Extreme fashion and consumer behaviour

Competitive analysis of clusters of textile and apparel Industry in Zhejiang Province

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Abstract

China is the leading country in the world in terms of textile and apparel production and export. During the long course of evolution within this industry, it has formed certain regional features, which are the foundation of industrial clustering. Industrial clusters are formed quickly within the textile and apparel industry. A typical case lies in Zhejiang province, located in the coastal area of China. Representative theories regarding industrial clustering include Beckmann's Classification of Optimal Location Types (Beckmann, 1968), Internal and External Economies of Scale: The Continuum (Berry, et al, 1997), and Michael Porter's 'Diamond' Model (Porter, 1990). In the context of globalization, the comprehensive competitiveness of a country (or region) usually originates from industrial clustering. Competitive advantage is gained through the geographical gathering of companies and related and supporting industries, which forms external economies of scale. This kind of advantage is hard to imitate, ensuring a continued competitive advantage. Based on the above-mentioned models, this article uses case study, field research and desk research to conduct a study of clustering within the textile and apparel industry in Zhejiang, China. It focuses on the formation and modality of clusters in the textile and apparel industry and their competitiveness.

Preface

Industrial clustering refers to the concentrating phenomenon in a particular industrial field where, with one major industry as the leader, many closely related enterprises and their supporting industries gather together geographically.

Keywords:
competitive analysis,
clustering,
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In the context of globalization of economy, the comprehensive competitiveness of a country (or region) usually originates from industrial clustering. Competitive advantage is gained through the geographical gathering of companies (with certain industrial segments as their core) and related and supporting industries, which forms external economies of scale. This kind of advantage is hard to imitate, therefore it is a kind of continuing and enduring competitiveness.

China is the leading country in the world in terms of production and export of textiles and apparel. During the long course of evolution of textile and apparel industry, it has formed certain regional industrial features, which are the foundation, or core, of industrial clustering. The textile and apparel industry is the earliest and quickest one who forms industrial clusters as China marches towards market economy and carries out the reform of ownership of enterprises. A typical case is the textile and apparel industry in Zhejiang province, which is located in the coastal area in China.

According to *China Modernization Report 2004*, excluding Beijing, Tianjing, Shanghai, Hong Kong, Macao and Taiwan, Zhejiang ranked no.1 among other Chinese provinces and cities in terms of the degree of modernization in the year 2002. The clustering of textile and apparel industry in Zhejiang contributes considerably to this result.

There has been a long history of study on industrial cluster both home and abroad. Michael Porter has explored deeply into the clustering phenomenon and its competitive advantage of the textile and clothing industry in Italy and other countries. The textile and clothing industry in Zhejiang province of China is another typical case of industrial clustering.

Theoretical explanation of industrial cluster

Representative theories regarding industrial clustering are *Beckmann's Classification of Optimal Location Types* (Beckmann, 1968), *Internal and External Economies of Scale: The Continuum* (Berry, et al, 1997), and Michael Porter's 'Diamond' Model (Porter, 1990).

Beckmann's classification of location types

Classical theory about industry location explains how individual firm selects the best location for a new manufacturing plant. This theory assumes a firm will try to obtain minimal cost and maximal profit when

selecting manufacturing location. It lays emphasis on/attaches importance to the role of shipping cost in deciding industry location. In theory, there are two dimensions affecting the selection of industry location, i.e. production costs and selling price. Martin Beckmann has accordingly classified locations into four types (Table 1).

In apparel industry, both production costs and selling price are sensitive to location. The solution is to find the location that maximizes profits by making the best trade-off possible between production costs and selling price offered by each location. Therefore, the manufacturing division, which is highly relevant to the production costs, is moved out to regions with cost advantage, whereas the fashion industry, which is closely related to the market, remains in metropolis. Thus, apparel industry has formed two types of clustering: urbanized clustering and specialized clustering (Figure 1). The fashion industry in Milan of Italy and the dyeing and finishing and fabric industry in Como nearby are typical examples of these two kinds of clustering respectively.

		Selling Price FOB	
		Locationally Variable	**Locationally Invariant**
Production Costs	Locationally Variable	**Type B** Optimal location maximizes difference between production costs and sales revenue (Smith, 1981). Example: fashion industry	**Type A** Optimal location minimizes costs to maximize profits (Weber, 1909). Example: iron and steel industry
	Locationally Invariant	**Type C** Optimal location maximizes profits by maximizing sales (Harris, 1954). Example: soft-drink bottling industry	**Type D** Plants are footloose. However theories relating to small firm birth rates and survival apply. Example: IT industry, Silicon Valley in the U.S.

Table 1 Beckmann's classification of location types

Source: After Martin Beckmann Location Theory (New York: Random House 1968) p.11

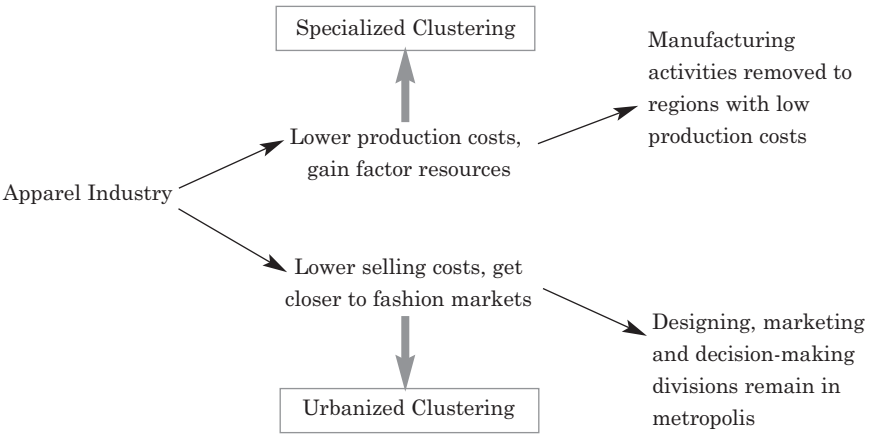

Figure 1. Location selection of apparel industry and modality of industrial clustering

Internal and External Economies of Scale: The Continuum

Economies of scale include internal economies of scale and external economies of scale (Table 2).

	Type of economy of scale	**Economy of scale depends on**	**Example of an economy of scale achieved**
External **(Different firms)**	Place-specific urbanization	Size of city	Range of urban service
	Industry-specific localization	Size of industry	Research and development
Internal **(Same firm)**	Firm-specific	Size of firm	Advertisement and marketing
	Plant-specific	Size of plant	Large machines (cube-square law)
	Product-specific	Length and volume of production run	Division of labor

Table 2. Internal and external economies of scale: The continuum

Source: Brian J. L. Berry, et al: The Global Economy in Transition (1997, 2nd ed.), p. 264 (London: Prentice-Hall)

From the perspective of economies of scale, all industries go through a process from pursuing internal economies of scale to external economies of scale. Diseconomies of scale take place once the internal economies of scale reach a certain degree. To maintain the development of industry, companies will seek and make use of external economies of scale. The apparel industry is no exception. It evolves gradually from the small-

scale manufacturing plants and trading firms at the very beginning to mass production and network selling, from scattered form to vertical and horizontal integration. But there is a certain limit to internal economies of scale. The apparel market has several features: it covers a wide range of products; there are varieties of needs; the product life cycle is short. All these attributes require that enterprises should have the ability to respond quickly to market. However, mass production may lower the flexibility of enterprises and mass selling has made the market reject the 'me too' products. Hence the diseconomies of scale appear. Accordingly, enterprises start to seek external economies of scale. There are two ways to obtain it. One is localization. It refers to the clustering of different plants engaged in the same industry. Industry-specific is thus achieved. Industrial features typical of local area are formed. Markets of big scale come into being. Buyers and suppliers are attracted to this location due to production and distribution networks of high efficiency and low cost, abundant information, and sound infrastructure and operation environment. The weaving industry in Shaoxing and the apparel manufacturing industry in Ningbo are two examples. Urbanization refers to the geographical concentration of businesses that are related to, but different than, the industry (such as information, exhibition, wholesale, retailing, trade, finance, and design etc). It forms external economies of scale. A good example is the fashion industry in big metropolitan cities like Shanghai and Beijing (Figure 2).

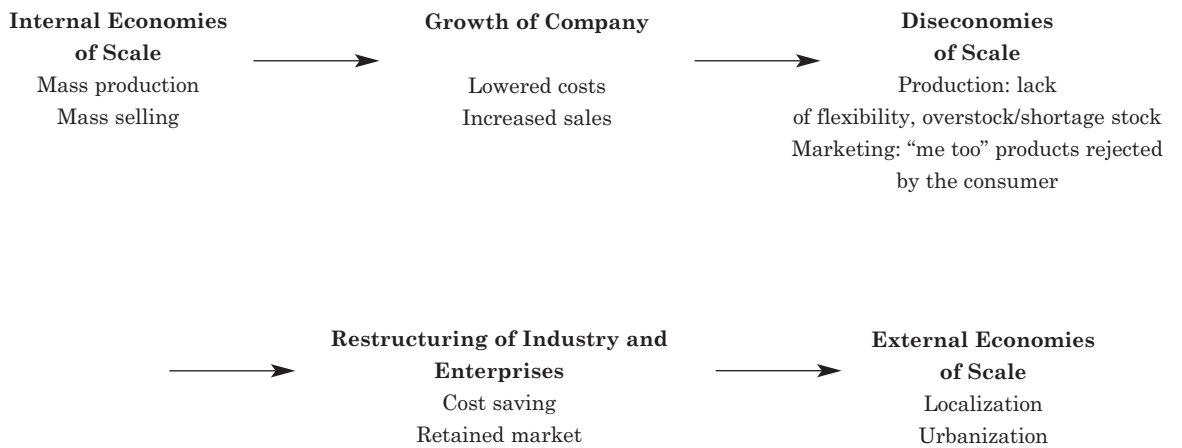

Figure 2. Economies of scale and the clustering modality of apparel industry

Competitiveness of Industrial Clustering – Porter's 'Diamond' Model [3]

Porter studied case histories of firms in more than 100 industries, including the fashion industry in Italy. He pointed out that the competitive advantage of each nation (or region) often originates from industrial clustering. This kind of competitive advantage depends on factor conditions, demand conditions, related and supporting industries and the rivalry system of the industry itself. These conditions, in turn, rely on geographic concentration of industries, including concentration of markets, related and supporting industries, factor resources and the industry (rivalry) itself. The wool weaving industry network formed through the integration of numerous small- and medium-sized family enterprises in the Prato region of Italy constitutes regional competitiveness. The fashion industry in Milan, the silk and high quality fabric industry in Como, etc. constitute the world's strongest comprehensive competitiveness of fashion industry in Italy.

Clustering Modality Of Zhejiang's Apparel Industry

The Structure and Clusters of China's Apparel Industry Today

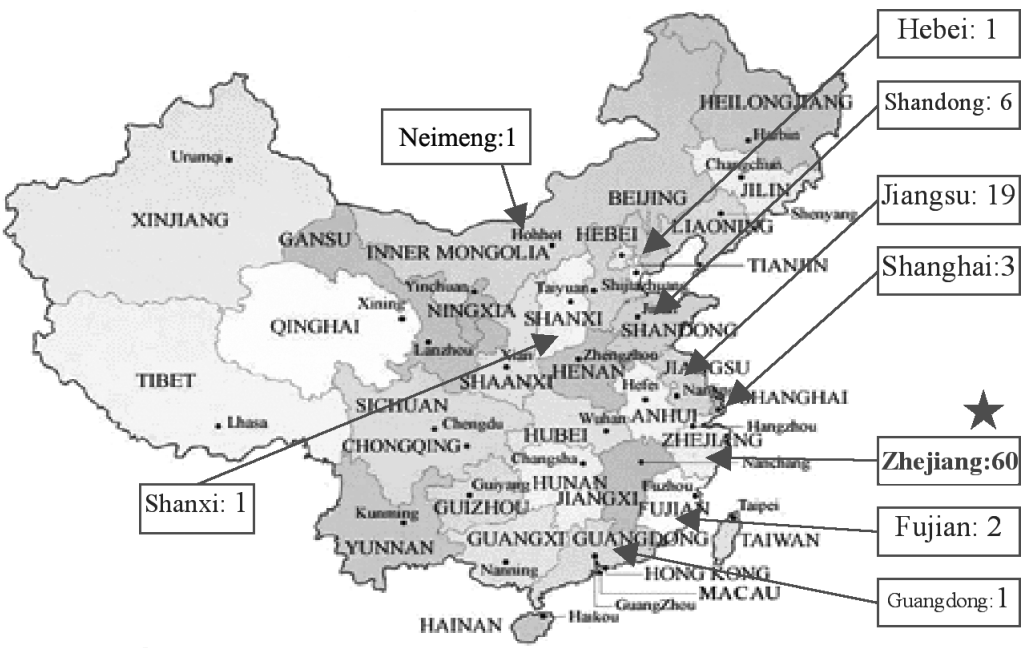

Figure 3. Geographical layout of China's top 94 companies in apparel industry
Source: China Textile News, Oct. 2003

In the year 2002, most of the apparel enterprises in China are located in Zhejiang, Jiangsu, Shandong, Fujian, Guangdong provinces, and Shanghai city. As far as the whole industry is concerned, 90 out of the top 94 companies are located in these six provinces and city, which means a percentage rate of 95.7 (Figure 3). All these six provinces and city are located in the coastal area of China. The apparel output of them accounts for 81% of that of the whole nation (Figure 4).

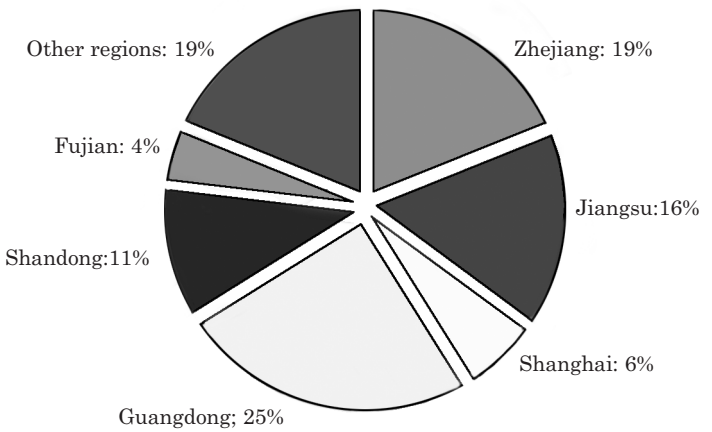

Figure 4. The distribution pie chart of total output of China's apparel industry in 2002
Source: Statistics Center of China Textile Industry Association, 'Textile Industry Statistical Yearbook 2002'

The apparel industry and its upstream industries gather together in these regions. Different regions have obvious regional division of labor in different industrial segments, which forms the foundation and tendency of industrial clustering in these regions. There are many cases in Zhejiang province to illustrate this phenomenon (Table 3).

Zhili, Huzhou	**Shengzhou**	**Datang**	**Huzhou**	**Shaoxing**	**Hangzhou**	**Ningbo**	**Haining**	**Wenzhou**
Children's wear	Tie	Socks	Silk	Weaving	Women's wear	Mens suits	Leather products	Men's suits, shoes, and leather products

Table 3. Major apparel industrial clusters in Zhejiang province

In addition to specialized clustering, the fashion industry in some big cities in China has achieved certain development, thus showing tendency of urbanized clustering.

Urbanized Clustering

As mentioned above, one of the reasons for urbanized clustering of apparel industry lies in the attraction of fashion markets located in metropolis. Another reason is that in metropolis there are numerous related and supporting industries that are indispensable to fashion industry, such as exhibition, media, information, design, education, logistics, finance and all kinds of factor resources including capitals, technological equipment and talents. The five major fashion centers in the world – Paris, Milan, New York, London, and Tokyo – are all examples of transformation from conventional textiles and apparel industry base to fashion center.

The urbanized clustering of China's fashion industry is still in its budding stage. One can find instances of this phenomenon in Beijing, Shanghai, Qingdao and Hangzhou.

As the capital city of Zhejiang province, Hangzhou enjoys the following advantages, which contribute to urbanized clustering:

- It has a comparatively mature market of garment and huge potential of consumption partly due to the fact that it is a world renowned tourist city;
- It has good infrastructure, i.e. advanced communication and transportation network;
- It has well developed industries including education, culture, publishing, information and media;
- It has four distinct seasons each year, which means a big variety of clothes possible;
- As far as education is concerned, there are several top-notch universities in Hangzhou, which provide courses and training in the fields of design, industrial engineering, IT, MBA, etc.

The government of Hangzhou city also gives great support. By the end of 2001, it has issued a series of supporting policies and favorable conditions to help build up the brand of women's wear in Hangzhou. It also made special efforts in transforming Wulin Road, which is situated

in the center of downtown Hangzhou, into 'Women's Wear Street'. After two years' endeavor, there are already 600 shops on Wulin Road. During the period of Spring Festival (about ten days) this year alone, these shops realized total sales of RMB 48 million, 30% up from the same period last year (source: "Morning News of Today", Jan. 31, 2004).

In addition, many famous brands from overseas have entered Hangzhou in various forms. The concentration of textile and apparel industry in Shaoxing, Ningbo, etc. renders powerful support to the fashion industry in Hangzhou.

Specialized clustering and specialized market

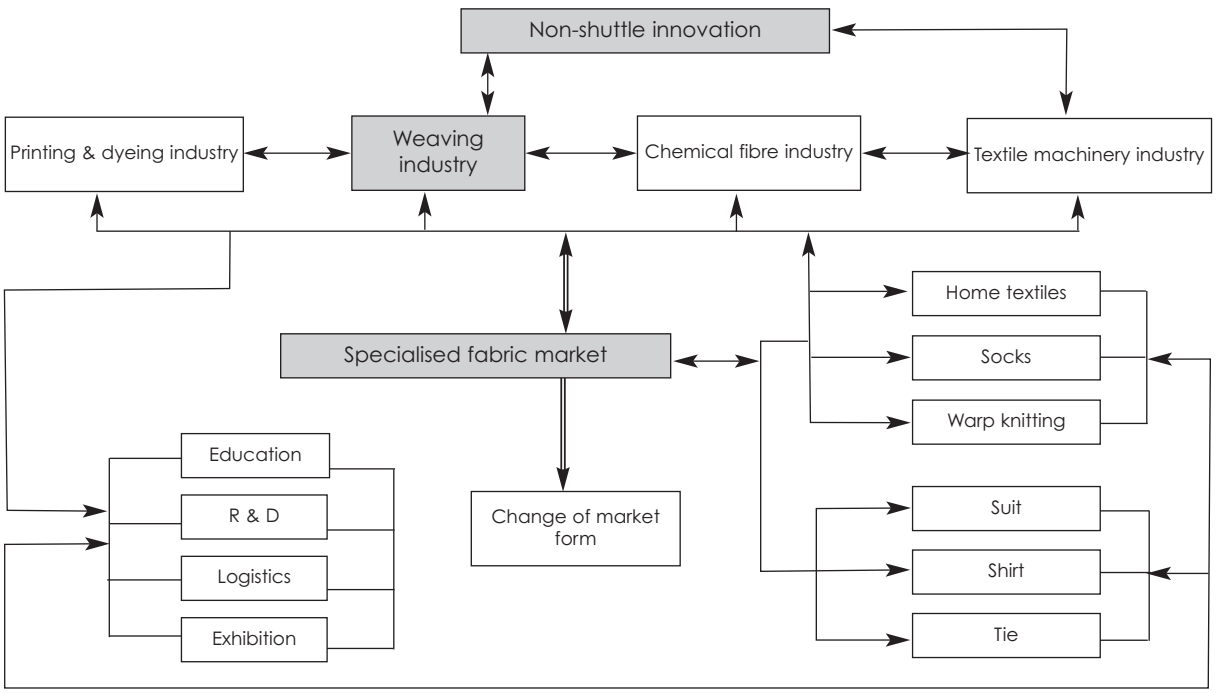

Figure 5. Specialized markets and clustering of textiles and apparel industry in Shaoxing

Specialized textiles and apparel market refers to the trading place or organization of channel where specialized buyers and specialized suppliers gather together. It usually owns special features (for instance, product category feature, operational mode feature, etc.) at one or several levels and has influence over certain regional market. There are exhibition halls and showrooms year-round. Alternately, there are regular trade fairs at certain place and time of the year. Meanwhile,

related industries such as consultancy, logistics, information, finance, etc. are quite well developed (Gao, Gu, 2002). In China, the modern specialized market for textiles and apparel in its real sense has not formed yet. The current markets are mostly specialized wholesaling (and retailing) markets in primary stage. The main method adopted is on the site trading of cash and goods; some of the special markets have gradually increased contract transaction. Import and export develop rapidly.

Specialized markets constitute the sales channel and price network of industrial clustering, which strengthen the radiating function of market and the guiding function of industry. On one hand, specialized market absorbs large quantity of products manufactured in industrial cluster -- economies of scale of production lower the production costs; economies of scale of marketing lower the trading costs – thus, the products produced within the cluster have strong competitiveness in terms of price. What's more, the pull effect of market will attract more suppliers and specialized buyers to gather together. On the other hand, specialized market provides raw materials and accessories, relevant equipments and services, specialized technological services, etc., which are indispensable to production within industrial cluster. Therefore, specialized market is the linking network and force of concentration and radiation of industrial clustering.

Textile and apparel industrial clusters and small- and medium-sized enterprises

Textile and apparel industry is basically labor-intensive. The market is characterized by short life cycle, small batch and big variety of products. There are no evident internal economies of scale. Companies in this industry tend to operate in a specialized way, which means that they carry out flexible manufacturing that focuses on only one or several categories of products.

The end market of textile and apparel industry is characterized by complexity, variety, pluralism and mutability. This requires that those segments in this industry which are closely linked to market, such as design, information consultancy, trade, retail, etc., have the ability to recognize valuable market information and respond quickly to market changes. In order to meet the demand of market, the textile and apparel industry tends to become specialized and flexible.

Due to the reason stated above, small- and medium-sized enterprises undoubtedly become the principal part of textile and apparel industry. They own bigger creativity and quicker response to the market so that they can better satisfy the complex and mobile market of textiles and apparel.

Meanwhile, owing to the limitation of resources and the industry itself, it is hard for small- and medium-sized enterprises to gain benefits through expansion of scale. Therefore, it is more suitable for them to obtain external economies of scale by way of industrial clustering. The drive of numerous small- and medium-sized enterprises in textile and apparel industry to pursue external economies of scale is the reason for the formation of industrial clusters.

Conclusion

Industrial clustering is by no means unique to textile and apparel industry, but it is especially meaningful to the regional economy of textile and apparel. This kind of industrial clustering forms regional industry features, enforces specialization within the industry and strengthens the complementarity of different sections of industry in different regions, thus the industry structure is optimized and the industry chain is integrated. Therefore, the waste within industrial organization is lowered, the trading costs and social costs are decreased and on the whole, the comprehensive competitiveness of a region or the international competitiveness of a country is enhanced. This has already been verified by the practice of countries like Italy, etc. (Porter, 1990). It is being further proved by the evolution of China's textile and apparel industry. As far as companies in textile and apparel industry are concerned, industrial clustering makes them obtain external economies of scale: for instance, the sharing of factor resources and enlarged market demand resulting from clustering. It is also easier for them to gain support from related industries. The overall image of the industry, regional attraction and competitive advantage are enhanced through industrial clustering.

The dynamics of formation of the clusters of China's textile and apparel industry can be explained using Beckmann's classification of optimal location types (Beckmann, 1968) and the continuum model of internal and external economies of scale (Berry, et al, 1997), whereas Michael Porter's 'Diamond' model (Porter, 1990) reveals the regional competitive

Traditional competitiveness Easy to be imitated, hard to continue	**Comprehensive competitiveness** Hard to be imitated, easy to continue
Cost-oriented industrial mode	Innovative industrial mode with special features
Competition of price, cheap labor	Value-creation-oriented view of the development of companies and industry, value network is formed within cluster
Internal economies of scale, internal concentration, enlargement of scale and capacity	Continuum of internal and external economies of scale internal and external concentration
Mass production, mass operation	Specialized division of labor, efficient cooperation, mass customization
Over protection, regional barrier, extreme monopoly	Coordinate the inside, lenient to the outside, adequate openness of market, same treatment as citizen
Excessive bargaining power with clients and suppliers, over squeezing of profits of related and supporting industries	Effective integration of industrial chain, sharing of increased value, interdependence of enterprises and related and supporting industries
Isolated information system, exclusive information resources	Standardization and sharing of information within cluster, quick response of the industrial chain
Ability of imitation and copying, incremental upgrading of technology	Industrial self-discipline, protection of intellectual property; originality of products, leading the way for market and industry; industry and product features; each link on the industrial chain is the best, which forms core capability and core technology
Arbitrariness of big corporations weakens competition, monopolistic economy	Each company gets its own place whether it is of big, medium or small size, competition and cooperation, appropriate competition, healthy mechanism
Care about small gains and losses of particular region, internal waste and struggle at low level	Industrial and regional ally using international market and international level as its standards
Rigid industrial organization, static and closed system	Open marketing system, flexible industrial chain system, each link on the industrial chain within cluster such as manufacturing, logistics, sales channel and information, etc. is expedite
Flawed credit system	Business culture of cluster; mobility of credit, value and resources; low cost of restructuring of capitals

Table 4. Comparison of comprehensive competitiveness of industrial clustering and traditional competitiveness

advantage and the dynamic change of this competitiveness resulting from industrial clustering. The clustering of textile and apparel industry can be classified into two types: urbanized clustering and specialized clustering. Presently in China, specialized clustering develops comparatively fast, especially in provinces like Zhejiang and Jiangsu, while the urbanized clustering is still in its starting stage in places like Shanghai, Beijing and Hangzhou. When observing the clustering of China's textile and apparel industry, we should not only consider the characteristics of textile and apparel industry itself, but also take into account the fact that China is marching toward market economy and privatization of enterprises. Further research can be done about other non-economic factors, such as regional culture and its cohesion, geographical conditions, etc.

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