Research on the improvement of the core competitiveness of tea industry in famous tea town: A case study of Huangshan City, Anhui Province

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Abstract. Huangshan City, Anhui Province, is one of the most suitable tea producing areas in China, with a long history of tea making. There are many varieties of tea in Huangshan, such as Maofeng, Taiping Houkui, Qimen black tea and so on. Tea industry is an important economic pillar of Huangshan City. However, statistics in recent years show that there are obvious shortcomings in the quantity and quality of tea production in Huangshan City, and the development in domestic sales and export is slow. In this paper, the diamond model proposed by Professor Michael Porter is used to analyze the competitiveness of tea industry in Huangshan City from six aspects: production factors, demand situation, related and supporting industries, enterprise strategy and structure, as well as inter-industry competition, government and opportunity. It is suggested to try to promote the operation mode of "Leading Enterprises + Production Cooperatives + Farmers + Traditional Channels + Internet +", so as to form a more complete local tea industry chain and help more local tea farmers to increase income and become rich. Furthermore, relying on the rich tourism and cultural resources in the region, this paper tries to explore a unique development path that combines tea garden experience, tea culture and local tourism, highlights local characteristics and advantages, and seeks an optimized model suitable for the development of local tea industry.

1. Introduction
China is the hometown of tea and tea drinking is very common in China. Chinese tea culture has a long history, extensive and profound, not only contains the level of material culture, but also contains a profound level of spiritual civilization. Tea has the curative effect of cure disease, rich appreciate taste, which can cultivate sentiment. Tea tasting and hospitality are elegant entertainments and social activities of Chinese people. Tea is China's main cash crop and traditional bulk export products, playing an important role in national economy.

Huangshan City in Anhui Province is the main production area of Chinese tea, known as the "home of famous tea in China" reputation. Huangshan City is mild and rainy, rich in land and forest, which is one of the most suitable tea producing areas in China. Huangshan City has a long history of tea making and is the breeding base of Chinese famous tea, among which Huangshan Maofeng, Qimen Black Tea and Taiping Houkui are among the "top ten famous tea in China" and enjoy a good reputation both at home and abroad. There are hundreds of tea enterprises, hundreds of thousands of tea farmers and more than 700,000 mu of tea garden in Huangshan City (more than 98% of them have passed the certification of "Three Certificates").

Tea industry is one of the economic pillar industries in Huangshan City, which is of vital importance
in earning foreign exchange through export, developing rural economy and increasing farmers' income. However, in recent years, tea enterprises in Huangshan City have also exposed some problems, such as hidden dangers of tea quality and safety, insufficient deep processing, weak brand marketing, etc., which restrict the improvement of competitiveness of tea industry in Huangshan City. Tea is the key product of Huangshan City. Exploring an operation mode and characteristic path suitable for the development of local tea industry not only has practical significance to help tea farmers increase income and expand local employment, but also has reference significance for tea enterprises in other provinces and cities. With its unique natural geographical environment, extensive and profound tea culture and rich tourism resources, Huangshan City will certainly take a new step in the production and development of tea.

2. Literature review

There are two kinds of literatures closely related to this paper. One is the research on the competitiveness of tea industry in China, the other is the research on the development status and influencing factors of tea industry in Huangshan City.

2.1. Research on competitiveness of Chinese tea industry

Xu [1] studied the factors affecting the competitiveness of China's tea industry from the perspective of tea industry, adopted the index of dominant comparative advantage (RCA) and total labor productivity (OLP) as the proxy indexes of the international competitiveness of China's tea industry, and proposed targeted countermeasures and suggestions on this basis. Bao and Fang [2] used Porter's diamond theory to analyze the four elements of competitiveness of Anhui tea industry, held that cluster development is the strategic choice for the development of Anhui tea industry, and proposed the ideas and relevant measures of cluster development of Anhui tea industry. Xu and Chen [3] quantified the gap between China and developed countries in the international competitiveness of tea by calculating the index of revealed comparative advantage (RCA), and analyzed the reasons for the gap in competitiveness by using Porter's "national diamond" model theory, and put forward policy suggestions to improve the international competitiveness of China's tea. Liu and Zhang [4] used comprehensive advantage index method, trade competition index method, revealed comparative advantage method, and combined with the international market share index to make an empirical analysis on the competitiveness of tea industry in Anhui Province. Compared with other tea-producing provinces, the factors restricting the development of tea industry in Anhui Province are obtained, and the corresponding countermeasures and suggestions are put forward. Guan [5] used the classified data of the trade database of the United Nations Statistical Office to explore the comparative advantages of different categories and packages of tea exported from China. The results showed that, among the tea products exported from China at the present stage, the large package green tea had the most comparative advantage over other products, the large package fermented tea had the least comparative advantage, and the small package fermented tea and small package fermented tea had the fastest increase.

2.2. Research on tea industry in Huangshan City

Wu et al [6] analyzed the impact of the geological background of Huangshan tea on the element combination and soil type in the soil from the geological perspective through the field investigation of Huangshan tea, discussed the relationship between the main quality of tea and the geological background of the producing area, and analyzed the correlation between the excellent quality of tea and the geological background conditions. Zhan and Chen [7] found that consumers have a relatively low cognition of Huangshan tea geographical indication, but they have a strong purchase intention of Huangshan tea and are willing to pay a certain price premium. At the same time, consumers' understanding of the knowledge of Huangshan tea geographical indication, trust degree of Huangshan tea geographical indication label, consumers' preference of tea and the main purpose of buying tea are the important factors influencing consumers to buy Huangshan geographical indication tea. Zhu et al [8] discussed the current situation and development countermeasures of tea culture tourism in Huangshan City, holding that it is necessary to promote the development of tea culture tourism in
Huangshan City from such aspects as guaranteeing the quality of tea products, strengthening the role of tea culture, propagating and popularizing tea culture knowledge, distributing benefits well and developing related products. Wang et al [9] took 76 tea processing enterprises with geographical indications in Huangshan City as research objects, adopted the methods of questionnaire survey and field interview of middle-level and above managers, analyzed the current situation and development difficulties of the geographical indication tea industry in Huangshan City with diamond model, and proposed corresponding countermeasures.

The existing literature provides abundant information and theoretical origin for the research of this paper. This paper will further deepen the analysis of the core competitiveness of the local tea industry based on the local characteristics of Huangshan City and through its deep integration with regional culture and local tourism, so as to provide some models for reference for the discussion of the development path of characteristic agriculture in less developed areas of China.

3. The development status of tea industry in Huangshan City

3.1. Tea cultivation in Huangshan City

According to the Statistical Bulletin of National Economic and Social Development of Huangshan City over the years, the annual output of tea was 28,000 tons in 2013, up 4.0% over the previous year. At the end of the year, there were 205 agricultural products processing enterprises above the scale in the city, 20 more than the previous year, and 217 specialized farmers' cooperatives were newly established, totaling 1,198. In 2015, the annual output of tea was 33,700 tons, an increase of 2.4% over the previous year. At the end of the year, there were 218 agricultural products processing enterprises above the scale in the city, and the annual output value of agricultural products processing was 19.08 billion yuan, an increase of 0.1%. Moreover, 167 newly registered farmers' cooperatives were established, and the total number of farmers' cooperatives reached 1,654. In 2017, the output of tea reached 34,300 tons, with an increase of 3.3%. The city has won the title of 9 top 100 tea enterprises in China, ranking the first in the number of prefecture-level cities in China. By the end of the year, the city had 2.45 million mu of characteristic industrial bases, including 761,000 mu of tea plantation area. By the end of the year, 28 national and provincial agricultural standard bases had been built, 10 well-known agricultural products trademarks in China, and 1,905 farmer cooperatives, among which 84 were newly registered. The data of annual tea yield and growth rate in Huangshan City from 2013 to 2017 are shown in table 1.

Table 1. The change of tea yield (ten thousand tons) and growth rate (%) in Huangshan City from 2013 to 2017.

| Year | 2013 | 2014 | 2015 | 2016 | 2017 |
|------|------|------|------|------|------|
| Annual tea yield | 2.8  | 3.3  | 3.37 | 3.3  | 3.43 |
| Growth rate | 4    | 5.8  | 2.4  | -2.1 | 3.3  |

Source: Huangshan statistical bulletin on national economic and social development

3.2. *Huangshan* tea varieties

There are many famous teas in Huangshan, including Maofeng, Houkui and Qihong. In addition, there are Zhulanhua Tea, Huangshan Green Peony, Laozhu Dafang Tea, Songluo Tea, Xinanyuan Yinhao Tea and Huihongqing Tea, etc. The peak of the hair is like a finch's tongue. It is picked from the tender part of the tea, and there are many tiny hairs on the surface. The more hairs, the better the quality of the tea. Houkui is flatter, leaf slant big, has machine press and manual suppress, the tea that manual suppress drinks very mellow sweet nature. Qihong is warmer, more suitable for women to drink, if milk is added to drink, it has a good effect of tonifying blood gas. Different kinds of tea taste different, you can choose according to your own preferences.

3.3. Tea trade in Huangshan City
Tea is the traditional bulk agricultural products in Huangshan City, and tea industry is the pillar of Huangshan's agricultural economy. Tea trade plays an important role in the city's agricultural income and export earnings. In 2003, the total output of tea in the city was 17,800 tons, of which more than 4,800 tons were exported by itself and the foreign exchange was 7.805 million dollars. In 2013, the city's tea export volume reached 25,300 tons, earning $101.58 million in foreign exchange, and the tea export volume exceeded US $100 million for the first time. At the end of 2015, Huangshan's tea exports amounted to about $140 million, accounting for about 30% of the city's total exports and about 65% of Anhui's tea exports. The data of tea output, export volume and total export amount in some years of Huangshan City are shown in Table 2.

Table 2. Tea export volume (tons), tea output (tons) and total export amount (US$10,000) in Huangshan City.

| Year | Export volume of tea | Tea yield | Total export amount |
|------|----------------------|-----------|---------------------|
| 2003 | 4,800                | 17,192    | 780.5              |
| 2008 | 6,000                | 22,956    | 1,000              |
| 2013 | 25,300               | 29,151    | 10,158             |

Source: Huangshan statistical bulletin on national economic and social development

4. International competitiveness analysis of Huangshan tea industry: Based on diamond model

The "diamond model" was proposed by Michael Porter, a famous strategic management scientist at Harvard Business School. Porter believes there are four factors that determine the competitiveness of a country's industry: (1) factors of production: including human resources, natural resources, knowledge resources, capital resources and infrastructure. (2) demand conditions: mainly the demand of the domestic market. (3) The performance of related industries and supporting industries: whether these industries and related upstream industries have international competitiveness. (4) The strategy, structure and performance of competitors. These four elements play a two-way role in forming a diamond system. Besides the four elements, there are two variables: government and opportunity. Opportunity cannot be
controlled, and the influence of government policies cannot be ignored. The relationship is shown in figure 1.

4.1. Production factors
Primary factors of production refer to the geographical location, natural resources, climate and non-technical labor of the area where the enterprise is located, which can be obtained through passive inheritance or simple investment. Huangshan City is a typical subtropical humid monsoon climate, located on the mysterious golden line of 30° north latitude, with forest coverage rate of 82.9%. Tea trees grow in the altitude of 300-1000 meters between the hillside and deep valley land, surrounded by trees shade, rivers and streams and moisture, deep soil layer, loose texture, good permeability, strong water retention, rich in organic matter and phosphorus and potash fertilizer, which is very suitable for their growth.

Advanced production factors refer to senior talents, scientific research institutes, higher education system and modern communication infrastructure. In the aspect of tea research, Anhui Province has a high human capital and has many professional tea research institutions, such as Qimen Tea Research Institute of Anhui Agricultural Academy, tea department of Anhui Agricultural University, Huangshan Tea School and so on. Although the natural conditions of tea production in Huangshan City are advantageous, the development of tea industry in Huangshan City has been very slow due to a series of factors, such as the weak innovation ability of tea science and technology, the lack of large-scale promotion of tea technology, the poor ability of tea export, the lack of management technology and the low professional quality of tea farmers.

4.2. Demand situation
In recent years, with the continuous improvement of living standards, consumers' demand for tea has gradually become more focused on famous tea, paying more attention to the brand and packaging of tea. As is shown in figure 2, the tea consumption in China is on the rise, but it has not completely reached saturation, and there is still a lot of room for growth. From the perspective of foreign trade, according to the database of Chinese Institute of Business and Industry, the export volume of tea in 2018 was 364,742 tons, with a year-on-year growth of 2.7%, and the export amount of tea was 1,777.86 million dollars, with a year-on-year growth of 10.4%. Huangshan tea is a small-scale production for the global market, but the huge market demand will bring opportunities for its rapid development and growth.

![Figure 2](http://www.chyxx.com/industry/201809/676082.html)

4.3. Related and supporting industries
The upstream materials of tea industry chain include tea planting and picking, fertilizers and pesticides, packaging materials, etc. The middle reaches are tea production, while the downstream channels are
sales, such as supermarkets, tea houses, catering industry, e-commerce platforms, etc. Huangshan City has basically realized the mechanization of tea production and processing. By 2015, Huangshan City has 61,495 tea trimming machines, 4,891 tea picking machines, 6,000 solar insecticidal lamps, 11,000 electrostatic sprayers, 219,377 tea processing machines and 80 tea production and processing lines. The mechanical processing of tea leaves in Huangshan City is not limited to the production of tea leaves, but gradually extends to the whole process of tea plantation cultivation, plant protection, pruning, picking and keeping fresh. However, it is difficult for a single enterprise or industry to maintain its competitive advantage. Only when the upstream and downstream industries interact with each other and form an effective "industrial cluster", can the competitive advantage of the industry be sustained developed.

4.4. The strategy, structure and competition of enterprises

From the perspective of enterprise strategy, tea producers in Huangshan City generally lack clear strategic objectives and strategic planning. The decentralized operation of the tea farmers market has poor information, poor circulation channels, high transaction costs to enter the market, and the low cost strategy cannot be realized. From the organizational structure of tea production, small-scale family management of farmers is the main mode of tea garden management in Huangshan City. This mode of production leads to low productivity of tea and the quality of tea is difficult to guarantee, unable to keep up with changes in market demand, and individual tea farmers bear greater market risks. From the perspective of industry competition, excessive dispersion and narrow production of tea is not only unfavorable to the improvement of competitiveness, but also hindering the development of the industry. If the competitive mode of Huangshan tea still stays at the low level of price competition, it will seriously reduce the market value of famous and excellent tea.

4.5. Government and opportunity

In the past two years, with the launch of the National Poverty Alleviation Plan, the municipal and county governments in major tea-producing areas have incorporated the development of tea industry into the local economic and social development plan and poverty alleviation plan and increased their support. The government summarized and promoted the effective model of tea industry poverty alleviation, and improved the effect of tea industry in poverty alleviation. Huangshan Municipal Government has done a lot of measures in the development of tea industry. Firstly, based on the local resource advantages, the local industrial development plan of Huangshan City is made, and the policies conducive to the development of tea industrialization are formulated and promulgated. Secondly, standardize the order of tea market and create a fair competition environment for tea merchants. Thirdly, through typical demonstration, the successful experiences of various regions are summarized and promoted to guide the healthy development of tea industrialization. Moreover, with the rapid development of the economy, people's income has generally increased, and the demand for drinks is increasing day by day. Tea’s unique health effect makes people pay more and more attention to tea beverage. Green tea has gradually become the most popular beverage in the world, which is undoubtedly an excellent opportunity for the expansion of the tea market in Huangshan City at home and abroad.

5. Exploration of new operational modes

The first is to set up production cooperatives. There are many tea enterprises in Huangshan City, but there is a lack of unified standards and scientific guidance from the picking and production of tea gardens to the packaging and sales, which leads to chaos in the tea industry in Huangshan City. In order to overcome this problem, tea production cooperatives can be set up, and the government can provide technical guidance and financial support in terms of pest management, soil composition testing and other aspects for tea farmers and tea gardens. The cooperative will be built into the raw material base of leading enterprises within the territory.

The second is the introduction of high-tech tea-making technology and technological innovation. In the process of tea planting, tea enterprises in Huangshan should actively introduce modern and intelligent tea planting technologies, such as Internet of Things technology, mechanized picking
integration technology, etc. In the process of tea processing, using Microwave drying machine for tea processing can not only improve the quality of tea but also improve the safety factor of tea products. In addition, attention should be paid to the development of tea deep-processing products. With the improvement of people's living standard and the acceleration of life rhythm, the demand for tea products will gradually tend to tea drinks, refreshments and instant tea products. They can try to cooperate with local tea schools or scientific research institutions to develop a series of tea deep-processing products.

Thirdly, offline and online marketing promotes the circulation of tea products. In terms of traditional offline sales channels, expand the market scale of the existing "tea city", improve the taste of the tea city, and accelerate the construction of the tea wholesale market of Huangshan Agricultural Products Logistics Park in the City Economic Development Zone. In addition, explore the online operation mode of "Internet +", so as to vigorously expand sales channels. Give full play to the platform advantages of e-commerce, it is not only the distribution center of commodities, but also the distribution center of production information and sales information. It can not only output products, but also output information, producers and consumers closely linked, achieve the production and marketing docking.

Through the above efforts, a new operation mode of "leading enterprises + production cooperatives + farmers + traditional channels + Internet +" for the development of tea industry in Huangshan City is finally formed.

6. The way to develop local characteristics
The development of tea industry in Huangshan City is faced with both opportunities and challenges. However, by virtue of its unique natural geographical environment, famous tea varieties at home and abroad and extensive and profound tea culture, Huangshan City can try to explore a development path integrating local characteristics and advantages in the tea industry.

6.1. Developing tea-picking activities and experience tea culture
Huangshan tea culture has a long history, extensive and profound. When people taste Huangshan tea, the combination of tea and tea culture can not only enhance the connotation of tea products, but also make Huizhou culture better go to the world. Therefore, we should formulate the most acceptable integration scheme of tea and tea culture for different consumer markets, so that the Huangshan tea culture can be understood by people all over the world. Deep and rich culture and beautiful natural scenery are undoubtedly one of Huangshan's great advantages in publicizing local industries. Along with the rise of cultural tourism boom, tea culture tourism has been more and more popular. Develop tourism projects with tea garden as background.

6.2. Establishing tea museum to promote brand effect
There are many famous teas in Huangshan City, but having famous teas does not mean having famous brands. Although "Xie Yuda" and "Xin'anyuan" and other leading tea enterprises in Huangshan City have been listed among the top 100 tea industry in China, so far, the world reputation of Huangshan tea brand is still not high. The establishment of the Xie Yuda Tea Museum will help promote tea brands and enhance the influence of local tea brands. Only by gradually creating a tea brand with international popularity, can Huangshan tea be better sold abroad and become "world famous tea".

6.3. Deep integration with local tourism
Tourism is an important carrier and bridge of cultural exchange, through which people can contact and experience different cultures. Huangshan is a tourist mecca, having its own unique culture - tea culture. The development of tourism will undoubtedly promote the spread and exchange of Huizhou tea culture, and it is also a kind of inheritance and protection of huizhou tea culture. Combining with the current consumption pattern of the public and the development of tourism, we will develop tea tourism commodities with Huizhou characteristics, such as tea food, crafts, tea utensils, etc., so as to realize the tea way of making friends with tea and promoting the development with culture, and let more people know and like Huangshan tea. Increase the development of tourism and promote the increase of tea
trade, so as to realize the common development of famous mountains and famous teas.

7. Conclusion

Based on the current situation of tea industry development in Huangshan City, this paper analyzes the competitiveness of tea industry in Huangshan City with diamond model, and then discusses the new operation mode and the development path of local tea industry characteristics. Based on the above analysis, this paper thinks that the following three aspects can be considered to enhance the competitiveness of Huangshan tea industry. First, cluster development is the strategic choice for the development of tea industry in Huangshan City. The diamond model analysis shows that there are some defects in the four factors of the competitiveness of Huangshan tea industry, which makes it difficult to form an organic whole to strengthen the overall competitive advantage. Industrial clusters are characterized by specialized division of labor, geographical proximity, organizational proximity, intragroup organization correlation, synergy and spillover effects, and thus produce regional competitive advantages, so as to promote and strengthen the development of local economy. Second, actively explore new operating modes and optimize the efficiency of resource allocation. "Leading Enterprises + Production Cooperatives + Farmers" will build cooperatives into the raw material base of leading enterprises in China, and make the production of farmers more efficient. The introduction and innovation of new technologies are crucial to the improvement of tea quality. The creation of "traditional channels + Internet +" will realize the interaction between offline and online sales and the smooth flow of production and marketing information. Third, to seek the characteristic development of local tea industry. By carrying out tea picking and tea tasting activities, experiencing tea culture, establishing Huizhou Tea Expo Garden, expanding brand effect, and combining tea industry with local tourism based on abundant local tourism resources, highlighting regional culture and characteristics, Huangshan tea can be better promoted to the whole country and the world.

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