

The "Decentralization" Trend of China's Manufacturing Supply Chain: The Catalytic Effect of Disasters and Pattern Changes

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Abstract: This article focuses on the "decentralization" trend of China's manufacturing supply chain and delves deeply into the catalytic effect of disaster events and changes in the global landscape on this trend. First, analyze the centralized characteristics and potential risks of the traditional Chinese manufacturing supply chain. Then, elaborate on how disasters (such as natural disasters, etc.) impact the centralized supply chain from different links, thereby promoting the "decentralized" transformation. At the same time, study the changes in the global landscape, including the impact of trade frictions, geopolitics and other factors on the layout of China's manufacturing supply chain, as well as the synergistic effect of these factors with disasters. Finally, this paper explores the challenges and opportunities faced by China's manufacturing supply chain under the trend of "decentralization", and proposes corresponding countermeasures, aiming to provide theoretical support and practical guidance for the sustainable development of China's manufacturing supply chain.

Keywords: Made in China Supply Chain; Decentralization Disaster; Pattern Changes; Catalytic Effect

1. Introduction

Under the backdrop of global economic integration, China's manufacturing industry, with its well-developed supply chain system, efficient production capacity and vast labor resources, has become an important pillar of the world's manufacturing sector [1]. For a long time, China's manufacturing supply chain has shown a certain degree of centralization, which has played an important role in improving production efficiency and reducing costs. [2] However, in recent years, a series of disaster events (such as earthquakes, floods, etc.) and

profound changes in the global landscape (such as trade frictions, geopolitical conflicts, etc.) have brought unprecedented challenges to China's manufacturing supply chain and also given rise to the development trend of "decentralization" in the supply chain [3].

The "decentralization" of the supply chain is not a brand-new concept, but in the current complex and volatile international environment, its importance and urgency have become increasingly prominent. For "Made in China", in-depth research on this trend and the catalytic effects behind it not only helps enterprises enhance the resilience and risk resistance of their supply chains but also provides references for the government in formulating relevant industrial policies. This holds significant practical significance for China's manufacturing industry to achieve high-quality development [4].

Domestically, after years of rapid development, China's manufacturing industry has formed a huge industrial scale and a relatively complete industrial system. However, at the same time, it is also confronted with problems such as intensified resource and environmental constraints and rising labor costs [5]. Under the impact of these problems, the traditional centralized supply chain model has gradually exposed some drawbacks, such as high dependence on resources in a single region and weak risk resistance.

Internationally, the rise of global trade protectionism, the continuous escalation of trade frictions, and the frequent occurrence of geopolitical conflicts have all led to profound changes in the global supply chain landscape [6]. Some countries have implemented a "reindustrialization" strategy, encouraging enterprises to bring their production lines back to their home countries. Some countries have been suppressing "Made in China" by setting up trade barriers and restricting technology exports. In this international environment, the

"decentralization" of China's manufacturing supply chain has become an inevitable choice.

2. The Centralized Characteristics and Potential Risks of the Traditional Chinese Manufacturing Supply Chain

2.1 Centralization Feature

During its development, China's manufacturing industry has formed multiple industrial clusters, such as the electronic information industrial cluster in the Yangtze River Delta region and the home appliance industrial cluster in the Pearl River Delta region, etc [7]. These industrial clusters, through geographical concentration, have achieved resource sharing, technological exchange and economies of scale, reducing production costs and enhancing production efficiency. Many manufacturing enterprises tend to establish long-term and stable cooperative relationships with a few large suppliers in order to obtain more favorable purchase prices and better service quality. This centralized procurement model helps enterprises reduce procurement costs and improve procurement efficiency, but it also makes enterprises highly dependent on a few suppliers. The logistics links in China's manufacturing supply chain are also showing a trend of centralization. Large logistics enterprises have occupied a dominant position in the market by virtue of their well-developed logistics networks, advanced logistics technologies and rich logistics experience. Many manufacturing enterprises outsource their logistics operations to these large logistics companies to minimize logistics costs and maximize logistics efficiency. However, this centralized logistics model also poses certain risks. For instance, the operational disruption of logistics enterprises may lead to the paralysis of the entire supply chain.

2.2 Potential Risks

Centralized supply chains make enterprises highly dependent on a few suppliers, production bases and logistics channels. Once problems occur in these key links, such as natural disasters or political unrest, it will lead to supply disruptions and affect the normal production of enterprises. Although centralized procurement can reduce procurement costs, it also makes enterprises more sensitive to fluctuations in raw material prices. If major suppliers raise prices, enterprises will face the pressure of rising costs,

thereby affecting their profitability. In addition, the centralized production mode is also prone to causing an imbalance between supply and demand in the market and triggering price fluctuations.

Centralized supply chains may suppress the innovative vitality of enterprises. In centralized industrial clusters, there is often fierce competition among enterprises. To reduce costs and increase market share, enterprises may focus more on short-term benefits and neglect long-term technological innovation and product research and development. Furthermore, overly relying on a few suppliers may also restrict an enterprise's access to new technologies and materials, thereby affecting its innovation capabilities.

3. The Catalytic Effect of Disasters on the "Decentralization" of China's Manufacturing Supply Chain

Natural disasters have brought multi-faceted impacts to the manufacturing industry. In terms of production facilities, earthquakes, floods and other factors can directly damage factory equipment, causing production to come to a standstill. For instance, the Wenchuan earthquake dealt a heavy blow to the manufacturing industry in Sichuan. Therefore, enterprises have dispersed their production bases to reduce risks. Logistics and transportation have also been severely affected. Natural disasters can flood roads and impede traffic, leading to rising logistics costs and prolonged delivery times. As a result, enterprises are seeking diverse logistics channels to cope. The supply of labor cannot be ignored either. Severe disasters have caused casualties and displacement, leaving enterprises facing a shortage of workers. As a result, enterprises choose to build bases in different regions to attract local labor.

Apart from natural disasters, other disasters should not be underestimated either. In terms of energy supply, extreme weather conditions and accidents in energy-producing areas may disrupt energy transmission, causing enterprises to suspend operations. As a result, enterprises are considering making strategic layouts in regions with stable energy supply. In the raw material supply link, mining accidents, chemical accidents and the like will disrupt the supply. Enterprises that overly rely on raw materials from a single region will fall into a shortage predicament. For instance, in the event of a

certain mine accident, enterprises that rely on its ores have no choice but to seek alternative channels and even consider building bases in areas with raw material resources. In conclusion, various disasters threaten the manufacturing industry from different aspects. Enterprises need to enhance their risk resistance capabilities and ensure the stability and continuity of production through strategies such as rational layout of production bases.

4. The Catalytic Effect of Global Landscape Changes on the "Decentralization" of China's Manufacturing Supply Chain

In recent years, trade frictions and geopolitical conflicts have brought numerous challenges to Chinese manufacturing enterprises. In terms of trade frictions, the United States and other countries have imposed high tariffs, significantly increasing the export costs of Chinese manufacturing enterprises and weakening their market competitiveness. To avoid tariffs, some textile and other enterprises have moved their production bases to Southeast Asian countries, achieving "decentralization" in production. At the same time, trade frictions have also led to technological blockades, restricting technology transfer and export, making it difficult for enterprises to obtain advanced technologies and key components, and hindering technological innovation and product upgrading. As a result, enterprises have increased their investment in independent research and development, strengthened cooperation with domestic research institutions, established an independent and controllable supply chain system, and achieved the "decentralization" of the supply chain. In addition, trade frictions disrupt the global market order, increase the instability of market demand and the uncertainty of the trade environment, make it more difficult for enterprises to formulate production plans and sales strategies, and raise business risks. To address this risk, enterprises expand diversified markets and optimize production layouts. In terms of geopolitical conflicts, they may lead to disruptions in resource supply or price fluctuations. For instance, the unrest in the Middle East causes oil prices to rise, increasing the energy costs for enterprises. As a result, enterprises seek diversified resource supply channels, establish strategic resource reserves, and optimize production processes. It may also change trade routes, making traditional channels

unsafe or infeasible, increasing transportation costs and time. As a result, enterprises seek diversified logistics channels and establish multiple logistics centers. In addition, the conflict may also trigger a shift in international investment. Some multinational enterprises will transfer their investments out of China. The Chinese government has introduced policies to encourage enterprises to strengthen the construction of domestic industrial chains and achieve "decentralization" in production.

5. Challenges and Opportunities Faced by China's Manufacturing Supply Chain under the Trend of "Decentralization"

5.1 Challenges

"Decentralization" may lead to an increase in the production costs of enterprises. For instance, distributing production bases to different regions requires enterprises to invest more funds in building new factories, purchasing new equipment, and training new employees, etc. In addition, a diversified supply chain system may also increase the procurement and logistics costs of enterprises.

Decentralization makes the supply chain of enterprises more complex and increases the difficulty of management. Enterprises need to coordinate production bases, suppliers and logistics channels in different regions to ensure the efficient operation of the supply chain. In addition, enterprises also need to enhance their understanding and grasp of different regional markets and formulate targeted marketing strategies.

Establishing production bases and supply chain systems in different regions may lead to the problem of inconsistent technical standards. For instance, there may be differences in environmental protection standards, quality standards, safety standards, etc. among different regions, which brings certain difficulties to the production and management of enterprises. Enterprises need to enhance communication and cooperation with local governments and relevant institutions to ensure that their products comply with local technical standards.

5.2 Opportunities

Decentralization can reduce enterprises' reliance on a single region, a single supplier and a single logistics channel, and enhance the resilience and risk resistance of the supply chain. When

confronted with disaster events and changes in the global landscape, enterprises can adjust their production and supply chain layouts more flexibly to ensure the continuity and stability of production.

"Decentralization" enables enterprises to be closer to the local market, understand the needs and preferences of local consumers, and develop products and services suitable for the local market. This helps enterprises expand their market space and increase their market share. For instance, some Chinese manufacturing enterprises have achieved good market results by establishing production bases in regions such as Southeast Asia and Africa and directly selling their products to local markets.

"Decentralization" prompts enterprises to enhance their investment in independent research and development and establish an independent and controllable supply chain system. In the process of cooperation with suppliers and partners in different regions, enterprises can come into contact with various technologies and innovative concepts, promoting technological innovation and product upgrading. For instance, some enterprises have made breakthroughs in key technological fields and enhanced the core competitiveness of their products through cooperation with domestic research institutions and universities.

6. Countermeasures

6.1 Government Level

The government should introduce relevant policies to encourage enterprises to carry out "decentralized" supply chain layout, guide enterprises to strengthen the construction of domestic industrial chains, and enhance the independent control ability of industrial chains. For instance, offer policy preferences and financial subsidies to enterprises for investing and building factories in different regions, and support them in conducting technological research and development and innovation activities. The government should increase investment in the construction of infrastructure such as transportation, energy and communication, improve the infrastructure level of different regions, and create favorable conditions for the development of enterprises. For instance, efforts should be made to enhance infrastructure construction in the central and western regions, improve the logistics efficiency

and energy supply stability in these areas, and attract enterprises to relocate their production bases to these regions. The government should enhance regional cooperation among different regions, break down administrative barriers, and promote the free flow of factors and the optimal allocation of resources. For instance, establish cross-regional industrial cooperation parks, enhance cooperation and exchanges among enterprises in different regions, and achieve coordinated development of the industrial chain.

6.2 Enterprise Level

Enterprises should optimize their supply chain layout based on their own development strategies and market demands, and achieve the "decentralization" of production and supply chains. For instance, decentralize production bases to different regions, establish a diversified supplier system and logistics channels, and reduce risks in the supply chain. Enterprises should increase their investment in independent research and development, enhance their technological innovation capabilities, and establish an independent and controllable supply chain system. For instance, it is necessary to enhance cooperation with domestic research institutions and universities, carry out key technology research and development, and improve the core competitiveness of products. Enterprises should enhance supply chain management, establish a complete supply chain management system, and improve the collaborative efficiency and response speed of the supply chain. For instance, by adopting advanced supply chain management software, real-time monitoring and dynamic adjustment of the supply chain can be achieved, thereby enhancing the management level and operational efficiency of enterprises.

7. Conclusion

Disaster events and changes in the global landscape have had a profound impact on China's manufacturing supply chain, catalyzing the trend of "decentralization" in the supply chain. Although "decentralization" has brought some challenges to China's manufacturing supply chain, it also offers opportunities to enhance supply chain resilience, expand market space and promote technological innovation. The government and enterprises should fully recognize the significance of this trend, adopt effective response strategies, strengthen policy

guidance, improve infrastructure, optimize supply chain layout, enhance technological innovation and improve management levels, so as to promote the high-quality development of China's manufacturing supply chain and occupy a favorable position in global competition. In the future, with the continuous advancement of technology and the ongoing changes in the global landscape, the trend of "decentralization" in China's manufacturing supply chain will become more prominent. It requires the government and enterprises to constantly explore and innovate to adapt to the new development situation.

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