The Development Strategy for Industrial Clusters in Qingdao

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Abstract

As an important central city of Shandong Peninsula, Qingdao is faced with new challenges once more, with the development of economic globalization and regional integration. In this paper, the industries competitive in Qingdao were analyzed and discussed by area commercial law. The strategies and suggestions were proposed to promote the development of important industries, from aspects of government coordination, industry structure, enterprise core competitiveness, brand economic, etc. These strategies for industrial clusters will provide important references for economy development of Qingdao and Shandong Peninsula.

Keywords: industrial cluster; area commercial law; industrial competitiveness; development strategy

1. Introduction

Industrial cluster is a world-wide economic phenomenon, which is also an important pattern of modern economic development [1-3]. Theoretically, industrial cluster can reinforce specialized division and give full play to industry association and cooperation. Therefore, this industry pattern can promote rational allocation of technology, talent and capital, and stimulates technique progress and management innovation effectively by exemplary function [4]. Furthermore, industrial cluster has great influence on the optimization of regional industrial layout and regional economic structure. The international and local historical experiences of economic development have both demonstrated that the formation and development of specific industrial clusters have often played key roles in regional economic development [5-6].

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Qingdao is an important economy centre and coastal open city of China. Since the reform and opening-up over the past 20 years, the economy scale, technical level and industrial level of Qingdao have been promoted greatly. A distinctive industry had also formed initially, which provided good location advantages and development foundation. However, with the rapid development of globalization and regional integration, Qingdao is also faced with a new challenge as a regional centre. How to re-choose and orientate in the development of city and industries in a larger space? How to establish and stretch of industry chain in the peninsula region to realize the leading role? ... These have become the major issues of urban development in Qingdao, which should be concerned urgently.

In this paper, the competitive forces of eight industrial clusters in Qingdao were analyzed and discussed. Moreover, the development strategy of important industries of Qingdao was proposed as well, which can provide valuable references for the economy development of Qingdao.

2. Analysis of industrial cluster competitiveness

2.1. Methods

Location quotient (LQ) is the most immediate and primary method to study the advantage industry in a region. A higher location quotient value indicates more advantage in the industry. Location quotient analysis can measure relative specialization degree of various industries (or industrial departments) in different districts, reflecting the structure and trend of economic link between regions indirectly.

For instance, there is a certain industry \( j \) in a region \( i \). If \( \text{LQ}>1 \), this indicates that there are extra export products of this industry except local consumption. If \( \text{LQ}<1 \), this indicates that the products can’t satisfy local consumption and have to import. If \( \text{LQ} = 1 \), this indicates that the supply and demand of products are balanced in the region. The LQ calculation formula is:

\[
\alpha_{ij} = \frac{e_{ij}}{e_i} / \frac{E_j}{E}
\]

Where \( \alpha_{ij} \) is the location quotient of industry \( j \) in region \( i \); \( e_{ij} \) is the net output value (or employment quantity) of industry \( j \) in region \( i \); \( e_i \) is the net output value (or employment quantity) of all industries in region \( i \); \( E_j \) is the national net output value (or employment quantity) of all industries.

2.2. Results and discussion

The competitiveness of manufacturing industries was analyzed based on the data from Qingdao economic census and industrial clusters competitiveness comment data of 47 major cities nationwide. Three indexes were selected to calculate comprehensive LQ, including product sales income LQ (reflecting market share of industrial clusters), enterprise employment number LQ (reflecting intensity of industrial clusters), enterprise amount LQ (reflecting intensity of industrial clusters).

The eight industrial clusters have great contributions to the economic development of Qingdao, although the development stages and levels are different at present. Table 1 shows the proportion of the eight industries industrial added values to the total industrial added values of city. It can be seen that petrochemical industry cluster is the largest one among the eight. Due to the influence of the three famous brand Haier, Hisense and AUCMA, household appliances and electronic industrial cluster is also the most mature and dominant industry in Qingdao, which is well-known and competitive interiorly. Other industrial clusters have also formed a certain scale. In one word, the eight industrial clusters have shouldered the key mission of industry in Qingdao.
The upstream and downstream industries are closely associated and the impact range is extremely wide. According to statistics, the industries directly correlated with the auto industry are more than 40, which can drive the development of some other industries directly. For example, steel, electronic, textile, building materials, rubber, equipment manufacturing, financial and insurance law consulting, industrial service, science research design, and originality industries, etc. Moreover, consumptive electronic enterprises expand rapidly and the industry concentration is increasing ceaselessly. Large enterprises are taking more and more important status in their industries. For example, Haier, Hisense, etc. have become the backbone of electronic information industry in China. Table 2 shows the most competitive manufacturing industrial clusters in Qingdao.

- The electronic industry was third, with comprehensive competitive LQ 4.43, sales revenue LQ 4.62, employment number LQ 5.34, enterprise amount LQ 3.34. Therefore, the advantages of electronic industry in Qingdao were quite outstanding, which was a traditional and prosperous dominant industry cluster.
- The petrochemical industry was forth, with comprehensive competitive LQ 2.44, sales revenue LQ 1.97, employment number LQ 3.05, enterprise amount LQ 2.3. The market share of this industry cluster was less and need to be further excavated.
- The shipping industry was fifth, with comprehensive competitive LQ 2.4, sales revenue LQ 2.45, employment number LQ 2.47, enterprise amount LQ 2.27. As a world famous port city, shipbuilding industry is a unique dominant industry cluster of Qingdao.
- The textile industry was seventh, with comprehensive competitive LQ 2.0, sales revenue LQ 3.34, employment number LQ 4.21, enterprise amount LQ 1.9. The competitive advantage of textile industry was also prominent.

Table 1 Eight industrial clusters industrial added values proportion to GDP in 2009

<table>
<thead>
<tr>
<th>Industry</th>
<th>Petrochemical</th>
<th>Shipping</th>
<th>Home Appliance</th>
<th>Electronics</th>
<th>Automobile</th>
<th>Port</th>
<th>Locomotive</th>
<th>Textile</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP (Billion Yuan)</td>
<td>518.34</td>
<td>317.85</td>
<td>166.26</td>
<td>435.21</td>
<td>161.37</td>
<td>44.01</td>
<td>105.62</td>
<td>259.17</td>
</tr>
<tr>
<td>Proportion</td>
<td>10.6%</td>
<td>6.5%</td>
<td>3.4%</td>
<td>8.9%</td>
<td>3.3%</td>
<td>0.9%</td>
<td>2.16%</td>
<td>5.3%</td>
</tr>
</tbody>
</table>

Table 2 Location quotients of major industries in Qingdao

<table>
<thead>
<tr>
<th>Industry</th>
<th>Location quotients</th>
<th>Sales income</th>
<th>Employee</th>
<th>Enterprise amount</th>
<th>Comprehensive competitiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Location quotients</td>
<td></td>
<td></td>
<td></td>
<td>Location quotients</td>
</tr>
<tr>
<td>Electronics</td>
<td>4.62</td>
<td>5.34</td>
<td>3.34</td>
<td>4.43</td>
<td>3</td>
</tr>
<tr>
<td>Petrochemical</td>
<td>1.97</td>
<td>3.05</td>
<td>2.30</td>
<td>2.44</td>
<td>4</td>
</tr>
<tr>
<td>Shipping</td>
<td>2.45</td>
<td>2.47</td>
<td>2.27</td>
<td>2.40</td>
<td>5</td>
</tr>
<tr>
<td>Textile</td>
<td>3.34</td>
<td>4.21</td>
<td>1.90</td>
<td>2.00</td>
<td>7</td>
</tr>
</tbody>
</table>

3. **Strategy of industrial clusters development**

Considered the development of eight industrial clusters of Qingdao, the industrial cluster chain should extend and develop from Qingdao to the peninsula scope. To enhance the industry competitive forces and economic strength, some strategies and measures were put forward as follows.
3.1. Establish an integrative urban agglomeration in Shandong Peninsula

- Perfect the formation mechanism of urban agglomeration in Shandong Peninsula and drive the extension of industry chain. Association of the urban agglomeration can impel the industry chain extension and industrial concentration and diffusion. The internal ties of Shandong Peninsula urban agglomeration should be further strengthened, and the group segmentation need be broken up. Economic factors and infrastructures should also be effectively disposed and shared.
- Construct a powerful government. Only if the market mechanism and the government appropriate intervention were combined, industrial competitiveness of Qingdao could be advanced rapidly.

3.2. Build favorable development conditions actively

- Perfect the government functions further, including economic regulation, market supervision, social management and public service. Simplify and standardize the administrative examination and approval. Exert the basic role of market in resource allocation to a large extent. Build up a unified, open, competitive and ordered market system.
- Enlarge the infrastructure investment further. Deepen the reform of the financial system to create comfortable conditions for corporate financing. Adjust and improve the foreign investment policy and use foreign capital reasonably and effectively. Encourage produce and use domestically-manufactured equipment. Strengthen the cultivation of senior technical talents.

3.3. Optimize the industrial structure and layout

Insist on combination of market adjustment and government guidance. Strengthen the policy guidance to optimize the resources allocation.
- Keep innovating independently to promote industrial technology level, which should be the key link of industrial structure adjustment. Establish a technology innovation system, including enterprises as the main body, market as the guidance and combination of production and research. This system can improve the original, integrated and introduction-digestion-absorption innovation abilities, as well as the overall technical level.
- Adhere to new type of industrialization. Informatization can propel industrialization, which can also stimulate the informatization in turn. The new industrialization in Qingdao need to be featured as high scientific and technological content, good economic benefits, low resources consumption and environmental pollution, etc.

3.4. Develop brand economy

Qingdao is known as a "brand city", and the main economy characteristic is also the brands. Therefore, Qingdao must continue to develop famous brand products and strengthen branded enterprises and cluster, which can promote to form famous brand product, brand enterprises, brand cluster and brand city.

3.5. Cultivate the core competitive capacity of enterprises

The core competitive capacity is the precondition and foundation of industrial competitiveness. For the enterprises of internationalization and globalization, the most important is to establish the innovate mechanism of enterprise and improve the integrate ability, which is exclusive and difficult to imitate. Therefore, enterprise qualification should be improved quickly. The core intermediate products must be
done well. In a word, accelerate the establishment of modern enterprise system and procure the conversion from horizontal multiplication expansion to business refocusing development.

3.6. Undertake Japan-Korea industry shift conditionally

Japan and South Korea are manufacturing powerful nations. Undertaking their superior industries selectively can pull economy in Qingdao effectively. In initial stage, the shift and undertaking of Japan-Korea industries are labor-intensive industries mostly, such as textile, clothing, food processing, etc. In the future, the local development focus should be the high technology and equipment manufacturing industry, not the labor-denseness industries located in low-end of industrial chain any more. Qingdao will conditionally undertake automobile, motorcycle, shipbuilding, fine chemical, equipment manufacturing, electronic communications and other industries.

4. Conclusion

Qingdao is the economic central city of Shandong Province and an important port city of the Northern region as well. The competitive industrial clusters must be relied on to play the leading role in driving the peninsula economy. The priority industrial clusters of Qingdao have shown relatively outstanding advantages and the economic vitality as an open port city. However, the growth of industrial clusters still need to be further expanded. The implementation of strategies for important industrial development can accelerate the industrial chain extension and the industrial clusters development, which will improve the competitiveness of the industrial clusters and promote the economy development of Qingdao and Shandong Peninsula.

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