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ARTICLE

Industrial Linkage: Dynamic Equilibrium Supply Chain of Foundry Landmark Industrial Chain -- An Analysis Based on Zhejiang

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Abstract: In the face of the impact of the epidemic on the industrial chain and supply chain, it is an inevitable requirement for industrial development to ensure the dynamic balance of the supply chain. Supply chain is the basis for the generation of industrial chain. Industrial linkage can promote the rational layout of industries. The operation mode of supply chain is the main driving force of industrial linkage. To build a dynamic and balanced supply chain, we must focus on symbolic industries and adopt measures of chain protection, chain supplement, chain creation and chain financing.

Keywords: Industrial chain, Supply chain, Dynamic equilibrium, Industry linkage

1. Questions Raised

General secretary Xi Jinping pointed out that "we need to promote the formation of a new development pattern based on domestic circulation as the main body and international and domestic dual cycles promoting each other", pointing out the direction for the transformation of China's economic development priorities. Through technological improvement and innovation, reorganizing the national industrial chain and supply chain, actively participating in international competition, learning foreign advanced experience and technology, and promoting our own products and technology abroad will become the main melody of China's economic development in the future.

1.1 Environmental Change: Calling for the Reorganization of Industrial Chain and Supply Chain

1.1.1 The change of international and national environment promotes the reorganization of industrial chain and supply chain

The outbreak of novel coronavirus pneumonia has a

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great impact on China and the world economy. Despite the effective control of the epidemic situation, the economic downhole has been repaired and narrowed to a certain extent. Many areas'economy has recovered to the level of pre epidemic development, but in many countries, COVID has not been effectively controlled worldwide. The unsynchronized spread and development of the epidemic in the world has blocked the international transportation network and caused a large number of breakpoints in the global supply chain. Due to the escalating regional political and economic frictions, the rise of trade protectionism and unilateralism, the trend of regionalization and localization of global production networks, and the trend of "De Sinicization" of industrial chains and supply chains began to prevail. These deterministic and uncertain factors have exacerbated the downward pressure on the international and domestic economy. In the face of changes in the international and domestic environment, the strategic choice of cooperation and competitive advantage, tap the domestic demand potential and establish a national unified market, the readjustment of the industrial chain and supply chain has become inevitable.

1.1.2 Zhejiang's industrial development needs the innovation of iconic industrial chain and supply chain

In recent years, Zhejiang has paid attention to the innovation of industrial chain and supply chain, implemented the "Chain length system", the development of industrial chain has shifted to both ends of the "Smile curve", and some industries have sprouted the high-end of industrial chain. However, under the influence of experience and development inertia, without external conditional intervention, enterprises engaged in the same or similar economic activities in the industrial chain follow the principle of location optimization in order to maximize profits and form a phenomenon of enterprises clustering in advantageous locations. It shows that enterprises gather around the industrial chain center composed of leading industries and extend along the upstream and downstream of leading industries. With the continuous increase of accumulated enterprises in the industrial chain and the continuous expansion of industrial scale, one or more core enterprises will appear in the industrial chain, and these enterprise centers will also gather many associated enterprises, so as to form industrial sub centers of a certain scale. Due to different resource endowments, the spatial distribution of enterprises in the industrial chain is bound to be unbalanced. The benefit pursuit of regional enterprises for location advantages, the path dependence and inertia of regional specific resource endowments and economic development characteristics have led to the imbalance and irrationality of industrial development, the disconnection of industrial chain and supply chain, chain obstruction and difficult linkage of all links. For example, Shaoxing chemical fiber mainly produces conventional low-grade products, the production of functional fibers is almost blank, and the production capacity of high-grade fabrics is insufficient, which can not form a supporting with the developed famous clothing enterprises in Ningbo and Wenzhou. Building a landmark industrial chain and a dynamically balanced supply chain urgently need to be put on the agenda.

1.2 Building of Sign Industry

It is necessary to reconstruct the theoretical system of modern industrial chain and supply chain. Advantageous industries must be supported by symbolic industrial chain and supply chain. The particularity of development determines that we must build a modern industrial chain and supply chain. Although the academic community has some research on the modernization and significance of industrial chain and supply chain, there is not enough research on the mechanism and path of building a landmark industrial chain and doing a good job in the dynamic balance of supply chain development, the relationship between industrial chain and supply chain, industrial layout and supply chain integration contradictions, which needs to be further clarified theoretically [1]. Therefore, it is necessary to rely on the relationship between industrial chain and supply chain. According to the international situation and the reality of Zhejiang's industrial development, in the process of building a symbolic industrial chain, enhance the applicability of the supply chain, in order to do some research on the path of the same frequency resonance of the supply chain under the goal of casting a symbolic industrial chain.

This paper will focus on the core conclusion of the dynamic equilibrium of industrial linkage, set up the sub problems of the relationship between industrial chain and supply chain, the relationship and methods between industrial chain and industrial layout, and the operation mechanism and measures of supply chain when building a landmark industrial chain, and use the method of inductive reasoning.

2. Literature Review

The research on industrial chain and supply chain mainly focuses on the development and optimization

of industrial chain and supply chain [1]. The research on the development of industrial chain focuses on the development mode and modernization of industrial chain. Taking the development of carbon fiber industry in Beijing as an example, Ma Shu-hui, Li Yi-ming and Liu He, put forward a new model for the development of the whole industrial chain [2]. Chen Wen-hui and WANG Jing-qian defined the development of industrial chain clusters and constructed the evaluation criteria, power and conditions for the development of industrial chain clusters [3]. Li Ye proposed to take strategic guidance and goal guidance in scientific and technological innovation, institutional innovation and other aspects to promote the integration of innovation chain and industrial chain and boost the development of industrial chain [4]. Miao Wei put forward the important symbol of industrial chain and supply chain modernization [5]. Huang Qun-hui put forward the great significance of building modern industrial chain and supply chain [6]. Based on the collaborative driving theory, Wang Jing defines the content boundary and characteristics of the modernization level of industrial chain and supply chain, constructs the model and analysis index system of the modernization level of industrial chain and supply chain, and puts forward the integration path to improve the modernization level of industrial chain and supply chain [7]. The research on the development and optimization of supply chain mainly focuses on a certain perspective, specific regions and industries. Under the environment of creating a new development pattern of "double circulation", Zhang Jian-jun, Sun Da-wei and Zhao Qi-lan proposed cross-border coordination of supply chain[8]. Yang Zhen-hua and Xiao Jun, guided by the market, proposed to strengthen the organic combination of free trade zone construction and industrial supply chain optimization, so as to extend the global industrial chain and supply chain [9]. Zhang Xi-cai took the sales of agricultural products in poor areas as the research object, and Put forward the optimization path of urban assisted agricultural product supply chain [10]. These studies focus more on the development mode and optimization path of industrial chain and supply chain. There are both qualitative and quantitative analysis in the analysis process, but they do not distinguish the two different concepts of industrial chain and supply chain, and even mix the two concepts together. The research on the symbolic industrial chain and the supply chain to adapt to the development of the symbolic industrial chain is almost blank. Therefore, it is necessary to clarify the relationship between the industrial chain and the supply chain and establish a dynamic balanced supply chain to adapt to the development of the symbolic industrial chain.

3. Multidimensional Perspective: Do a Good Job in the Dynamic Balance of the Supply Chain in the Landmark Industrial Chain

3.1 Clear Relationship: The Basis for the Connection between Industrial Chain and Supply Chain

The industrial chain includes the supply chain. The development of the industrial chain can promote the generation of the supply chain. Deconstructing this interactive relationship is the basis for establishing the connection between the two. Industrial chain is an objective internal model organization form formed in the process of balanced docking of value chain, enterprise chain, supply chain and spatial chain based on the supply-demand relationship of technical and economic relationship. It is an economic organization relationship twisted between different regions and industries based on a certain technical and economic relationship chain. Starting from the product production of the whole industry, from raw material supply, circulation to consumption, it forms the network structure of relevant links and organization carriers, which is manifested in the industrial level, correlation degree, depth of resource processing and satisfaction of demand. It has structural and value attributes. Based on the objective regional differences and comparative advantages of regional development, coordinate the contradiction between regional professional division of labor and multi-dimensional demand. Supply chain is the whole process from raw material procurement to products meeting consumers' needs, focusing on core enterprises and based on the supply-demand relationship between each node enterprise, in order to reduce costs, improve efficiency and meet customers' personalized needs to the greatest extent. Through the control of information flow, logistics and capital flow, supply enterprises, manufacturing enterprises, distributors, logistics enterprises and final consumers are connected into an overall functional network structure. It is a virtual organization formed under the background of economic globalization and the development of knowledge economy, which meets the requirements of the times. Around the core enterprise, it can form multiple or multi-level suppliers in the upstream and multiple or multi-level distributors in the downstream.

Industrial chain is an economic concept and supply chain is a management concept. The connotation and extension of supply chain can be understood as a fishbone diagram composed of an arrow on the plane. Industrial chain is a fishbone diagram of three-dimensional spatial concept. The existence of industrial chain does not depend on the integrity and systematicness of supply chain

connection. The connection of the strategic partnership of the supply chain is the basis for the generation of the industrial chain, and multiple supply chains or supply chain segments constitute the industrial chain.

3.2 Industrial Linkage: The Method of Industrial Layout and Supply Chain Integration

Industrial linkage is an industrial cooperation activity between enterprises located in the same link or different links of the industrial chain in the same region or different regions based on technical and economic correlation. It takes the government administrative promotion as the auxiliary, the market mechanism as the leading, the industrial connection as the foundation and the professional division of labor as the main line. Its action mechanism is to take the regional industry as the node and the linkage relationship as the edge to form a collection of industrial coordination systems, that is, the collection of regional industries, the collection of industrial linkage relationships. The reflection of linkage ability - the edge weight topological weighted network structure composed of point weight and linkage strength.Industrial linkage breaks the boundaries of land or industry, industry and enterprise, makes the enterprises in the industrial chain interdependent and restrict each other, exchanges materials, information and funds, and forms a benign interaction. Different industries and within the same industry form a cooperative interest community. Through coordination and beyond the zero sum game, its operation efficiency is improved and the benefit of the whole system is maximized. Industrial linkage is the driving force for the sustainable development of regional economy and regional industrial expansion. It can promote the communication of different links of the industrial chain, speed up the transmission of products, technology and knowledge, and balance the number, scale and product structure of enterprises in different links of the industrial chain. Enable a single enterprise to obtain stable raw materials and markets, reduce business and transaction risks, and increase the added value of products. Industrial linkage follows industrial integration, strategic alliance and short, medium and long-term contractual relations. The development direction can be horizontal linkage, two-way linkage, backward linkage, forward linkage, intra regional linkage and extraregional linkage [11].

Industrial linkage is inseparable from industrial association. Industrial association is the network structure formed by industries, including the association between individual industries, between industries and the whole industrial system and industrial system. An important aspect of industrial association analysis is industrial network association analysis. The study of industrial network association through industrial network self-organization change and empowerment of industrial network can reveal the operation state of industrial linkage.

The driving force of linkage development is the supply chain operation mode, which is the main driving force to promote linkage development [12]. Relying on the construction of symbolic industrial chain and supply chain, we can achieve: First, change the spatial layout of supply chain. Drive an effective supply chain with the industrial chain, and promote the rational layout of the industrial chain with the balance of the supply chain. Second, transform and upgrade the level of traditional manufacturing industry and move towards the high end of the value chain. Although the output value of China's manufacturing industry ranks first in the world, and the manufacturing industry in Zhejiang Province also occupies a very important position in the country, the manufacturing industry lacks leadership and control in the global supply chain, and the key links and core parts are still weak. It is necessary to integrate various resources and form a high-end, intelligent, green and service-oriented manufacturing industry with digital, intelligent and networked technical means. The third is to restore and smooth the supply chain, take the building of a landmark industrial chain as the starting point, protect and intensify the vitality of market subjects, take the construction of the supply chain as the breakthrough, give play to the leading role of leading enterprises in the supply chain, and optimize and lead the development of small and medium-sized enterprises in the chain. Cultivate, expand and form emerging advantageous industrial clusters, and concentrate on overcoming a number of "Neck" technologies. With the help of 5g platform, integrate big data, Internet of things and cloud services, strengthen the connection of supply chain node enterprises, and improve the synergy and operation efficiency of the supply chain [13].

Taking the construction of landmark industrial chain as the guidance, industrial linkage as the means and supply chain construction as the starting point, arranging the quantity of supply chain, balancing the distribution of supply chain in the same region or different regions, and developing the quality and quantity of enterprises in the chain will help to boost the quality, speed and competitiveness of economic development.

3.3 Dynamic Equilibrium: Measures and Mechanisms to Realize Supply Chain

Dynamic equilibrium means that the changes of various economic variables in the economic system

are in a balanced state with the passage of time. The dynamic equilibrium supply chain is the network equilibrium of the supply chain in the running state. It is a linkage, which is reflected in the determination of value orientation and value growth power in the design and operation, and can balance the relationship between enterprises, customers and other stakeholders to achieve the flexibility of organization design, agility and rapid response of manufacturing, and make the operation of the whole supply chain reach the best state. The supply chain presented is an ecological supply chain. The whole process from procurement to waste recycling forms a green closed loop, which reflects the unity of the proliferation of economic indicators, the sense of responsibility of social indicators and the friendliness of environmental indicators, and can provide services for the landmark industrial chain [14].

In this strategic opportunity period of major transformation, Zhejiang Province has put forward the action plan for the implementation of manufacturing industry foundation reengineering and industrial chain upgrading project (2020-2025), which defines ten symbolic industrial chains: digital security industry chain, integrated circuit industry chain, network communication industry chain, intelligent computer industry chain, biomedical industry chain, refining and chemical integration and new materials industry chain, energy saving and new energy automobile industry chain, intelligent equipment industry chain, smart home industry chain and modern textile industry chain. Taking into account the foundation of pillar industries, advantageous industries, emerging industries and key enterprises, under the guidance of "Domestic big cycle as the main body, international and domestic double cycles promote each other", adhere to innovation driven, and "Take digitization, high-end, globalization and marketization as the guidance", make up for weaknesses and forge long plates, which provides favorable policy support for the adjustment and rational layout of industrial chain and supply chain. It also provides a legal basis for the construction of dynamic equilibrium supply chain with industrial linkage.

The symbolic industrial chain is composed of key equipment, core components, logistics, information flow and capital flow of product integrated manufacturing and auxiliary services. These links are connected by competitive core technologies, which determine the formation and development of the whole symbolic industrial chain and have a strong industrial correlation diffusion effect. Start with the industrial linkage subject, core technology and mechanism of industrial linkage, so as to achieve "Government coordination, enterprise initiative and cross regional integration", so as to realize the dynamic balance of the supply chain.

Government coordination means that the government attaches importance to the governance of industrial chain and supply chain, finds its own role orientation, changes managers, decision makers and builders into service providers, coordinators and promoters, and defines the leading role of the government. Follow the law of market economy, comply with the changing environment of market demand and industrial development, give full play to the comparative advantages of various regions, avoid "Dislocation" and "Loss of position", and achieve "Mechanism leading chain, policy encouraging chain and facility ensuring chain".

Mechanism leading chain, that is to establish a coordination mechanism and operation guarantee mechanism according to the operation mode of "Mechanism + industrial chain" and "Mechanism+ supply chain". The coordination mechanism includes the policy coordination of land, capital, taxation and environmental protection in the province, the coordination of realizing intensive development and overall optimization of layout, and the formulation of operation systems in terms of organization, leadership, implementation, reward and punishment suitable for the enterprise and the environment. The "manufacturing high quality leading group" established in our province is a full-time management and discussion and coordination organization sent by the government to coordinate major issues in the construction of manufacturing industry chain and supply chain through contact meetings and formulate relevant policies and systems, that is, to act as the discussion coordinator of industrial chain and supply chain construction, as well as the promoter and manager of industrial chain and supply chain construction. The operation guarantee mechanism includes restraint mechanism, supervision mechanism, incentive mechanism and compensation mechanism. The industrial fund mechanism established in our province is to give play to the guiding force of industrial fund investment, effectively connect with industrial development policies, and play a guiding role in key industrial chain and supply chain enterprises.

Policy incentive chain is to create a policy environment conducive to industrial cooperation and supply chain development. The responsibility of the government role should use the market operation rules, formulate the public fair policy of regional management, and maintain a good market competition order. Make full use of administrative means to implement and improve the development policies of enterprises, industries and supply chains, standardize the behavior of enterprises and regional development subjects, break the segmentation

of industries and regions, reasonably set the regional industrial scale, optimize the allocation of production factor resources. Make clear policy provisions on providing financial support and preferential tax treatment for iconic industrial chains and supply chains, and reducing comprehensive costs of enterprises. The "chain leader system" policy of industrial chain implemented in our province is to provide services for solving problems, eliminating risks, promoting experience and promoting cooperation for the establishment of industrial chain and supply chain with the cooperation of relevant provincial departments.

Facility chain guarantee is to establish and complete various infrastructure to ensure the operation of the supply chain. In addition to soft environment conditions, the construction of dynamic supply chain should also have hard conditions and facilities, establish a wide range of industrial chain and supply chain public service platforms such as property right trading platform, capital market platform, industrial Internet platform and cloud service platform, implement the "5g + industrial Internet Project". Promoting the application of big data, cloud computing and artificial intelligence in the supply chain is a powerful guarantee for the construction and operation of the supply chain [15].

Enterprises take the initiative to determine the leading enterprises by relying on the symbolic industrial chain, so as to make the leading enterprises become the organizers and integrators of the supply chain. According to the principle of self-organization, build and optimize the supply chain, and form a benign linkage within the supply chain, between the supply chain and the supply chain, and between the supply chain and the industry within or across regions. This linkage can be expressed as "chain protection, chain supplement, chain creation and chain financing".

Chain protection is the protection of the existing supply chain and the built supply chain.In the process of CO frequency resonance of integrated supply chain, enterprises in the chain will encounter difficulties and risks more or less, which will hinder the normal operation of the supply chain. Starting the linkage incentive mechanism of the supply chain and following the contract spirit of the supply chain can achieve the purpose of overcoming difficulties and avoiding risks. In the construction of Zhejiang's symbolic industrial chain of network communication, Futong group, headquartered in Hangzhou, implements the "dual industry" strategy of optical fiber communication industry and energy and power cable transmission industry. The group company continues to improve the whole industrial chain of optical communication, from the upstream formulation of national standards for optical communication to the whole industry of optical fiber preform, optical fiber, optical cable, optical device and broadband switch. A whole industry chain factory has been established in Jiashan County, and an intelligent manufacturing system with the core technology of "Manufacturing technology, automation technology and information technology" has been constructed. However, due to the slow recovery of accounts receivable and insufficient production capacity of Hangzhou Yuantong Cable Technology Co., Ltd., one of the upstream raw material suppliers (Primary suppliers), the supply of raw materials to Futong group was affected, resulting in the decline of production capacity and benefit of Futong group. To this end, Futong group uses blockchain technology to promote the integration of blockchain in the supply chain. With the help of Zheshang Bank, it creates a "Accounts receivable chain platform", pulls in upstream raw material supply enterprises, builds its own business circle, establishes a mutual trust mechanism for accounts receivable, releases risks and ensures the smooth capital flow of enterprises in the supply chain. It has opened up the supply interruption of raw materials caused by capital pressure of upstream enterprises, and received excellent chain protection effect [16].

After determining the core supply chain to be built by the landmark industry, take the key enterprises of the core supply chain as the origin of the supply chain, find the breakpoints in the supply chain, search for strategic cooperative enterprises in the region or across regions, and optimize the integrated supply chain. Taking the landmark industrial chain of Intelligent Computing manufacturing as an example, it mainly complements the supply chain around domestic intelligent computing machine enterprises. At present, the design and manufacturing of core components and high-end chips required by the whole machine factory depend on foreign imports. In view of the lack of design and manufacturing of upstream high-end accessories, we can cooperate with R & D institutions such as aridamo Institute, Huawei Hangzhou Research Institute, Zhijiang laboratory and Pujiang National Laboratory Intelligent Computing Research Institute to supplement the short board of accessories with the design and development of related core technologies, and parts manufacturing can be combined with the existing enterprises of Zhejiang Kunpeng industrial base, Huawei Ningbo Kunpeng Ecological Industrial Park and China Great Wall (Wenzhou) independent innovation base.

Chain creation aims at the lack of key technology design and manufacturing neck enterprises in the iconic industrial chain, establishes core enterprises through

introduction or independent innovation, and integrates new supply chains centered on core enterprises. For example, CNC machine tool manufacturing in the landmark intelligent equipment manufacturing industrial chain, in order to overcome the short board of low-end products, create a high-end CNC machine tool manufacturing center centered on Taizhou, and form an integrated supply chain supported by enterprises in Hangzhou, Jiaxing and Shaoxing.

Financial chain is to integrate the enterprises that are not effectively integrated into the supply chain or the supply chain whose end is abroad, and a few single enterprises or supply chains with weak competitiveness interrupted by the epidemic into the core supply chain, so as to achieve the purpose of expanding the core supply chain.

It is worth noting that in the process of "Chain protection, chain supplement, chain creation and chain fusion", the principle of structural optimization allocation should be reflected. On the one hand, the design of core supply chain should reflect agility, flexibility and personalization. The supply-demand relationship in the chain can be designed as multi-level suppliers and multi-level agents, single-level suppliers and agents or other forms of combination. Its quantity must achieve the goal of timely production, timely supply, rapid response and decreasing cost formed by the maximum satisfaction of customer needs. The constructed supply chain has value-added value that a single enterprise does not have to create profit value. The other party should first analyze the symbolic industrial chain and determine the supply chain. According to the operation characteristics of the industrial chain, the industrial chain is divided into pre production link, in production link, circulation link and post production link, such as the new energy vehicle industrial chain. The pre production link includes machinery, iron and steel, petrochemical, rubber, textile, electronics and other industries. The production link involves R & D, vehicle equipment manufacturing, education, training and consultation, the circulation link involves transportation, storage, packaging and other types of enterprises, and the post production link involves logistics, sales, insurance, maintenance, leasing, refueling and charging, consumer finance, catering, hotels and other types of enterprises. In the process of building the core supply chain of the industrial chain, we should focus on the equipment manufacturing core enterprises of the whole vehicle, set up two new energy vehicle equipment manufacturing centers in Hangzhou and Taizhou according to the development plan and the geographical distribution of industrial advantages, and build two core supply chains from raw material procurement → production → sales → customers and transportation logistics and information sharing throughout the period. Machinery, steel, petrochemical, rubber, electronics, etc., which provide raw materials for auto parts at a higher level, design and logistics support in production, procurement, transportation, storage, packaging in circulation and logistics, sales, maintenance, etc. in post natal links should be linked to form a strategic cooperative partnership to meet both supply and demand and an integrated supply chain. In the two core supply chains, many sub chains can be integrated, such as the transportation enterprises in the supply chain. Taking the transportation enterprises as the core, the sub chain of providing transportation tools → transportation enterprises → maintenance → recycling can be constructed. In this way, two new energy vehicle industry clusters will be formed in Hangzhou and Taizhou. The scale and benefits of the cluster should be based on the principle of the best combination of parent and child supply chains. Avoid the waste of input resources caused by the aggregation and expansion of industrial enterprises.

Cross regional integration means that the construction of supply chain is not limited to the province, but actively integrated into the Yangtze River Delta and the whole country according to needs. Due to the difference between resource endowment and traditional foundation, some enterprises in our province are lack of supply chain links, so we need to borrow ships to go to sea and get married across provinces. For example, the equipment components of robot manufacturing enterprises, such as encoders, high-performance bearings and other modules, are the short board of the province. To overcome the short board, we should increase the strategic cooperation with supporting enterprises in the Yangtze River Delta. For another example, ethylene enterprises in the advantageous ethylene industry chain of our province should go international and establish an international supply chain.

4. Conclusions and Prospect

To build a symbolic industrial chain, we need to forge a symbolic supply chain, pay attention to dealing with the relationship between supply chain and industrial chain, and do a good job in the regional distribution of supply chain, the balance between supply chain and supply chain, and the internal balance of supply chain. In addition to government behavior and self-organization behavior, we must establish a supply chain ecological governance system with the participation of government, industry, enterprises, financial institutions, universities and scientific research institutes. Standardize the regional distribution of the spatial scale of the governance scope, and determine the core enterprises, closed chain supply

chains, auxiliary enterprises and industries. Pay attention to the vertical and horizontal competition and cooperation relationship among enterprises, within the supply chain and between supply chains. The vertical competition and cooperation transaction relationship determines the length of the supply chain, the horizontal competition and cooperation relationship determines the width of the supply chain, and the length and width of the supply chain ultimately determine the scale of industrial agglomeration and the standardization, rationality and economy of regional layout. Although the research conclusions can be used as a reference for the development and optimization of China's industrial chain and supply chain, because the research model mainly takes Zhejiang as an example, there are differences in regional development between the East and the West in China's provinces, and the universality of the research conclusions must be adjusted according to the actual situation of various regions. The definition and standard of symbolic industrial chain, the treatment of the relationship between symbolic and non symbolic industrial chain, and the quantitative analysis of the coupling of industrial chain and supply chain need to be further studied. With the deepening of theoretical research and the development of practice, these problems will be solved one by one.

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