

Study on Sporting Goods Manufacturing Clusters

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Abstract—The current study of sporting goods manufacturing clusters focuses on such aspects as their connotation and characteristics, formation mechanism, advantages and evolutionary tendency, innovation and upgrading. The argument of this article is that later studies shall focus more on the risks that challenge sporting goods manufacturing clusters and solutions to the risks as well as on their management. Analysis of relations between sporting goods manufacturing clusters from the perspective of network is especially important, which can afford a new angle of the studies.

Keywords—sporting goods; sporting goods manufacturing industry; industry clusters; network

I. INTRODUCTION

With the proliferation of sporting goods manufacturing industry and related industries, certain areas begin to see clusters of them. Study on sporting goods manufacturing clusters is gradually becoming the focal point of related theoretical field. Based on summarizing and analyzing past studies, this article finds out the status quo and deficiencies of the current studies of sporting goods manufacturing clusters and points out a way out for future study.

II. STUDY ON THE CONNOTATION AND CHARACTERISTICS OF SPORTING GOODS MANUFACTURING CLUSTERS

The study on the connotation and characteristics of sporting goods manufacturing clusters is an essential part of the study.

According to Ciappei and Simoni, the success of sports shoes industry clusters in Montebelluna, Italy should be attributed to the following four factors: network, organization, information and telecommunication, and reduced cost by saving time [1]. Although this study has not yet specified the connotation of sporting goods manufacturing clusters, it can be seen that network, which is a combination of all relations between sporting goods manufacturing clusters, is a significant feature of clusters. An exploration of network relations between clusters is truly meaningful for a correct understanding of sporting goods manufacturing clusters.

A sporting goods industry cluster is an economic community of related SMEs concentrated in a certain area specialized in sporting goods industry. It has the following characteristics: firstly, the network structure formed within

itself; secondly, emphasis on resources rather than on know-how; thirdly, horizontal integration as the main feature of work division, and the chain industry relation developed through mutual complement; fourthly, importance attached to the natural ambience, fundament of advantageous industries and historical, cultural tradition of the location; fifthly, SMEs as the major force, most of which are private enterprises bonded by kinship and neighbourhood, featuring family management; and sixthly, merely flexible manufacturing and management of supply chains to meet market changes, insufficient innovation and low technological standard resulting in low-end products [2].

Some studies maintain that small and medium-sized sporting goods enterprise industry clusters are some collections of small and medium-sized enterprises with sustainable competitive advantages featuring specialization and steady cooperative relation [3]. It can be seen that the SMEs are often disadvantaged in competition owing to their small scales. In order to gain advantageous positions, they tend to cooperate and form clusters.

Production of sporting goods industry clusters in the Yangtze River Delta is characterized by specialization, intensification and collaboration of production [4]. Within a certain area, sporting goods manufacturing clusters form a network consisting of sporting goods manufacturing industry as the flagship, and other sections such as suppliers, dealers, intermediary and administrative organizations. Formed within a certain area with special geographical characteristics, rich resources, historical, cultural traditions or policies, they are endowed with comparative advantages. The interlaced economic and social network relation between manufacturing enterprises and the supporting organizations is favourable for collaborated innovation of the cluster members. In clusters, enterprises adopt flexible manufacturing to adapt to the market transformations. The economic conducts of clusters are more often than not embedded in communicational networks. As open systems, the clusters can foster relation with enterprises out of themselves. The above summary, however, doesn't deny individual characteristics of specific clusters and of their networks, which are natural because of regional and individual differences, to be proved and analyzed regarding specific subjects of study with appropriate methods.

III. STUDY ON THE FORMATION MECHANISM OF SPORTING GOODS MANUFACTURING CLUSTERS

In Zhejiang Province, which is home to numerous sporting goods enterprise clusters, many family enterprises were set up market-oriented, and proliferate into their neighbourhoods with their exemplary effect. For the sake of mutual benefit they cuddle together to form the initiative enterprise clusters [5].

There are generally two ways of formation of sporting goods manufacturing clusters: one, internally motivated automatic formation via the appeal of profit, in which some pioneering enterprises exert the exemplary effect; and the other, externally motivated administrated formation in which the local government formulate clear developmental strategy with concerned organizations and enterprises and get them well implemented to form industry clusters [6].

Some studies hold it that the prerequisites for small and medium-sized sporting goods industry clusters to form include the following; fast concentration of industry capital; free flows of labour and technology; high market demand; integration of value and technology; and policy support of the locality [7].

According to product and clustering features sporting goods manufacturing clusters in Zhejiang Province can be divided into four types:

- resource-based industry clusters relying on local resources or raw materials, formed through collaboration between enterprises;
- sales network-oriented industry clusters which are closely connected and mutually boost with market;
- traditional industry-based industry clusters and;
- internal work division-based industry clusters [8].

IV. STUDY ON THE ADVANTAGES OF SPORTING GOODS MANUFACTURING CLUSTERS

Based on economic geographical theories, N. Henry and S. Pinch used the example of clustering British sports car enterprises to illustrate that industry clusters, which pools know-how and forge a tight network between science and technology, can benefit the industry development by the spread of know-how which consequently helps maintain its advantages in competition [9]. Studies at home also found that industry clusters of small and medium-sized enterprises can step up technology advancement, facilitate innovation, stimulate competition, absorb resources, and therefore boost the competitive capacity of small and medium-sized enterprises [10].

The reasons why sporting goods manufacturing enterprises form clusters are that the clusters boast advantages in scale and cost. information and innovation: geographical location and brand. industry and market, policy and environment [11]. They are advantaged in competition for as clusters they can lower trade costs, promote technical innovation, foster regional brand. reduce enterprise risks and share favourable regional and political environment [12]. At

the same time. sporting goods manufacturing clusters can finally develop the regional brand through four stages: namely, regional product, regional recognition, regional brand cultivation and regional culture [13].

V. STUDY ON THE EVOLUTION OF SPORTING GOODS MANUFACTURING CLUSTERS

The stage of production specialization is the initial stage of enterprise clusters when all products are manufactured by a single department; during the stage of technical specialization, certain manufacturing procedures get separated from the original production and focus on intermediate products; during the stage of service specialization, internal division of work is further deepened and the service section gets transferred external to the enterprise [14].

Study on sports shoes industry clusters in Jinjiang, Fujian Province, has found that industry clusters, although automatically formed, experienced three stages of development, namely enterprise clustering, industry clustering and network formation, following a development track from low to high [15].

VI. STUDIES ON THE INNOVATION AND UPGRADING OF SPORTING GOODS MANUFACTURING CLUSTERS

Attempts have been made abroad. The reason why British race car industry clusters maintain their advantages is that the network between the designers, manufacturers and suppliers of the clusters has kept developing which is beneficial for competition and cost-effective innovation [16]. Studies on Charlotte race car industry clusters of North California, U. S. find that innovation of industry clusters can be largely promoted by the coordination between research institutions and enterprises [17].

More attention has been paid to this issue domestically in recent days. The development pattern of sporting goods manufacturing clusters is turning from investment-motivated to innovation-motivated. On the one hand, hi-tech and advanced tech is applied to reconstruct sporting goods manufacturing industry to maximize its existing advantages; on the other hand, international cooperation and cooperation between enterprises research institutes, peers and customers has been promoted; and study on how to prolong life cycle of sporting goods manufacturing industry has been strengthened. The government shall do its work to seek external technological support and build up an overall cooperative system of multiple layers to enhance the fast development and enlarge the competitive capacity of enterprises [18]. With flexible operation and strong motivation for innovation, small-sized enterprise clusters can be combined for regional innovative network [19].

The innovative system of sporting goods industry clusters of Zhujiang River Delta is an example of multi-section, multi-layer network-like interactive structure of cluster innovative system. Innovation on the first layer is enacted by enterprises through imitation, cooperation and independent innovation. On the second layer, consultation and technical agencies in clusters are developed for the sake of innovation.

Innovation is realized through technological service, information service and cooperative research and development. The third layer consists of universities, professional research institutes and agencies. The fourth layer refers to the perfection guaranteeing and incentive of innovation in terms of policies and regulations [20].

Clusters in China's Taiwan mainly follows three patterns of innovation: one, the consecutive pattern which is the continuation of innovation of certain products; second, technical platform pattern which satisfies the varied needs of market with diversified innovation in specified sports parks; and third, infiltrating pattern which allows innovation to take place in related technical fields through expanded business areas [21].

Despite their advantages and preconditions in innovation, the sporting goods manufacturing clusters face various problems in their development such as deficient enterprise innovation capacity, lack of innovation agencies, scarcely avoidable innovation risks, and lack of innovation culture and so on. Reflecting upon the cases of Taiwan, India and Brazil, solutions are put forward for the promotion of innovation of sporting goods industry clusters in China from three aspects: critical factors of industry cluster innovation, supporting factors of service and macro-environment [21].

Clusters shall carry out independent innovation on the three levels of spatial congregation, technical communication and social and cultural value [22]. Viewed from the perspective of global and local interactive governance, the notion of four interactive stages are put forward, namely, the stage of boosting, the stage of obstruction elimination, the stage of bottle-neck-breaking and the stage of mature development [23]. With regard to types and global value chain of sporting goods industry clusters, researchers suggested such ways of upgrading as advanced enterprise-led pattern, covert pattern, industry base pattern, along with related implementation ideas [24].

VII. CONCLUSION

The current related sports goods manufacturing industry cluster research focuses mainly in: sports goods manufacturing industry cluster connotation and characteristics, formation mechanism, competitive advantage, evolution trend, innovation and upgrade, etc. However, the research on the risks and countermeasures of the sports industry cluster in the present study and the research on the governance of the sports industry cluster are not very common. Especially the sports goods industry cluster network relations between the enterprise and structure, form of motivation in the cluster network and network attributes, from the micro level analysis of sports goods manufacturing industry cluster formation mechanism of research are few. And the network as the skeleton of the cluster, it is self-evident that the network is the research Angle to explore the significance of the industrial cluster formation.

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