Spatial Structure Analysis of Leisure Agriculture in Suzhou

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Abstract: Based on the analysis of the basic connotation of leisure agriculture, this paper takes the Suzhou city leisure agriculture as the research object to summarize the current situation of leisure agriculture development in Suzhou, the selection of the Suzhou city rural tourism planning (2016-2020) in the key construction project for the leisure agriculture point sample data, analyzes its spatial structure by means of geographic concentration index and Gini coefficient. Through the geographic concentration index is calculated $G \approx 39.962$. G is a little less than $G_{optimal}$ at 44.721. Gini=0.371, C=0.629. According to the research results, leisure agriculture points in Suzhou show a moderate distribution trend, and the leisure agriculture is distributed in various administrative regions of Suzhou city with a high degree of equilibrium, which is conducive to the development of leisure in agriculture. Pertinent suggestions are appropriate to the optimal development path of leisure agriculture in Suzhou.

Keywords: Leisure Agriculture; Spatial Structure; Suzhou

1. Introduction

Leisure agriculture is related to rural tourism. Focusing on rural revitalization, development, governance and development of rural industries is the theme of the document No.1 of the central committee of 2019, which is more effective to solve the agriculture, rural areas and farmer’s problems. The No. 1 Circular of the Party Central Committee in 2018 sets out the objectives and tasks for the implementation of the rural revitalization strategy: by 2020, important progress will be made in rural revitalization, and the institutional framework and policy system will be basically in place. By 2035, decisive progress will be achieved in revitalizing rural areas, and agricultural and rural modernization will be basically achieved. By 2050, rural prosperity, strong agricultural, and rich farmers plan will be fully implemented. In October 18, 2017 the party’s 19 big reports, Comrade Jinping Xi put forward the strategy of rejuvenating rural. Its total requirement is “prosperous industry, ecological livable, local custom civilization, effective governance, rich life”. In 2017 the ministry of agriculture issued “national” much starker choices-and graver consequences-in “leisure agriculture development planning”, the “much starker choices-and graver consequences-in” will make specific deployment to

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the development of leisure agriculture in China. So, at present, leisure agriculture in China has broad market and strong national policy support, facing good opportunities for development.

In 2017, Chinese leisure agricultural tourism and rural tourism industry entities have reached 330,000, over the previous year increased by more than 30,000[1]. Leisure agriculture and rural tourism tourists have received more than 2.8 billion tourists, earned more than 740 billion yuan and employed 9 million staff, benefiting 7 million farmers. The scale and speed of the leisure agriculture and rural tourism in China have entered into an unprecedented booming era and the history of the stage, which fully proves broad prospects for development of leisure agriculture.

2. Concepts and characteristics of leisure agriculture

Leisure agriculture is the combination of agriculture and tourism, which is a general term for agricultural and rural tourism. All related to agrarian tourism can be referred to as the leisure agriculture[2]. Leisure agriculture is rural and agricultural as tourism resources to attract tourists to participate in a kind of tourism activities. Derived from agriculture and tourism integration development of emerging industries[3], leisure agriculture is a new type of modern agriculture and modern tourism industry form the new habits of consumption, the new growth point of the economic and social development[4]. Because leisure agriculture has the double attributes of agriculture and tourism, it has many characteristics, such as productiveness, naturalness, culture, sustainability, marketability characteristics[5]. At present, with the speeding up of land circulation, the agricultural production in China is to speed up the shift from small-scale peasant economy to the moderate scale management, a grain large, family farms, farmers cooperatives and other new type of agricultural management main body, and also led to the ecological agriculture, tourism agriculture, agricultural facilities and many other new forms. The fusion of agriculture and tourism development is able to update the farm way of traditional agricultural production, promotes economic growth and local social development form[6]. As a comprehensive tourist attraction, leisure agriculture tourism destinations promote the development of pastoral leisure tourism and even the whole common. So it is worthy of attention. The types of leisure agriculture can be divided from various angles such as resources, functions, and locations, and they can be divided into five types: ornamental entertainment, participation experience, popular science education, leisure vacation, folk culture, etc[7].

3. The development status and problems of leisure agriculture in Suzhou city

Located in the north of Anhui Province, Suzhou has a developing transportation. Beijing Shanghai railway and Longhai Railway run through the city with national and provincial roads interwoven. By the end of 2018, Suzhou had 302 leisure agriculture and rural tourism business entities, including 13637 farmers, 10.45 million tourists and 1.254 billion CNY of business income. Depending on the survey of three-star and above farmhouses in Suzhou, there are 42 three-star and above farmhouses, including 5 five-star farmhouses, 14 four-star farmhouses and 23 three-star farmhouses. From the perspective of business scale, there are 1 enterprise with a turnover of more than 10 million CNY, 3 enterprises with a turnover of 5-10 million CNY, 3 enterprises with a turnover of 2-5 million CNY, and 35 enterprises with a turnover of less than 2 million CNY. Through the development of leisure tourism to promote the integration of the three local industries, it has realized the limited work of farmers, the local transformation of agriculture, the local value-added of agricultural products, and the local prosperity of rural areas. While increasing economic benefits, it has also driven a large number of poor farmers to cooperate. (Source: survey report on the integrated development of primary, secondary and tertiary industries in rural areas of Suzhou, Anhui, Suzhou Municipal Bureau of Statistics, http://tjj.ahsz.gov.cn/sjsz/tjfx/67152665.html).

3.1 Development status of leisure agriculture in Suzhou

In recent years, Suzhou city develops leisure agriculture and rural tourism, and contributes actively to the development of leisure agriculture and rural tourism to create a leisure agriculture and rural tourism demonstration site. In
Suzhou city’s tourism development pattern, construction dominated by leisure agriculture, holiday manor, including rural sports, folk experience, and cultural entertainment products of rural tourism product system to make rural tourism become the important carrier of Suzhou city leisure vacation travel, forming a complementary pattern of tourism development between urban and rural areas. According to Suzhou rural tourism planning (2016-2020), rural festival include the Dangshan Pear Blossom Festival, Xiaoxian County Huangzangyu Cultural Festival, Yongqiao International Circus Art Festival, Fuli Roast Chicken Food Festival, Lingbi Kistler Cultural Festival, Sizhou Opera Culture, Art Festival and other 10 festival activities. The country paradise includes Zhongkui Cultural Paradise, Shadow Play Children’s Paradise, Sizhou Opera Cultural Paradise. There are 12 cultural communities, including Minzi Xiaoxian Community, Gaotan Circus Community, Qingyun Qishi Community, Yuji Chuhan Community, and Shuguang Liyuan Community. Rural sport bases include Dangshan County Ancient Yellow River Water Sport Bars and Sixian Shilong Lake Wetland. The country manor corridor includes 5 such as Fuli Avenue Cuisine Corridor and Dangshan Pear Manor Corridor. There are 20 country resorts, including Pear Tree King Manor, Yinmaquan Villa, Xiaoguo Shengtao Manor and Fuli Gourmet Manor. There are five leisure pastures, including wetland ecological pastures and river pastures. Agricultural industrial parks include 8, such as Dangshan County Golden Dangshan Pear Industrial Park and Yellow River Old Road Horticultural Industrial Park. Statistics of leisure agriculture in Suzhou are shown in Figure 1.

Table 1 illustrates the holiday in 73 leisure agriculture points distribution in rural estate in a large part of leisure agriculture type statistics, followed by community culture, rural Park, agricultural industrial park, a country estate promenade, leisure ranch, rural sports bars. The leisure agriculture point belongs to administrative region distribution statistics in Table 1. It can fully analyze the distribution of the Suzhou city leisure agriculture. It can be seen that Yongqiao, Xiaoxian, Sixian, Dangshan share fairly, Lingbi for a small proportion.

![Figure 1. Statistics of all types of leisure agriculture in Suzhou.](image)

| No. | Administrative region | Leisure Agriculture points | Proportion (%) |
|-----|-----------------------|-----------------------------|----------------|
| 1   | Yongqiao              | 17                          | 23.29          |
| 2   | Xiaoxian              | 16                          | 21.92          |
| 3   | Sixian                | 15                          | 20.55          |
| 4   | Dangshan              | 16                          | 21.92          |
| 5   | Lingbi                | 9                           | 12.33          |
| total |                       | 73                          | 100            |

Table 1. Distribution of leisure agriculture in each administrative region of Suzhou
3.2 Problems exist in the development of leisure agriculture in Suzhou

3.2.1 Lack of unified planning, leisure functions are not complete

At present, Suzhou sightseeing leisure agriculture is mostly constructed spontaneously by farmers and enterprises, lack of scientific and rational planning. It has developed the agricultural park, estate and so on, which are mainly fruit and vegetable picking. The scale of infrastructure is not perfect and living facilities is relatively little. Leisure contents are not abundant and unpopular. One of the few leisure and sightseeing agriculture is constrained by lack of the size, single function, and rarely at the same time can satisfy several functions of the tourists “eating, living, traveling, shopping, entertainment”. In order to satisfy the public demand, it also needs to solve the problems that same basic horticultural varieties is relatively single and Picking time is short.

3.2.2 Leisure and tourist agricultural have influenced by the most important factors of funding and land use

The initial investment of leisure and tourist agriculture is large. At present, development of the leisure and tourist agriculture in Suzhou should mainly be carried out by entrepreneurs and other business entities. Prospects for the development of leisure and tourist agriculture can apply for provincial and municipal subsidies. Land factor is affecting one of the crucial factors in agricultural development of Suzhou. The office space, storage and other supporting facilities for leisure and tourist agriculture all need the facility planning to provide certain land indicators, while the nature of land sometimes does not allow the construction of the necessary infrastructure of leisure.

3.2.3 The level of competence of leisure and tourist agriculture is not high and the level of management service is low

Most of the leisure agriculture production and operation management are mostly old farmers engaged in agricultural production and marketing, or are some real estate developer, who exist the problems of the personnel quality is not high, the development ideas is not novel and experience of development and rational management is lack. Management and service are hard to meet consumer’s demand for standardized and standardized service, which affects the development of leisure in agriculture.

4. Spatial structure analysis of leisure agriculture in Suzhou

Both the connatural determinants and the acquired conditions seriously affect the developing leisure agriculture in all counties of Suzhou. The resource condition and the geographical location are different between the counties of Suzhou, but they can be distinguished from one another in the level and degree of economic development of leisure agriculture. In order to better grasp the distribution of each district of leisure agriculture, it is necessary to participate in the field of leisure agriculture research activities organized by the municipal administration, successively in Suzhou of Xiaoxian, Yongqiao, Sixian, Lingbi typical leisure agriculture research, and understand the development situation of Suzhou leisure agriculture here with the help of geographic concentration index, the Gini coefficient index, 73 key construction in the library leisure agriculture points to calculate.

4.1 Geographical concentration index

Geographical concentration index (G) is an important index to measure the concentration distribution degree of research elements in regional space. Its formula can be expressed as following:

\[ G = 100 \times \sqrt{\frac{1}{n} \left( \frac{X_i}{T} \right)^2} \]

\[ G_{optimal} = 100 \times \sqrt{\frac{T}{n}} \]

The formula \( X_i \) is the number of leisure agriculture sites in each region. \( T \) is the total number of leisure agriculture sites in Suzhou, \( n \) is the total number of cities. \( G \) Between 0 and 100, \( G \) the smaller the value is, the more scattered the leisure agriculture sites are. \( G \) the larger the value is, the more concentrated the leisure agriculture points are in dif-
different cities. G moderate value is conducive to the development of leisure in agriculture. G value is too large. Leisure agriculture is too concentrated, and the stability of the tourism economy is poor. G the closer the value is 0, the more scattered the leisure agriculture sites are.

The total number of research objects selected in this paper is \( T = 73 \), which is taken from the first district and four counties in Suzhou \( n = 5 \). According to equation (1) the geographical concentration index can be calculated \( G \approx 39.962 \). According to equation (2) \( G_{\text{optimal}} \) is equal to 44.721. Because when the \( G \) value is closer to the optimal value, it is generally believed that between 30 and 40, the more stable the operation of the tourism market will be. On the contrary, the stability of the market will begin to loosen.

If the average distribution of 73 leisure agriculture points is in each region, the number of leisure agriculture sites in each region is 73/5=14.6, which is 14, 14, 15, 15, and \( G = 44.747 \). The actual geographical concentration index of each region can be obtained from the calculated data \( G \approx 39.962 \) a little less than \( G_{\text{optimal}} \). Therefore, there is a relatively moderate distribution of leisure agriculture sites in various regions of Suzhou, which is conducive to the development of leisure in agriculture.

4.2 Gini coefficient

Gini coefficient can describe the distribution of spatial elements, and can also compare the distribution of two spatial elements, which is an important method to study the spatial distribution. It can expresses as:

\[
Gini=\sum_{i=1}^{n} p_i L_i p_i / L_n p
\]

\[
C = 1 - Gini
\]

In the formula, Gini is the gini coefficient of Suzhou’s rural tourism destination, \( p_i \) for i is the proportion of the number of leisure agriculture sites in the district (county) to the total number of the whole city; \( N \) is the total number of districts (counties), \( C \) represents the distribution uniformity of tourist destinations. Gini value is between 0 and 1. The higher the value, the higher the concentration degree. The larger value is \( C \), the more evenly distributed the space.

According to the Table 1, Gini coefficient of 73 leisure agriculture sites in the first district and four counties of Suzhou is analyzed, and the spatial distribution of leisure agriculture sites can be calculated by transforming formula (3) and (4). In theory, Gini coefficient is between 0 and 1, and the smaller the value is, the lower the concentration of scenic spots will be \( Gini=0.371 \), \( C = 0.629 \). According to the data, leisure agriculture is distributed in various administrative regions of Suzhou with a high degree of equilibrium.

5. Optimal development path of Suzhou leisure agriculture spatial layout

In this paper, from the point of leisure agriculture geographical concentration index and gini index, overall, Suzhou of leisure agriculture is moderate, and the basic feature of its evenness is higher and conducive to the further development of Suzhou leisure agriculture. This paper presents some advice for the efficient leisure agriculture development.

5.1 To adopt measures to local conditions and embody the concept of distinctive features.

Agricultural production has a strong regional and seasonal character, the development of leisure tourism agriculture must rely on the unique agricultural resources, agricultural production conditions and the characteristics of the season. The expansion of leisure tourism agriculture must guarantee the agricultural development, farmers as the main body, rural characteristics. It is suggested that the approaches should be selected according to the conditions of combined with the characteristics of Suzhou agricultural products, and to set up the brand and adjust measures to local conditions to choose suits own development model. On the basis of the organic combination of agriculture and development of tourism in all levels of modern agricultural industrial park as the carrier, it should expand the service functions to provide tourists with sightseeing, fishing, fruit and vegetable picking, farming experience, food and accommodation, and other leisure agricultural projects.
5.2 Increase policy support and innovate the operating mechanism of leisure agriculture

The agriculture should create a good environment to promote the development of leisure agriculture and increase the integration of leisure agricultural sites, and develop various functions of leisure agriculture, and build a group of “Eating, housing, traveling, shopping” as an integrated leisure agricultural sites through the integration of funds to achieve the triple effects of regional economic complementarity, optimization of resource allocation and integration of tourism market, and to strive to do a good job in excavation of existing leisure agricultural attractions, seeking to develop the potential and quickly gain market advantage. We will strengthen support for key areas of leisure agriculture, guide capital to be concentrated on regions with a good base of scale and good prospects for development, and do a good job of industrial agglomeration.

5.3 Intensify the construction of running managers team, to enhance efficiency of operation and management

In the increasingly fierce competition in the international tourism market today, by optimizing the hard and software environment, a relatively loose environment of industrial development can be created, and the tourism service facilities can be improved. The introduction of high quality tourism talents, actively organize leisure sightseeing agricultural enterprises to participate in the relevant business knowledge and skills training, improving service quality and service level. Through a variety of forms, on the development of leisure agriculture operators to update ideas, the innovation service idea, the quality of tourism services and the level of management can be continuously improved, and the tourism should pay attention to establish service brand leisure agriculture characteristics to boost tourism market demand.

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