

Research on the Construction of Public Service System of Industrial Cluster

Taking Quanzhou, Fujian Province as an Example

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Abstract—From the perspective of productivity, liquidity and industrial organization, the public service system of industrial clusters can be divided into three systems for construction. The construction of the circulating public service system of industrial clusters includes the procurement of production materials and the sale of products. The construction of productive public service system of industrial cluster is divided into two types: core enterprise oriented and government oriented, whose functions are different. The construction of the public service system of industrial organization of industrial cluster is to establish a variety of self-organization and become the link between government and enterprises.

Keywords: industrial cluster, public services, Quanzhou

I. INTRODUCTION

In the process of the growing manufacturing industry in China, production organizations in the form of industrial clusters have played an important role. Michael porter from the United States was the first to study industrial cluster in the world. He believed that "industrial cluster refers to the spatial agglomeration of a large number of closely related enterprises and related supporting institutions in a specific industry, and the formation of a strong and sustained competitive advantage" [1]. Qiu Baoxing was the first person to study industrial clusters in China. He believed that "small business cluster is a group of independent and interrelated small businesses established according to professional division of labor and collaboration" [2]. Since then, there have been continuous studies on industrial clusters both at home and abroad. Although the perspectives and discussions are different, they all agree that industrial clusters are enterprise groups gathered in a geographical area based on division of labor and cooperation. It can be seen that division of labor and cooperation are the main characteristics of industrial clusters. As a result, industrial clusters, as an economic system, must have some common needs, or be called to have the characteristics of public goods.

Because it can provide important function for area economy development, many countries and local governments actively support the formation and development

of industrial clusters. For example, the public goods demand of industrial clusters is usually provided by the government. The most important one is the corresponding policy support, such as regional planning, taxation, land, capital, etc., which will promote the formation and initial development of industrial clusters. However, the enterprises in the industrial cluster survive in the market competition, so the promotion effect of the policy will decrease with the passage of time. One reason is that the policy game that local governments are trying to emulate makes it impossible for policies to continue delivering dividends. Moreover, in the market economy, blind government support will make enterprises form policy dependence, and it is difficult to establish the market competitiveness of industrial clusters. The second reason is that in the era of economic globalization, China's exports have been leading the world for many years, and policy support is also easy to lead to trade friction and disputes. Therefore, to provide the service with the characteristics of public products of industrial clusters, the market system should complement and even play a leading role.

Since the characteristics of public products of industrial clusters belong to the common needs, it requires a variety of individuals and organizations to cooperate to establish a professional public service system to meet the needs of clusters. According to different types of common needs, the public service system of industrial clusters should have a corresponding subdivision system to provide professional services. From the perspectives of productivity, liquidity and industrial organization, the public service system of industrial clusters can be divided into three systems for construction.

In 2019, 10 industrial clusters in Quanzhou accounted for about 70% of the total industrial output, making Quanzhou the backbone of Fujian province in terms of total economic output for 21 years. Taking Quanzhou, Fujian province as an example, this paper discusses the construction of the public service system of industrial clusters in order to provide benefits for the sustainable development of industrial clusters.

II. THE CONSTRUCTION OF THE CIRCULATING PUBLIC SERVICE SYSTEM OF INDUSTRIAL CLUSTERS

For enterprises, their production turnover includes three basic links: purchasing of production materials, production of products and sales of products. The circulation link is both the starting point and the end point, and the same is true for industrial clusters that gather enterprises. Therefore, the public service system of industrial cluster must be established.

The circulating public service system is a service system for the enterprises in the industrial cluster to purchase production materials and sell products. As the industrial cluster is a system of division of labor and cooperation, except for the upstream enterprises producing basic raw materials, which need to purchase production materials by themselves, the production materials procurement of other enterprises in the industrial chain is mostly completed within the cluster. Therefore, the key function of the liquid public service system of industrial clusters is to participate in the marketing of cluster terminal products, and its core is the professional market of industrial cluster products.

Since the terminal products of industrial clusters are generally aimed at the external market, however, for small and medium-sized enterprises with a large number of internal industrial clusters, due to limited marketing funds and energy, building the external market alone will often bring production and management pressure. If the industrial cluster can establish several professional markets for cluster products, it can provide a low-cost market transaction carrier for cluster products. The city has a cluster of enterprises, centralized product sales, can attract similar products to buy customers to trade. At the same time, customer concentration can expand the customer source of cluster products, so as to reduce the marketing cost of building external market for cluster enterprises, and finally improve the comprehensive competitiveness of industrial clusters.

The function of the circulating public service system of industrial clusters is to build a series of specialized markets for production materials and terminal products. According to the main body of market construction, it can be divided into two categories: market factor formation type and government promotion type. Market factors are formed because cluster products can occupy a large market share of this kind of products, so under the market effect, the circulation of industrial cluster products naturally evolved and formed. Such as the early Quanzhou Shishi clothing industry famous in China, formed the former Shishi bus station near the clothing market. Government-driven market refers to the formation of government as the main driving force and combined with market forces. For example, after the development of Shishi garment market failed to provide corresponding impetus for Shishi garment industry, the Shishi municipal government planned and designed the largest comprehensive garment market in Asia — Shishi garment city. Since then, in order to solve the lack of raw materials professional market, and the construction of the international textile city Shishi, it "is the key project,

Quanzhou, Shishi city, Fujian province level, light textile city development stage, the first is the government leading, industrial upgrading in order to realize the textile city specification run efficiently and the systematic, unity and coordination of market management" [3].

According to the market place division, the industrial cluster professional market can be divided into the traditional market and e-commerce market. In the traditional trading market, there are specific trading places, such as Shishi garment city. The garment trading is conducted in specific space, and the trading parties communicate face to face in the transaction. E-commerce market is based on information technology and Internet technology. Trading platforms are established on the Internet, and trading places change from specific space to network space, such as Tmall and Taobao.

At present, the focus of Quanzhou industrial cluster's construction of liquid public service system should be the professional e-commerce market which can represent the development direction of the market and is relatively weak. There are two types of construction paths: enterprise promotion and government promotion. Enterprise promotion is to build their own website, or to upgrade their online shop in the e-commerce platform. If can existing shop gives priority to, absorb cluster other enterprise, upgrade for a management group. In this kind of electronic commerce market construction, involves the cooperation of many enterprises. Instead of directly intervening in its construction, the government encourages enterprises in industrial clusters to take the initiative to cooperate with each other so as to reduce the operation and maintenance costs of the e-commerce market. Quanzhou Shishi children's wear e-commerce market is such a typical. Relying on China children's wear city, it has established "Shishi children's wear network" for most of the enterprises in the cluster, providing the transaction information for the children's wear enterprises in the cluster with customers all over the country. Government-driven refers to the government as the main driving party, the association of related enterprises of industrial cluster, and the establishment of e-commerce market of products of industrial cluster by means of self-construction or entrustment. In the construction of such a market, the government generally assumes multiple roles, such as the initiator of the construction of the e-commerce market, as the investor of the initial construction, and as the supervisor of the market order. This kind of construction mode generally has short construction period and quick results. Such as Quanzhou shoes industry cluster as an example to rely on the construction of Aixun Shoes Network, based on the original Quanzhou Happiness Street Shoes Market to establish the Fujian Shoes Network (Quanzhou Happiness Street), in China shoes network construction of Quanzhou shoes branch website.

III. CONSTRUCTION OF PRODUCTIVE PUBLIC SERVICE SYSTEM OF TERTIARY INDUSTRY CLUSTER

Productive public service is to provide support for the common demand in the production process of industrial clusters, so as to ensure the continuity of the production

process of clusters and promote the progress of production technology.

Industrial cluster is an economic organization based on the division of labor and cooperation in the production chain. In the pre-production, in-production and post-production stages of cluster production, there are some demands with the characteristics of public goods. The first is the generic technology of the industrial chain. Due to its externalities, the desire of individual enterprises to conduct independent research and development is not strong. On the one hand, capital supply is insufficient, and even if capital investment can obtain returns, it cannot be obtained by itself. On the other hand, it is lack of technical ability. Industrial cluster enterprises only possess certain skills based on specialized division of labor. Second belongs to stealth technology upgrading of public product characteristics, because of the cluster industry chain involving multiple links form a complete set, a chain product realization technology upgrading, also need to other relevant link to cooperate, so, only a single enterprise technology upgrade is difficult to form a cluster of whole product technology upgrade, therefore calls for the joint technology upgrading of the industrial chain. Thirdly, the training of talents. In various types of personnel training, such as original technology, new technology, new standard analysis, management level, etc., individual enterprises are often reluctant to invest too much on their own, fearing that the flow of excellent talents and technical personnel may bring technology diffusion.

There are two ways to construct the productive public service system of industrial cluster. The first is the core enterprise oriented. The core enterprise of industrial cluster generally strong capital strength, strong technical force, and familiar with clusters of generic technology information, can use its leading status in the system of division of industry cluster, alone or in the form of joint other enterprises, in the cluster building productive public service platform, to develop generic technology, promote cooperation with other enterprises technological innovation, training technical personnel. Scientific research institutions and governments can provide necessary personnel, technology and policy support in the productive public service platform. For example, as one of the "top 100 industrial clusters in China", the Nanan water-heating, kitchen and bathroom industrial cluster in Quanzhou has been cooperating with more than 130 small and medium-sized enterprises in technological innovation of the industrial chain since 2013. For example, the technical amount of cooperation between Shenlunda group and cluster enterprises has been kept at about 10 million yuan every year. Similarly, there is Quanzhou Nan'an stone industry cluster. Under the leadership of the leading enterprise Huahui stone industry co., LTD., a number of enterprises jointly established the Nan'an stone industry talent training base, which cultivates and training talents in the cluster industry every year.

The second is government-led. This means that according to the actual situation of the local industrial cluster, the local government is responsible for the supporting functions of the productive public service system, such as operating funds,

site provision, equipment purchase and staff, and guides the cluster enterprises, relevant scientific research institutions and third-party organizations to join. Because of the government's leading role, the advantage of the productive public service system is that it can be established quickly, which is conducive to coordinating the internal relations of the system, effectively integrating resources, avoiding repeated construction, and is conducive to the diffusion of technology and human resources. For example, in Jinjiang, the main base of Quanzhou sneaker service industry cluster, in order to speed up the introduction and training of industrial senior talents, Jinjiang municipal government has built key service centers for talent introduction and training, such as industrial technology research institute, textile shoe service industry incubation base, talent market complex and talent apartment. Jinjiang government has also promoted the cooperation between industry, university and research in six national and 62 provincial and municipal enterprise technology centers, such as Anta, Qippongwolf and Baihong, which are core enterprises of the cluster, to provide technology upgrading services for the cluster enterprises.

IV. CONSTRUCTION OF PUBLIC SERVICE SYSTEM OF INDUSTRIAL ORGANIZATION OF INDUSTRIAL CLUSTERS

In recent years, various forms of non-governmental organizations, also known as self-organizations, have been established in various industrial clusters, including trade associations, Chambers of commerce and industrial cluster associations. The background is the transformation of government functions in China in recent years. The government has shifted its main functions to social public affairs and gradually withdrew from most micro fields, thus leading to the management vacuum left by the previous direct intervention in enterprises. In addition, for the macro-management of industrial clusters, the government can only mainly use the necessary economic and legal administrative means to regulate and control, but there are also government failure. The public service system of industrial organization of industrial clusters consists of various self-organizations of industrial clusters, which can make use of the characteristics of enterprise organization to make up the management vacuum of government withdrawal and reduce government failure. Internally, it provides public services for industrial cluster enterprises, realizes industry self-discipline, ACTS as the link between enterprises and the government, and externally, as the representative of industrial clusters, maintains the lawful rights of clusters and strengthens the overall competitive advantage.

There are two conditions for the self-organization of industrial clusters: the first is the organizational condition; on the one hand, it needs the support of the government. Although it belongs to the spontaneity of the people, the self-organization of industrial clusters can only play a corresponding role if it is politically legalized. On the other hand, there is the support of clustered enterprises, which, when joining these self-organizations as members, must deliver some of the rights of the enterprise, abide by and be bound by the rules and regulations. The second is industrial

conditions. On the one hand, it is necessary to have a certain industrial coverage and a relatively complete industrial chain, or to have a certain number of enterprises and a certain industrial scale. On the other hand, only by setting up enterprises in the same industry chain clustered in a certain geographical area can public services be effectively and conveniently provided.

The industrial organization public service system of industrial clusters mainly provides three types of services. Enterprise service is the most basic function of industrial cluster self-organization, which mainly includes providing industrial information service, market development, cooperative innovation, organization training and so on. The second is self-discipline within the industry. This mainly includes standardizing the operation behaviors and means of cluster enterprises, formulating industrial standards and implementing strict industry qualification certification, avoiding and punishing opportunistic behaviors. The third is resource integration. This mainly includes expanding the influence of industrial brands, maintaining the legitimate interests of clusters, and strengthening the social network.

After decades of development, the main industrial clusters in Quanzhou have formed a relatively complete public service system of industrial organizations, including Chambers of commerce, trade associations, industrial alliances and research institutes. The earliest self-organization in Quanzhou was founded in 1954. According to incomplete statistics, by 2019, Jinjiang has about Jinjiang shoe industry association, Jinjiang food industry association, Jinjiang Dongshi umbrella industry association and so on more than 100 industries self-organization, almost distributed in all industrial clusters. The same is true of other industrial clusters in Quanzhou. These self-organizations play an important role in this industry cluster. For example, the Hess pan-home furnishing industry association established in 2016 by Quanzhou water-heating, kitchen and bathroom industry cluster was initiated by several leading enterprises. "Currently, there are more than 1,200 member enterprises of Hess pan-home furnishing industry alliance in Nan'an city, and it has been rated as the advanced collective in the national building materials industry" [4]. For example, Quanzhou microwave communication industry cluster has 16 science and technology public service platforms, such as "Fujian mobile communication industry alliance", wireless communication system technology public service platform, electronic science and engineering public service platform. With the support of the public service system of the cluster, Quanzhou microwave communication industrial cluster has become the first national microwave communication characteristic industrial base, the first pilot innovative industrial cluster for small and medium-sized enterprises of science and technology, and the pilot innovative industrial cluster of China.

V. CONCLUSION

The upgrading path of industrial clusters in developed countries shows that public service is an important support for the sustainable development of industrial clusters, and the

public service system of clusters is an effective driving force for cluster upgrading. Government and market forces should cooperate with each other in order to build a high-quality public service system of industrial clusters.

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