

The Sustainable Development of Jingdezhen Ceramic Expo Industry

Lin Jing *

Jingdezhen Ceramic University, Jingdezhen, Jiangxi, China

Shenghong666@163.com

**corresponding author*

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Abstract: As a thousand-year porcelain capital, Jingdezhen is in the historical period of economic form and industrial transformation. As the hometown of ceramics, there has a thousand years of historical and cultural accumulation, unique ceramic technology and resources, as well as rich ceramic culture and artistic materials. However, the delay and disadvantages of the current inherent economic mode, it is suitable for reform and innovation to transform the ceramic industry into a ceramic culture and creative industry. The purpose of this paper is to study the sustainable development of Jingdezhen ceramic expo industry. In this paper, through analysis of Jingdezhen ceramics industry in nearly five years data, we found that the annual growth rate of ceramic industry was very slow, only from 14% to 17% in five years, therefore, to speed up the development of ceramic industry, continuous innovation of ceramic idea and realization of the whole ceramic industry transformation and upgrading, which is a wise choice for the sustainable development of Jingdezhen ceramics exhibition industry.

1. Introduction

The sustainable development of Jingdezhen ceramics expo industry is conducive to promoting the implementation of the strategy of mass entrepreneurship and innovation. This is an opportunity to expand our opening up and to introduce our Eastern wisdom. It is willing to explore new business modes and create new tools for economic growth. Jingdezhen is a depressed city. We urgently need to promote industrial transformation and upgrading, explore new forms of business, and find new opportunities for strategic development, all of which are problems of speed and efficiency in cities. In addition, we also need to promote ceramic innovation and develop ceramic culture and new forms, which are strong growth points for food, sports, commercial and other industries. If we give full play to new energy efficiency, then can accelerate the cultivation of new energy and new supply [1-2].

Ted Silberberg's zoning research discusses issues of cultural tourism and business world in museums and real estate and analyzes the safety problems of museums and heritage sites. He also

shares the ideas of enhancing and developing products [3] during their development. Walle A Herbert introduces the advanced concepts of traditional tourist attractions and the ideas of creating customized tourism products, and outlines the cultural and tourism products. There are many mechanisms for tourism products to transform tourism resources into practical tourism ones [4].

The article aims to investigate the cultural and creative industry in Jingdezhen, and to think about the "cultural and creative" of the ceramic industry and its future industrial structure. Through field investigations and visits to the old and new ceramic production areas in Jingdezhen, this paper focuses on several ceramic departments with certain "cultural creativity" in Jingdezhen, and then compares the old and new production models, sales models, design thinking modes, etc., to deeply discuss the influence of "cultural creativity" on the sustainable development of ceramic expo industry.

2. The Research on the Sustainable Development of Jingdezhen Ceramic Expo Industry

2.1 A Brief Analysis of the Current Situation

(1) A favorable position: Jingdezhen is located on the east bank of Poyang Lake, where the central urban settlements of the Yangtze River and the Central urban settlements of the Yangtze River Delta. It is an important intersection point of the Golden Yangtze River. Tourism belt is one of the most important characteristics of international golden tourism circle.

(2) Good cultural tourism: In the national first-class cities and cultural cities, Jingdezhen ranks among the best, and its tourism resources are unique and irreplaceable. There were 24 subcategories among 31 subcategories, accounting for 77.4%. The profit margin for personnel is high, with Jingdezhen accounting for 74%, and 313 out of the 423 inventory divisions in the industry. Natural resources are scarce, accounting for 66%. There were 44 intangible cultural categories, accounting for 10.4% [5].

(3) High achievements in pottery: Jingdezhen is the pinnacle of global ceramic art, expressed in three areas: the art, the craft and Masterpieces: The art is particularly manifested in kaolin, which has become the haven of global ceramic making, and in the blue and white section of ceramics, Yuan dynasty's blue and white porcelain, Ming dynasty's red glaze, single glaze, and Qing dynasty's color glaze. Jingdezhen ceramics are not only the display of ceramic craft, but also the display of painting art, product design and technological process. With the globalization of ceramic trade, it has brought a profound influence on the painting art, product design, social culture and customs of other countries and regions. Nowadays, Jingdezhen has not only inheritors of intangible cultural heritage in ceramic art, but also ceramic lovers from all over the world, as well as a large number of ancient folk artists, painters and national advanced arts and crafts artists. Jingdezhen is the source of cultural unity in the world. The Sanlu Temple in Jingdezhen was the starting point of the maritime Silk Road. The ceramic trade in Jingdezhen has greatly promoted the development of world culture and art.

(4) Long history of pottery making: Jingdezhen's thousand-year-old furnace will never stop, and the industry operates through it.

(5) The brand status is obvious: Jingdezhen is one of the four famous towns in history, known as "Jiangnan Town". At the same time, its ceramics have the characteristics of "white as a jade, bright as a mirror, thin as a piece of paper, and sound like a melody, "traveling in nine fields and foreign countries", which were collected by foreign nobles and became the commodities in demand in the world at that time, creating the "ceramic road" in China [6-7].

(6) Strong foundation of cultural and creative industry: Cultural and creative industry is the

foundation and soul of cultural and creative tourism. Jingdezhen has cultivated a large number of ceramic cultural creative industry enterprises. In Jingdezhen, Taoxichuan, Royal Kiln Factory and Sanbao Village have been built as models of national cultural industries, attracting a large number of visitors from all over the world and effectively enhancing the soft power of Jingdezhen's urban culture.

2.2 Existing problems

(1) Insufficient awareness of innovation: Although Jingdezhen has a long history of porcelain making, it lacks the spirit of forging ahead, especially the consciousness of ceramic innovation is very weak. The vast majority of ceramic design and production enterprises have been making ceramics along with the previous design concept and technological process, due to Jingdezhen's backward innovation consciousness, the product design lags behind seriously, the market competitiveness declines seriously, and also seriously restricts the development of ceramic cultural creative tourism.

(2) Chaotic management system: Jingdezhen ceramic expo has the problem of outdated and rigid management mechanism. As the exhibition manager, but lack of active service consciousness, perfect management mechanism, efficient and flexible management process. As practitioners in the ceramic exhibition industry also lack necessary management and training system, which ultimately leads to the chaos of the management system of the whole ceramic exhibition industry in Jingdezhen and poor coordination among all the parties.

(3) Backward supporting facilities: If Jingdezhen wants to do a good job in the ceramic expo industry, it must work hard in the relevant supporting facilities. The first is the absence of international airport; the high-speed rail line is not perfect and so on, resulting in inconvenient transportation. Secondly, the quantity and the quality of high-end hotels are seriously inadequate; The city's infrastructure is poor. Therefore, the state specially allocated funds to support the development of Jingdezhen, but the deficiencies in the above aspects have not been completely changed.

(4) Lagging transformation and upgrading. At present, the central government requires local government to do a good job in the transformation and upgrading of the industry. Due to the lack of natural resources, Jingdezhen cannot develop the local economy in a multi-dimensional way like other cities, and can only take the connotative development road of the ceramic industry. Since the transition is a difficult task, upgrading is even more important. However, the innovation of ceramic industry could not be realized because of the outdated concept of ceramic creation. The backward ceramic technology can not realize the improvement of the ceramic industry, and ultimately lead to ceramic artwork and ceramic daily necessities can not meet the needs of the market. Jingdezhen has a long way to go in economic transformation, and the upgrading level of ceramic industry and ceramic expo industry also needs to be improved [8].

2.3 Promote the Sustainable Development of the Ceramic Expo Industry through the Development of Cultural and Entrepreneurial Industry

With the progress of the global cultural and creative industries, enterprises have been spread all over the country, and different enterprises will emerge. It is undoubtedly to expand cultural creativity under adapting to the conditions. Jingdezhen is an integral part of the Poyang Lake ecosystem, and the Jingdezhen pottery is a variety of "fresh". Promoting a variety of products and enterprise models can increase the company's delivery space and capabilities. It is urgent to improve

the cultural quality of the ceramics, create cultural and educational activities related to ceramics, create a customized ceramic journey, explore new industrial modes, and create more industrial chains [9].

With its unique natural culture, rich resources and thousands of years of scientific and technological experience, Jingdezhen has many opportunities to develop cultural and creative industries. We should promote economic and cultural complementarities, transform cultural resources into cultural capital, and protect Jingdezhen's "industrial heritage". We should also focus on the ceramic industry and build Jingdezhen into a brand demonstration city with the characteristics of "porcelain + tea + ecology". The government also provides loose policy environment and financial support for cultural and creative industries, establishes a unique financing system for cultural and creative industries, creates public service space for cultural and creative amusement parks, and builds cultural and creative industry projects. We can also build high-end cultural and creative brand clusters with "made in Jingdezhen" as the core, and inject sustained power to the whole country and even the world through the concept of "building brands with commodities and promoting industries with brands" [10].

2.4 The Application of Algorithm on Sustainable Development of Jingdezhen Ceramic Expo

(1) Single-level fuzzy comprehensive evaluation model

In the two given sets $U = \{u_1, u_2, \dots, u_m\}$, and $V = \{v_1, v_2, \dots, v_n\}$, the set U represents all the judging elements, and V represents the set of comment levels.

Let u_i be the i -th judging factor, and then its single factor judging result is $R_i = [r_{i1}, r_{i2}, \dots, r_{in}]$, in that way, the decision matrix of m judging factors is obtained as R :

$$R = \begin{bmatrix} R_1 \\ R_2 \\ \vdots \\ R_m \end{bmatrix} = \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1n} \\ r_{21} & r_{22} & \cdots & r_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ r_{m1} & r_{m2} & \cdots & r_{mn} \end{bmatrix} \quad (1)$$

(2) Multi-level fuzzy comprehensive evaluation model

The single-level fuzzy comprehensive evaluation model is simple and easy to use, but it has shortcomings in the application of large complex system. There are many elements in these systems, which are interrelated and affect each other. Therefore, we can classify the collection of judging elements, and judge each category of elements. This is the principle of the multi-level fuzzy comprehensive evaluation model, and its theoretical basis is still consistent with the single-level fuzzy comprehensive evaluation model. The operation steps of the multi-level fuzzy comprehensive evaluation model are as follows:

Firstly, the judging factor U is established and divided into several subsets according to some classification methods, and the following conditions are met:

$$\begin{cases} \sum_{i=1}^m U_i = U \\ U_i \cap U_j = \phi (i \neq j) \end{cases} \quad (2)$$

The next level of the set of judging elements can be obtained from the above formula, namely, $U = \{U_1, U_2, \dots, U_m\}$. In this equation, $U_i = \{U_{ik}\}$ ($i = 1, 2, \dots, m$; $k = 1, 2, \dots, n_k$) indicates that the

subset U_i contains the n_k judging factor [11-12].

3. Methods for the Sustainable Development of Jingdezhen Ceramic Expo Industry

(1) We will build a new type of cultural city: We will implement the 2.0 version of improving urban functions and quality, actively create a national model civilized city and a national sponge demonstration city, then we will be awarded the "Habitat Prize" by the UN; we will build a city with "exquisite, livable and desirable for everyone"; we will carry out urban renewal initiatives, make good use of national pilot projects, designate units for urban renewal in a scientific way, and build demonstration projects to improve people's livelihood, and carry forward cultural heritage, so as to enhance the vitality of cities; We will strengthen weak links in urban functions, address urban diseases through the physical examinations, and improve urban infrastructure such as road networks, public toilets and parking lots, and make them more livable; We will improve urban management, integrate the functions of urban management and public security platforms, build an "urban brain" smart center, and promote the development of a household waste classification, collection, transportation and treatment system.

(2) We will comprehensively deepen reform and opening up and make every effort to stimulate new vitality of market entities. We will continue to break through reform and opening up and environmental empowerment, break institutional bottlenecks, open up service channels, and foster new drivers for high-quality development.

(3) We will deepen reform in key areas: We will complete the three-year action of reform and innovation of state-owned assets and enterprises, and strive to control the total assets of state-owned enterprises in the city to exceed 260 billion yuan; We will promote market-oriented reform of factors of production, strengthen overall management of land reserves, establish a linkage mechanism for simultaneous planning and construction of aboveground and underground projects, and build a excellent market-based allocation of factors of production; We will deepen the reform in key rural areas, strengthen the reform and standardized management of rural homestead sites, and carry out provincial pilot reform of rural homestead in Fuliang County.

4. The Analysis on the Sustainable Development of Jingdezhen Ceramic Expo Industry

4.1 The GDP of Jingdezhen Ceramic Industry

At present, the development of Jingdezhen ceramic industry is facing challenges, and the transformation is the place where the ceramic industry will be gained a new life. We are faced with many problems, such as exhaustion of raw materials and land resources, endless labor distribution, great pressure on energy conservation and emission reduction, and weak competition in the international market. Table 1 shows the total value of Jingdezhen ceramics production and its added value in recent years.

Table 1: Total output value and added value of Jingdezhen ceramic industry from 2014 to 2019

	2014	2015	2016	2017	2018	2019
Gross output value	291.6	335	366.7	372	403.62	423
Value Added	42.9	57.8	57.8	63	68.6	72

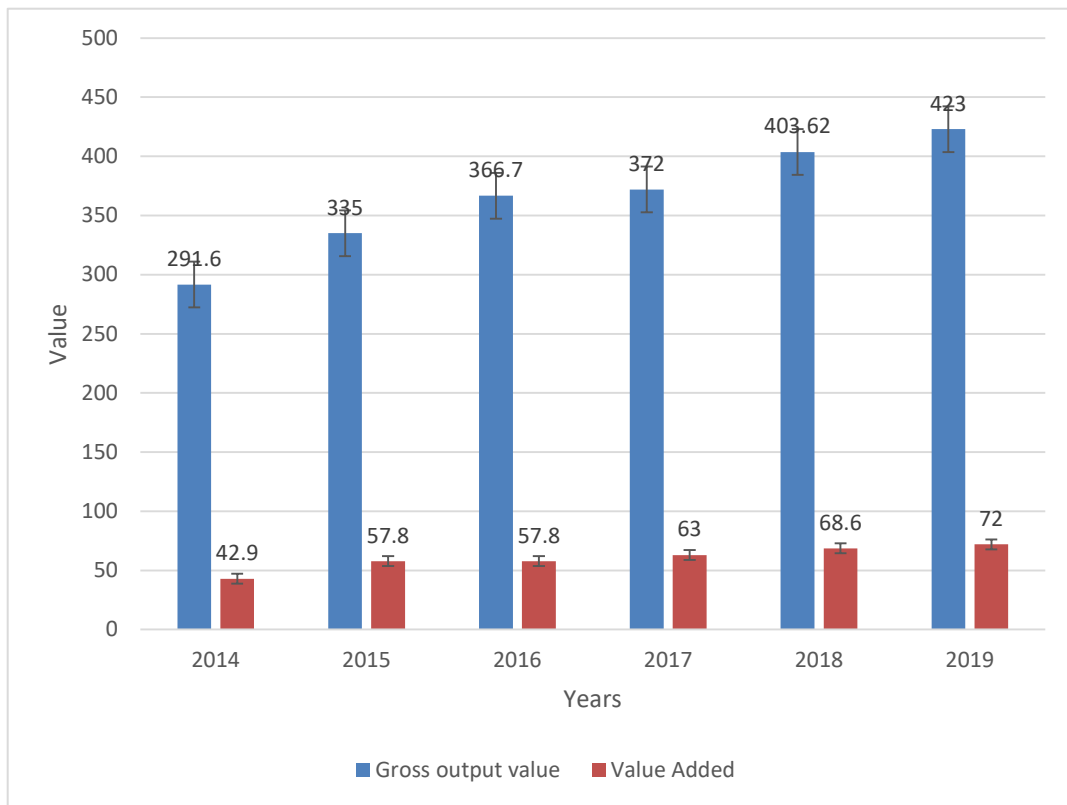


Figure 1: Total output value and added value of Jingdezhen ceramic industry from 2014 to 2019

From Figure 1, we can see that the Jingdezhen ceramic industry has developed slowly in recent years, and its growth rate is also relatively low. Therefore, the transformation and upgrading of ceramic industry has become the only choice of Jingdezhen's future ceramic expo industry. By promoting the construction of ecological civilization and developing the cultural and entrepreneurial ceramic industry, we can transform the ceramic industry and develop it into a new industrial pillar.

4.2 The Proportion of Jingdezhen's Three Major Industries Has Changed in Recent Years

The rise of cultural creativity is a national strategy, and it's helpful for the integration of diverse resources. Many countries and regions are using the development of construction companies as a framework to drive policy changes and they are looking forward to the establishment of new pillar companies. This position is a booster for Jingdezhen to closely follow the global economic development, change the growth mode, and promote the development of ceramic culture and manufacturing industry. At the same time, under the background of an economic prosperity, the system of public enterprises has been optimized, integrating creative companies in modern industry. International experience shows that developed countries have begun to take the development of manufacturing industry as an important strategy to promote economic transformation after industrialization and urban expansion. Under this background, the development of Jingdezhen's culture and manufacturing industry is also an incredible result of urban development. Since the reform and opening up, with the rapid growth of Jingdezhen's economy, the increase of people's income, the further development of social and cultural interests, as well as the major changes in the

income sector, all of those require the changes in the growth system and trade system of Jingdezhen. This is an excellent opportunity for the development of the ceramic culture and creative industry with no pollution and high added value.

According to the proportion data of the three major industries in Jingdezhen in the past five years, we can get Table 2.

Table 2: 2016-2020 Industrial Structure Stacked Map of Jingdezhen City

	Primary industry	Secondary industry	Tertiary Industry
2016	7.3	55.53	37.1
2017	6.1	49.92	43.98
2018	6.67	47.52	45.81
2019	6.62	44.22	49.16
2020	7.11	43.13	49.76

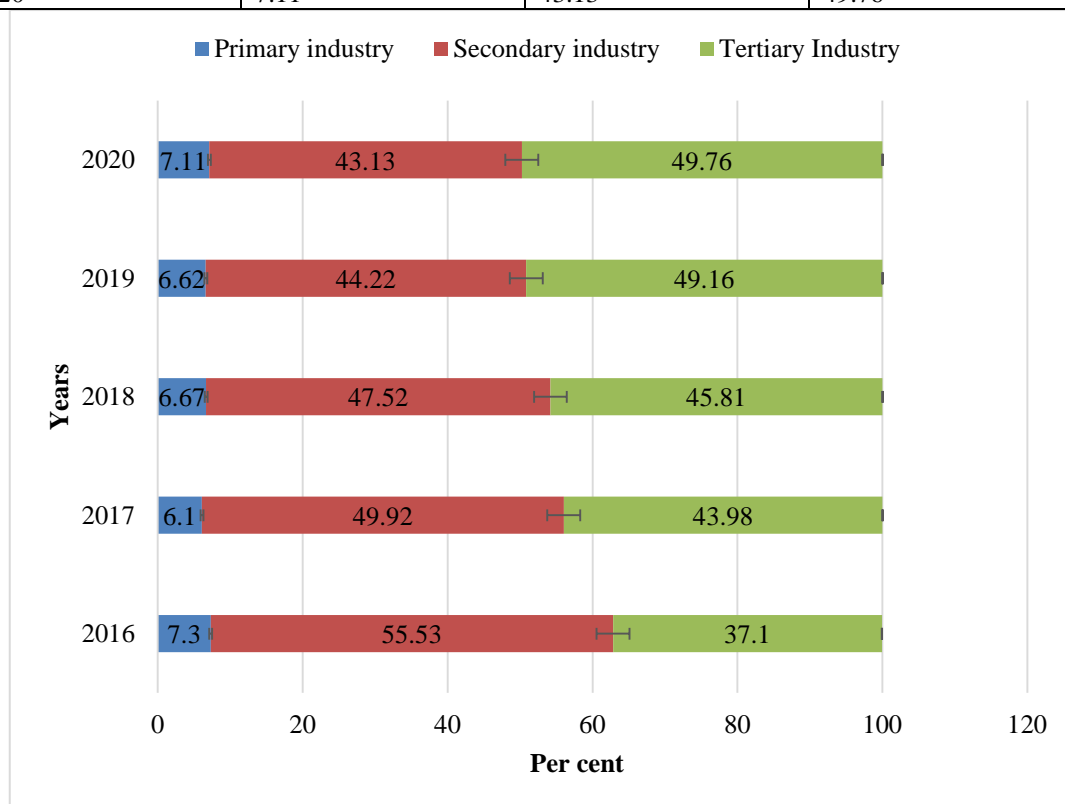


Figure 2: 2016-2020 Industrial Structure Stacked Map of Jingdezhen City

According to the Figure 2 provincial and municipal statistics bureau yearbook and city statistics bulletin data: in 2020, Jingdezhen primary industry accounted for 7.11%, the secondary industry accounted for 43.13%, the tertiary industry accounted for 49.76%, three industries accounted for less than 50%. In recent five years, the tertiary industry of Jingdezhen has steadily increased. We have gradually realized the optimization of industrial structure and improved economic benefits.

5. Conclusions

The generation and development of Jingdezhen ceramic culture and creative industry are neither the natural results nor the gifts from God, but the practical processes in which human beings rely on

technological innovation to transform natural materials and improve human living environment and quality. Based on the related research and theory of technology innovation, this paper starts with the current situation of Jingdezhen ceramics and the development of the ceramic industry, and introduces the internal process of technological innovation to promote Jingdezhen ceramic production culture and industry development, then explains the relevant schemes. Finally, this paper discusses that in order for Jingdezhen ceramic expo industry and ceramic culture industry to embark on a brilliant road, it is necessary to promote scientific and technological innovation.

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