

The Development Countermeasures of Industry Clusters in Northeast China

SUN Xiaochun^{[a],*}; YANG Xiaolong^[a]

^[a]School of Economics and Management, Northeast Petroleum University, Daqing, China.

*Corresponding author.

Received 9 May 2015; accepted 11 July 2015

Published online 26 August 2015

Abstract

The development of industry clusters in Northeast China directly influences the development of the economy. From the perspective of the formation mechanism, the industry clusters are divided into the embedded type, the primary type and the derivative type. On the basis of explaining the status quo of industry clusters in Northeast China, such issues as poor embeddedness of embedded industry clusters, unobvious brand effect of primary industry clusters and low added value of products of derivative industry clusters have been analyzed. To promote the development of industry clusters in Northeast China, several development countermeasures aimed at the problems have been put forward respectively, including establishing industry supervision and local industry networks, optimizing the international market environment, encouraging local entrepreneurs, establishing regional brands and focusing on promoting the shift of invisible industries.

Key words: Northeast China; Industry clusters; Regional economy

Sun, X. C., Yang, X. L. (2015). The Development Countermeasures of Industry Clusters in Northeast China. *Canadian Social Science*, 11(8), 32-38. Available from: <http://www.cscanada.net/index.php/css/article/view/7471>
DOI: <http://dx.doi.org/10.3968/7471>

INTRODUCTION

The industry cluster is a notable feature of the development of the national economy, the regional

economy and even the urban economy in every country. Since 2002 when the plan to invigorate the old industrial base in Northeast China was put forward, the northeast region in China has made great efforts in carrying out reforms and advocating the establishment of industry clusters and constantly endeavored to enhance the economic development and recreate the glory in “the First Five-Year Period”. The development of industry clusters in Northeast China is carried out under the background of marketization, internationalization and industrial modernization. At present, the main competitive advantage of industry clusters in Northeast China is still the low cost, and the development of industry clusters is still in the low position of cluster development. Therefore, how to increase the advantage of industry clusters and maintain the continuity and maximization of cluster advantages looms large especially for the realization of the sustainable development of industry clusters in Northeast China.

1. THE PRESENT SITUATION, PROBLEMS AND ANALYSES OF THEIR CAUSES OF THE DEVELOPMENT OF INDUSTRY CLUSTERS IN NORTHEAST CHINA

1.1 The Present Situation of the Development of Industry Clusters in Northeast China

Industry clusters are spatial agglomeration bodies constructed by numerous enterprises of different scales and grades that have cooperation relationships in a specific industry within a certain region along with various institutions, organizations and other behavior subjects that are related to their development. They are closely connected by crisscrossing network relationships and represent a new kind of spatial economic organization form that lies between the market and the hierarchy (Cai, 2010). Jin Bei, academician of Chinese Academy of Social Sciences, divided industry clusters into the embedded

industry cluster, the primary industry cluster and the derivative industry cluster in 2003 according to different mechanisms of the formation modes of the industry. The difference among the above three types of industry clusters is that compared with the primary cluster whose growth is based on the full utilization of local resources, the derivative cluster is developed under the condition of a lack of local resource endowments. Compared with

the embedded cluster which is formed by the entrance of external large enterprises, the derivative cluster is formed when local dominant enterprises start from organizing and operating external resources and transform with the change of their resources and abilities.

According to the classification standards above, the classification of industry clusters in Northeast China is shown as below:

Table 1
The Classification of Industry Clusters in Northeast China

The Embedded Type

Daqing Volvo Auto Industry, Daqing New-type Aluminium Product Manufacturing, Daqing Aluminium Industry and Jinzhou Comprehensive Utilization Industry Cluster of Comprehensive Coal

The Primary Type

Harbin Agricultural and Sideline Product Deep-processing Cluster, Harbin Pharmaceuticals, Harbin Normal University Cultural Education Industry Cluster, Harbin Electronic Information, Daqing Petroleum, Daqing Petroleum Machinery Manufacturing, Qiqihar Agricultural Products, Trade with Russia in Mudan River, Yichun Wood, Ecotourism and Green Food, Changchun Automobiles, Jinlin Floorboards, Jinlin Carbon Fiber High and New Technology Industry, Songyuan Petrochemicals, Liaoyuan Sock Industry, Shenyang Nonferrous Metal Processing, Sujiatun New Material Industry, Dalian Innovative Software, Wafangdian Broiler, Dalian Shipbuilding, Dalian Petrochemicals, Dalian Equipment Manufacturing, Anshan Wood Industry, Anshan New Materials, Anshan Iron and Steel, Fushun Chemical Industry, Fushun New Materials, Jinzhou Characteristic Agricultural Products, Benxi Pharmaceutical Industry and Benxi New Building Materials.

The Derivative Type

Harbin Auto Parts, Harbin Composite Materials, Shuangcheng Light Textile Processing, Siping Heat Exchanger, Shenyang Xinmin Lamp Industry, Yuhong Furniture Industry, Sujiatun Power Electric Appliance Industry.

At present, the development of embedded industry clusters in Northeast China is still in the preliminary stage of establishment and development. The growth momentum is pretty good, with rather promising prospects and great development spaces. The development of the primary industry cluster which started early is the major type of the development of industry clusters in Northeast China. Currently, the development of the primary industry cluster has begun to take shape, and many industry clusters have been taking the lead in their domains. The primary industry cluster is experiencing a relatively fast economic growth and has made great contributions to the regional economy. The development of the derivative industry cluster is still in the primary stage with relatively strong momentum at present. However, influenced greatly by other factors, the economic growth range is relatively big, so it is not very stable.

1.2 Problems Existing in the Development of Industry Clusters in Northeast China and Analyses of Their Causes

Although the economy in Northeast China has greatly developed since its establishment, there are still some problems.

1.2.1 Problems Existing in the Development of the Embedded Industry Cluster and Their Causes

1.2.1.1 Problems Existing in the Development of the Embedded Industry Cluster

The embedded industry cluster has the problem of embeddedness. External large enterprises are not suitable for the development of the local economy. For example,

Daqing Volvo Automobile Industry Cluster is in the stage of establishment and development, and the cluster effect is not obvious at present.

1.2.1.2 Causes of the Problems Existing in the Development of the Embedded Industry Cluster

(a) Regional embeddedness, namely, the culture characteristics of the system. Entrepreneurs in the cluster have the same or similar social and cultural backgrounds and institutional environment. On the basis of this, various economic behaviors that people adopt during their daily communication and interaction are deeply rooted in the language of their circles, background knowledge and trading rules which they are familiar with. Therefore, they are reliable and predictable and can avoid the problems which may emerge when strangers are trading with one another. Trust, understanding and cooperation grown out of a common sociocultural environment have not only effectively avoided various opportunistic behaviors, but also promoted the circulation and spreading of knowledge which includes explicit knowledge with tacit knowledge in a dominant position. Mutual trust and satisfaction have become the most valuable resource in the region. This kind of cluster offers a kind of “glue” which makes numerous enterprises stick together. In other words, it not only creates a regional innovative environment, but also makes enterprises to establish their bases locally. Now, let’s take Daqing Volvo Automobile Industry Cluster as an example. It is a newly established cluster and the operational time of external large enterprises is short. Therefore, the regional embeddedness is poor and the time for cultural blending is too short.

(b) Corporate behaviors are deeply embedded in the regional social and cultural backgrounds, forming the embeddedness of social networks. Corporate culture must be rooted in the local social culture, and a vibrant sociocultural environment ensures the sustainable development of economic activities and technological innovation. In the case of the northeast region of China, external enterprises do not pay attention to integrating into the local social culture, only making use of the local resource endowment for their own development, contributing little to industry clusters. From the connection between subsidiaries of multinational corporations and local enterprises, the better the sovereignty the subsidiaries get, the stronger the embeddedness and the greater the contribution to industry clusters.

1.2.2 Problems Existing in the Development of the Primary Industry Cluster and Their Causes

1.2.2.1 Problems Existing in the Development of the Primary Industry Cluster

The primary industry cluster is the industry cluster formed spontaneously through depending on the local endogenous power, which has such features as embeddedness, symbiosis and difficult portability. Social networks, local entrepreneurs and local governments form the core mechanism which promotes the development of domestic primary industry clusters. Their different combinations under different time and place conditions lead to the development tracks of industry clusters with their own characteristics in different regions. Social networks, local entrepreneurs and local governments are the three key factors which promote the growth of the primary industry cluster. The different combinations of these three factors in various regions give rise to the differences in such aspects as structures of local industry networks, regional advantages and development tracks of industry clusters.

The problem of the primary industry cluster lies in the strong dependence on the tracks. The primary industry cluster which is short of effective external connections has a high possibility of falling into economic woes, leading to the deficiency of economic vitality. The primary industry cluster tends to ignore technical issues, resulting in the failure in industry optimization. At present, most of the primary industry clusters in Northeast China are developed “from top to bottom”, and their planning and design are dominated by the government. Therefore, they are government-focused instead of market-focused in the process of development, which leads to the existence of blindness.

1.2.2.2 Causes of the Problems Existing in the Primary Industry Cluster

(a) Social networks. Social networks refer to the summation of social or interpersonal relationships among people in the social group. Local industry clusters are not simple combinations of enterprises. More importantly,

they are local networks with specialized division of labor and cooperation. The effect of social networks on them can be mainly presented in the following three points. Firstly, social networks provide an important cooperation and trust mechanism for the building of local networks and thus generate strong collective benefits, which make individual family workshops overcome the weakness of small production scales and have relatively strong competitive advantages. Moreover, in the underdeveloped stage of the market economy, social networks are important social resources for enterprises in industry clusters to get resources, information and technologies from the outside and expand the external market. The reason why social networks can undertake this function is mainly that enterprises establish necessary trust with other social and economic institutions and political organs through their own social networks. This kind of trust is good for enterprises to gain extensive social support, including funds, technologies, raw materials and all kinds of information which is closely related to their operation from the local community, surrounding cities and even other regions in the country, and constantly expand their product markets so as to win commercial success. Secondly, social networks facilitate the connection among various enterprises within industry clusters. One important characteristic of the primary industry cluster is that there exist many family workshops. Although these family workshops can't be called real enterprises, they have very strong vitality and are the true vigor of the development of the cluster economy. Thirdly, social networks facilitate the reproduction and differentiation within clusters. The fine industrial division of labour within the region lowers the threshold of active capital for newcomers and makes up for the insufficiency of startup capital. As this kind of system of social division of labor is built on social networks which are based on blood lineages, relationships and geographical relationships, the reduced transaction costs among enterprises, smaller operational risks and faster circulation of new technologies and market information give rise to higher collective efficiency, and formal or informal horizontal cooperation relationships are often established among enterprises producing the same kind of finished products and semi-finished products, such as mutual exchanges of production and management experience, and even helping the other enterprises complete order tasks. In this respect, the primary industry cluster in Northeast China has rather strong advantages. However, just because of the huge benefits brought by this kind of advantage, the traditional primary industry cluster in the region ignores technological innovation, subjectively unwilling to invest a large amount of capital and time in technological innovation (Huang & Hu, 2013).

(b) Local entrepreneurs. Local entrepreneurs are the facilitators and catalysts of the primary industry cluster. The formation of the primary industry cluster tends to be the result of economic subjects' striving for benefits

separately and interactions with one another. During the initial period of the formation of clusters, it may be the innovation or the introduction of new products or technologies of an individual entrepreneur. When these occasional innovative activities succeed commercially, new markets will emerge accordingly and industrial clusters will come into being. In this regard, there have been some models which have developed quite well in Northeast China, such as Goubangzi Roasted Chicken. However, the range of influence of local entrepreneurs is rather small, which, in general, can only cover the relevant province with limited influences.

(c) Local governments. The enterprise scale of the primary industry cluster is generally rather small, with most enterprises belonging to family workshops, and the enterprise behaviours have a very strong speculative and short-term nature. On one hand, the speculative and short-term behaviors of enterprises can easily result in information incompleteness. In the case that the predictions about the market's growth tendency are not accurate, enterprises blindly enlarge their production, which results in the severe surplus of production capacities. Vicious competition will also appear among enterprises manufacturing the same kind of products, the most outstanding manifestation of which is the price war. Blind price wars give rise to plenty of fake and shoddy goods that flood the market, which severely damages the overall image of the region and influences the healthy development of the industry cluster. Therefore, the formation and development of the primary industry cluster can't be separated from local governments' support and guidance. At present, some local governments ignore the follow-up work on the development of industry clusters, and they only pay attention to the establishment of industry clusters. This results in many disadvantages for the development of industry clusters.

1.2.3 Problems Existing in the Derivative Industry Cluster and Their Causes

2.2.3.1 Problems Existing in the Derivative Industry Cluster

The problems of the derivative industry cluster lie in the simple dependence on the market, the lack of innovative development, being at the bottom of the "Smiling Curve" and tiny added value of products.

1.2.3.2 Causes of the Problems Existing in the Derivative Industry Cluster

(a) The requirement of clusters' formation is low. An industry cluster can be formed at a district under the condition of the lack of resource endowments and technology accumulation and the entrance of external elements in large quantities, which is the biggest feature of the market for derivative industry cluster. This is because when the requirements of professional skill and the scale of funds are too high, enterprises with limited professional

skill and scale of funds tend to take advantages of the business market earlier. Start with the operation trade business, then enter into the production field when the accumulation of funds and major production skill are to a certain extent. In the case of the northeast region of China, external enterprises do not pay attention to integrating into the local social culture, only making use of the local resource endowment for their own development, contributing little to industry clusters. From the connection between subsidiaries of multinational corporations and local enterprises, the better the sovereignty the subsidiaries get, the stronger the embeddedness and the greater the contribution of industry clusters. Therefore, depending on the market to develop industry cluster can give entrepreneurs support in funds and market channels, decreasing its costs and adventure, which greatly improve the probability of success. However, from another angle, derived industrial clusters loosen the requirements of the formation of an industry cluster in some degree, so that some industries which do not have a cluster condition to form a cluster, which forms hidden danger for long-term development.

(b) This kind of development routes of industry clusters is limited by external elements. Without the occupation of the whole industry chain, once core enterprises transfer the geographical distribution of the resource configuration, the derived industrial clusters will be struck heavily.

2. THE STRATEGY OF THE INDUSTRY CLUSTER DEVELOPMENT OF THE THREE NORTHEAST PROVINCES

Aiming at the current situation and reason-result analysis, it has proposed the detailed measures of promoting the industry cluster development strategy from the three angles, namely the embedded industrial clusters, the primary industry clusters and the derived industrial clusters.

2.1 The Policy of Embedded Type Industrial Cluster Development

In terms of cultivating new enterprises, the government should not only provide superior hardware and software environment, attract capital and talents and encourage the reproduction and derivation of enterprises, but also encourage external enterprises to take root in local areas, hand over technologies, enhance interpersonal communication, integrate into the local communities and build strong regional production networks with local enterprises, thus making the local area become a member of the global production chain and a "seedbed" for cultivating new local enterprises, instead of an enclave where external enterprises stop for a rest temporarily. As the development of the cluster becomes increasingly

mature, the government's role should be weakened gradually, and middle organizations such as the industry association organization should play a main role. From the perspective of the market, do a good job in market research and focus on the market. Establish industry association and other intermediary service agencies. The successful experience of industry cluster shows that the intermediary that provides enterprises with technology, information and other supporting is one of the key factors to improve the clustering performance. Many developed countries and regions all have self-forming intermediary service agencies under the market mechanism, and central and local governments sometimes become the members of the organization of these institutions. Northeastern region currently is in the transition from government-led economy to market-led economy. In the transition process, a considerable amount of governmental functions will be transferred to industry associations and related intermediary organizations. However, due to the immature market economy of northeastern regions, the public does not have enough cohesive force to spontaneously organize these service agencies. Under this circumstance, the local government has taken the initiative to establish intermediary service agencies such as an industry association, and the government officials organize and conduct events as leaders of the association. With constant development of the association's functions, it gets rid of its administrative identity step by step and becomes an autonomous organization that an enterprise really needs (Zhang & Yu, 2013).

In terms of social credit system, one aspect is to strengthen the supply of the system to build regional social and cultural environment, promote the combination of elements in a cluster system and improve innovative abilities of the cluster. In order to improve the inclusiveness of regional social capital, it needs to break down the social capital's restriction in the development routes of industry clusters. The government must undertake the responsibility of maintaining the market order, create orderly competitive market environment by providing the system of quality supervision, honesty supervision, the guarantee of intellectual property rights and maintaining social fair competition and so on to improve the trust degree among the members of the cluster. Secondly, the government should actively encourage and advocate the culture of innovation to stimulate people's enthusiasm of the pursuit of innovation. Establish interpersonal relationship with mutual trust and mutual cooperation. Thirdly, the government should adopt the methods of policy leading, funding support and market operations, strive to develop service productivity center, technology information center and quality control testing center, etc., and cluster development agencies. Through establishing these technology innovation platforms and regional service systems, the organic combination of production such as enterprise research institutions, enquiry

agencies and universities elements in the cluster system can be promoted. While releasing collective innovation and efficiency in the cluster, the cluster's ability to absorb exterior technology is improved. Meanwhile, it is also necessary to expedite the development of non-governmental organizations such as industry association, individual labor association and private enterprise association as well as attach importance to playing the role of association of industry and commerce, thus promoting formation of mutual complementation and positive interaction between government management and industry self-regulation.

From the angle of enterprises, increase the footsteps of integration with the local culture and carry out business cultural activities. Preferably combine the cultures of the foreign & local enterprises, increase the sense of identity of the staff, make better use of the advantages of the industrial clusters and promote the industrial technology to innovate. The development of industrial clusters can also lead enterprises to a better development.

In terms of industrial development, many countries' local governments, on the basis of summarizing international experience, all put the priority of public policies on how to combine the enhancement of the inner force of the local production system and international resources. Therefore, in order to break the low end locked state of the value chain during the development routes of industry clusters in China, on the one hand, the government should create a favorable microeconomic business environment. According to the features of their own cluster development, as well as growth factors in the full excavation, large multi-national corporations should be chosen for introduction. The key is to actively get embedded in global value chain and upgrade value chain of the clusters. On the other hand, the government should actively organize and participate in the dialogue with the main body of international economic behavior to create a fair and equitable international competitive environment for the Chinese development routes of industry clusters (Zhang et al., 2010).

2.2 The Development Strategy of Primary Industrial Cluster

For the aspect of the social network, we should explore the individualization element in the social network and establish local industrial clusters. The social network is the foundation of constructing the primary industrial clusters, while the same cultural background and mental habit as well as the similar social relation and common social principle are beneficial to the establishment of trust among enterprises and the decrease in transaction costs. In the meantime, the social network connects different industrial networks to promote the informal communication and cooperation between individuals, thus expanding the innovative opportunities of local industrial clusters. The social network has a wide and

deep impact on the regional economic development. Facts prove that it will be difficult to establish or keep developing the industrial network without the connectedness of local societies and necessary social trust. For various regions, the most important thing is to explore the most valuable individualization element in the social network and use it as the foundation of establishing local industrial clusters.

In the aspect of local entrepreneurs, they should be cultivated energetically and given the development space to entrepreneurs. To improve the cluster cultural education of traditional industry, we should firstly improve the cultural quality of general staff, increase the creative consciousness and encourage the general staff to learn from entrepreneurs so as to become new entrepreneurs. Take good advantages of social Internet. Local entrepreneurs are cultivated and the sustainable development of industrial clusters is advanced. Local entrepreneurs are not only important subjects of the local industrial clusters, but also crucial manpower resources to promote the cluster's development. The startup and creation activities of the group of entrepreneurs in the aspects of technologies and systems can not only decide the growth path of enterprises, but also influence the development track of the cluster finally through the deep influence of their social network on the network members. The key reason why the under-developed regions are under-developed is not the lack of material goods but the lack of the group of entrepreneurs with spirit of innovation. Judging from a deeper level, it is the lack of local social culture that can promote the growth of entrepreneurs. Therefore, to enhance the competitiveness of regional industry, we must strengthen the construction of local entrepreneurs team to cultivate a group of entrepreneurs teams that will be good at seeking for innovation resources, focus on improving the economic efficiency, dare to imitate and learn boldly and be skillful in capturing market opportunities.

About the regional brand, the foundation of forming a regional brand is enterprise's careful inspection of the production and the industry cluster's certain scale and market share. In the process of regional brand establishment, enterprises are required to propagandize the overall regional marketing concept to the outside world. Regional brand establishment is neither the result of some enterprise struggling alone nor made by a single enterprise. Each enterprise should get rid of the thought of "thumbing a lift" to invest jointly and share the environment. A favorable regional brand will bring more economic benefits to industrial clusters. Besides, we need to prevent enterprises from pursuing profits at the expense of morality, manufacturing fakes and adulterating. Otherwise, it will be fatal for the regional brand. The enterprises in the industrial clusters can restrain enterprises' behavior and carry out a crackdown on immoral enterprises by forming the guild or industry association.

In the respect of regional development, do not make the plan of industry clusters in accordance with the inherent administrative divisions, but rather break the administrative division and the situation of doing things in each one's own ways. Promote the free flow and effective allocation of resources. Give full play to regional industry cluster effect. At present, the traditional industrial clusters in the northeast region's primary industry clusters are usually presented as the pattern of a town with an industry or a county with an industry. At the same time, there also exists the homogenization of clusters among towns or counties. If the original administrative division can be broken to follow the thought of region-group-type development, the superior resources in the region may be integrated. The value chain of clusters can be integrated as well. Realize the sharing and the rational allocation of advantageous resources, and be able to curb the homogenization of low-level competition. Finally, break the locking status in administrative regions and guide the industrial clusters to the high-level road. In fact, it is also required to establish a kind of coordination mechanism to guide the development of industry cluster among relevant governments, such as the establishment of coordinating departments to promote the development of the cluster at the level of regions.

Resource-intensive industrial cluster in the primary industry clusters, such as the petrochemical industrial cluster, can strive to develop the service out-sourcing industry facing with resource exhaustion, relieve the resource pressure with the high and new technologies by improving the technological level, try to tackle the "bottleneck" problem during the development and accelerate the economic development by enlarging the industrial cluster through the industrial structure adjustment.

2.3 Development Strategy of Derivative Industrial Cluster

Develop from the bottom of smiling curve to both sides, vigorously invest in innovation, voluntarily produce products with industry advantages by means of good market conditions and scale, and pay attention to the invisible industry transition. The invisible industry transition doesn't have the obvious morphologic expression of one industry transferring from one place to another, but the industry—undertaking field—enterprises take various advantages to realize the transition of keeping ahead in industry or becoming the leading enterprises. In the meantime, the enterprises of the region which previously had industrial advantages lose part of or the whole of the market. Therefore, the industrial transfer is realized from one area to another in practice. Once this kind of transformation is realized, superior enterprises in the place which undertakes it also can truly help to drive the original advantages or support enterprises in other areas to gather around it, achieving dominate transfer and industrial agglomeration.

CONCLUSION

The development of industrial clusters is highly significant for improving the economic growth rate and promoting the economic development of the northeastern region. This paper will carry out an analysis of the current status and the existing problems of the different types of industrial clusters in the northeast region, and put forward promotion countermeasures for the development of the industry cluster. Measures to develop the industry cluster development strategy mainly include strengthening governmental supervision, establishing the trade union and guild, promoting the local culture integration for foreign enterprises, paying attention to improving the quality of the labor force, encouraging local entrepreneurs, establishing regional brands, paying attention to the latent industrial shift, and so on.

REFERENCES

- Cai, J. H. (2010). Development and enlightenment of Zhengzhou women's trousers market's derived type industrial cluster. *Enterprise Vitality*, 2(9), 8-10.
- Huang, X., & Hu, H. H. (2013). Industrial cluster's latest issue study and future expectation. *Soft Science*, (1), 5-8.
- Zhang, W. M., & Yu, W. (2013). Industrial clusters and their transformation and upgrading—Based on the study of the textile industry in Zhejiang. *Zhejiang Academic Journal*, (1), 2-4.
- Zhang, X. D., Zhang, Z. B., Guan, C. Y., & Wang, C. (2010). A study on the issue of innovative industrial construction and innovative industrial cluster in building an innovative Ningxia. *Management Science and Engineering*, 4.