the degree of integration in the province. The coupling coordination degree model is used to calculate the development of the agricultural industry, cultural industry, and tourism industry in Hebei Province, and the coupling coordination degree of the integrated development of agriculture, culture, and tourism in Hebei Province is classified according to the standard of the coupling degree level, and the level of integrated development of agriculture, culture and tourism and the evolution of the coupling coordination degree in Hebei Province are finally derived.

From 2012 to 2021 the comprehensive evaluation of the agricultural industry system U1 is 0.168, 0.187, 0.209, 0.228, 0.173, 0.193, 0.156, 0.173, 0.189, 0.201; the comprehensive evaluation of the cultural industry system U2 is 0.026, 0.058, 0.041, 0.061, 0.102, 0.14, 0.134, 0.19, 0.236, 0.29; the comprehensive evaluation of the tourism industry system U3 is 0.08, 0.106, 0.126, 0.236, 0.29; and 0.102, 0.14, 0.134, 0.19, 0.236, 0.29; the comprehensive evaluation of the tourism industry system U3 is 0.08, 0.106, 0.126, 0.1, 0.14, 0.151, 0.177, 0.218, 0.116, 0.177, in that order; and the degree of coupling co-ordination is in the following order: moderate dysfunctionality, on the verge of dysfunction, near dysfunction, barely Coordination, Barely Coordinated, Primary Coordination, Primary Coordination, Primary Coordination, Bordering on Dissonance, Barely Coordinated.

## 2. Correlation analysis

### 2.1 Agricultural industry

From the comprehensive evaluation of the agricultural industry system U1, it can be concluded that the value of the index of the level of development of the agricultural industry increased from 0.168 to 0.201 from 2012 to 2021, which is an increase of 0.033, or an increase of 19.6 percent. In addition, the development level of agricultural modernization decreased in 2016 and 2018, with the smallest increase from 2016 to 2017. Over the past ten years, the People's Government of Hebei Province has put forward a number of pragmatic and effective suggestions for the development of Hebei Province's agricultural economy, promoting the relatively stable development of Hebei Province's agricultural industrialization.

### 2.2 Cultural industries

From the comprehensive evaluation of the cultural industry system U2, it can be concluded that from 2012 to 2021, the value of the index of the development level of the cultural industry rose from 0.026 to 0.29, an increase of 0.264, an increase of 1015.3%. Despite the slow economic development from 2012 to 2015, the development of the cultural industry shows an increasing trend every year, and the investment of government departments in the development of the cultural industry increases year by year, encouraging the implementation of relevant policies and regulations, which plays a vital role in the development of the cultural industry in Hebei Province.

### 2.3 Tourism industry

From the comprehensive evaluation of the tourism industry system U3 can be derived, from 2012 to 2021, the index value of the development level of the tourism industry increased from 0.08 to 0.177, an increase of 0.097, an increase of 121.3%. The overall trend of the tourism industry was up from 2012 to 2019. In 2020, the number of tourists and expenditures declined due to the impact of the epidemic. In 2021, in the case of the new Cuanchuan Pneumonia Epidemic is clearly controlled, the comprehensive evaluation of the tourism system shows an upward trend, indicating that the integrated development of the tourism industry has become an important engine of economic growth in Hebei Province.

### 2.4 Integrated analyses

As can be seen from the development of the agricultural industry, cultural industry, and tourism industry in Hebei Province, the integrated development of the agricultural, cultural, and tourism industries in Hebei Province has gone through three stages, namely, germination, start-up, and initial formation. The budding stage was from 2012 to 2014, and the development situation of the agricultural, cultural, and tourism industries was characterized by randomness and disorder. The development of the industry is still to be enhanced; the starting stage is from 2015 to 2016, which is manifested in the obstruction of the agricultural industrial system and the orderly development of the elements of the cultural and tourism industrial system; the preliminary formation stage is from 2017 to 2019, which is manifested in the gradual formation of the pattern of integrated development of the agricultural, cultural and tourism industries.

Changes in the degree of coupled coordination of agriculture, culture, and tourism in Hebei Province present six stages. Since 2012, the integration of agriculture, culture, and tourism has been in a state of moderate dissonance. From 2013 to 2014, with the significant increase in the degree of coupled coordination of agriculture, culture, and tourism, the degree of coupled coordination turns to the stage of near-dissonance. From 2015 to 2016, the degree of coupled coordination shows a gradual upward trend, and the degree of coupled coordination gradually moves to the stage of barely coordinated, reflecting the further enhancement of the coordination of the three. From 2017 to 2019, the degree of coupling coordination continued to increase, shifting to

primary coordination, and the economic growth rate of the contribution of the integration and coordination of agriculture, culture, and tourism to the economic development of Hebei Province was accelerated. In 2020, under the influence of the epidemic, the degree of coupling declined to the verge of disequilibrium, the tourism industry development showed a serious downtrend, and the development of agriculture and culture was also hampered by different degrees. In 2021, the degree of coupling coordination rebounded to the barely coordinated level, and the agriculture, culture, and tourism industries gradually got rid of the impact of the epidemic and started to integrate and optimize again.

### 3. Countermeasures and Recommendations for the Integrated Development of Agriculture, Culture and Tourism

From the results of measuring the level of agricultural, cultural, and tourism integration in Hebei Province, the degree of coupling coordination has gradually turned from a moderate disorder to barely coordinated and is in benign progress, but at present, it seems that there is a lot of room for progress in the level of agricultural, cultural and tourism integration and development. In order to achieve a coupling coordination degree of high-quality coordination, the following four suggestions are put forward.

(1) Strengthening the construction of infrastructure is the basis for the integrated development of agriculture, culture, and tourism. Infrastructure construction provides material protection for the integration of agriculture, culture, and tourism, and is a prerequisite for the integrated development of agriculture, culture, and tourism. The original scenic spot can be optimized and new scenic spot construction can be developed; some of the hotels can be changed into B&Bs, focusing on the experience of tourists.

(2) Give full play to the advantages of each region and identify integration paths. Taking the type of resources as the core and combining the corresponding agricultural, cultural, and tourism characteristics, it promotes the integration of agriculture, culture, and tourism in terms of concept, function, industry, market, and service, so as to realize a new ecology of integration of agriculture, culture, and tourism. For example, adjacent to Hebei Hengshui Lake Luli town, relying on the characteristics of Hengshui Lake resources, while playing adjacent to the cultural advantages of the ancient Jizhou, to create the Han-style folklore experience; Baoding Lianxiang Taihang Water Town, relying on the natural ecology of the Taihang Mountains, Yishui Lake, Taihang folklore experience, countryside food, landscape tours into a single entity, to create a base for the rural cultural heritage.

(3) Introducing professional and technical talents to build new villages. Talent is an important condition for development, grasp the talent is divided into retaining local talent and introducing new talent. The introduction of new digital and management of a combination of composite talents, through the application of new science and technology to enhance the speed and quality of the integration of agriculture, culture, and tourism; the application of management knowledge can be a reasonable use of local talents, so that people make the best use of them, the construction of a new type of agriculture, culture and tourism IP, to attract a large number of tourists, and to stimulate the growth of the local economy.

(4) Innovation is the first driving force of development and the soul of development. With the development of science and technology, people began to focus on daily life is not easy to see things, the development of agricultural tourism can be used as an entry point for innovation. Small to the product packaging, agricultural and cultural tourism accommodation innovation; large to the tourism model, the innovation of the characteristic scenic spot.

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