

# Research on the Position and Influencing Factors of Chinese Manufacturing Industry in the Evolution of Global Value Chain

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**Abstract.** With the formulation of the national strategy document "Made in China 2025," China's manufacturing reform has drawn great attention. China's manufacturing industry has a large total export volume, but it is generally at a low level in the Global economic chain. The gap between different industries in the manufacturing industry is also quite obvious. China's manufacturing industry should speed up the transformation of its development model to respond to the brewing of a new round of global scientific and technological revolutions and industrial changes. Therefore, this paper makes a preliminary study on the status and influencing factors of China's manufacturing industry in the evolution of the global economic chain.

## Introduction

Since the reform and opening up, China has actively participated in the international division of labor following the principle of comparative advantage and has become a major manufacturing country in the world. Global countries' competition for the dominant manufacturing industry in the world has provided a rare opportunity for China's manufacturing transformation and upgrading. At the same time, challenges and opportunities coexist. The "segmentation" and "fragmentation" of production processes globally and the global non-market coordination among these "fragments" are prominent features of the current international production system. Concentrated performance is that the proportion of trade in intermediate goods and parts and components in the world trade continues to rise. Although China's manufacturing industry has won the "world factory" by virtue of its surge in output in recent years, it is still at the low-end level of the international production division. In March 2015, the Chinese government formulated the "Made in China 2025" strategic plan, using the "Internet +" new thinking to promote the transformation and upgrading of the manufacturing industry, to accelerate the realization of the "deep integration of industrialization and informatization" at the 18th National Congress of the CPC[1]. From the 17th century to 1830, factory-type manufacturing plants characterized by specialized division of labor, steam power machines, and machine tools laid the foundation for manufacturing companies. After that, manufacturing rapidly developed into an important part of the national economy and became an important source of power for the advancement of human society[2]. Therefore, "manufacturing is one of the most remarkable industries in modern economic growth. The global value chain (GVC) theory is a widely used and mature research framework currently used to study the industrial division of labor and upgrades in academic and business circles. It examines the relationship between manufacturing's participation in the international division of labor and global trade in terms of the creation, retention, and access of value. The process of matching the global value chain's value grading system with the global comparative advantage tier system is also the process of global vertical separation and spatial restructuring of various value links within the product's international division of labor network. The global economic chain in the world production system is divided into three major links. The first is the technical link, which includes research and development, creative design, production and processing technology improvement and technical training. The second is the production process, which includes logistic procurement, module production, system production, terminal production, testing, quality control, packaging and

inventory management. Including distribution logistics, wholesale and retail, advertising and after-sales service and other sub-links, formed a general trend of functional specialization[3].

### China's Manufacturing Industry in the Evolution of Global Value Chain

Industry is the main force for promoting national economic growth, alleviating employment pressure, maintaining social stability, paying profits and taxes, and earning foreign exchange through exports. With the rapid development of China's manufacturing industry, the overall national strength has been continuously enhanced, and the role played on the international stage has also become increasingly important. The international status has been continuously improved.

(1) Development status of China's manufacturing industry under global value chain. The first is the globalization of the division of labor in the manufacturing value chain. With the gradual deepening of the international division of labor, the boundary of the international division of labor in the manufacturing industry has gradually shifted from the industrial sector to the industrial sector, from the vertical division of labor to the horizontal division of labor, and from the horizontal division of labor to the networked division of labor. The boundary of the international division of labor in contemporary manufacturing is represented by the division of labor in the value chain and the different links in the manufacturing value chain, and it has become the mainstream of the international division of labor in contemporary manufacturing. Second, China is actively integrating into the global value chain system. With the gradual formation of the global value chain division of labor, since the early 1900s, various regions in China, especially developed coastal regions, have largely absorbed the direct investment, industrial transfer, and outsourcing orders of international multinational corporations due to openness, and are labor-intensive. China absorbs greenfield investment, which accounts for one quarter of the world's greenfield investment and accounts for more than one-third of the greenfield investment in developing countries.

(2) China's manufacturing industry's position in the global economic chain---at a low level. Judging from the actual situation, developed country companies are the leaders of most global value chains and occupy a strategic link in most global value chains, dominating and governing the global value chain system. In contrast, due to the lack of control over key core technologies and brands and ownership of core business, Chinese companies cannot build a global value chain around themselves or with their own[4]. Table 1 reflects the embedded status of the global value chain of Chinese enterprises. From this we can see that the core links of most product value chains are in the hands of developed country companies, and our enterprises are only accepting the leadership of developed country companies to "work for them".

Table 1 Chinese enterprises' embedded status in global value chains

Global value chain product industry	Strategic location	Strategic position controller	Controller's home country	The location of Chinese companies
computer	R&D, CPU manufacturing, core components	Inter, Microsoft, HP, etc.	United States, Japan, etc.	Finished product assembly, middle and low-grade products
car	R&D, mold	Volkswagen, Honda, Daimler, etc.	United States, Japan, Germany, etc.	General parts, vehicle assembly
aircraft	Assembly, R&D	Boeing, Airbus, etc.	United States, European Union, etc.	Small parts
Integrated appliances	IP supply, cutting-edge technology development and production	Samsung, Inter, etc.	United States, South Korea, etc.	Low-end manufacturing and packaging testing
Durable appliances	Core components, R&D	Samsung, Haier, Toshiba, etc.	United States, China, etc.	Finished product assembly, etc.

## Research on the Influencing Factors of Chinese Manufacturing Industry in the Evolution of Global Value Chain

The influence of the global economic chain on China's manufacturing industry is determined by a variety of factors. It can be divided into macro factors, medium-term factors, and micro factors. The macro-level factors refer to the external environmental factors that affect the international competitiveness of the manufacturing industry. They consist of government actions, factors of production factors, and the degree of economic openness. The meso-level factor mainly considers the industrial-level factors that affect the international competitiveness of the manufacturing industry and consists of factors such as industry size, industrial agglomeration level, and industrial life cycle. The micro-level factors refer to the factors that can affect the international competitiveness of the manufacturing industry at the enterprise level. They are mainly composed of factors such as the size of the company, the level of business management, and the company's resources[5].

### Analysis of the Reasons for the Location of China's Global value chain - "four imbalances".

The imbalance of trade growth structure: Foreign trade dependence is a measure of a country's dependence on international trade. From 1992 to 2004, China's dependence on foreign trade rose from 34% to 70%. It declined after 2004 and reached 58% in 2008, exceeding the world average, and far higher than the United States, Japan and other economies. There are many reasons for the high degree of dependence on foreign trade in China. The main reason is that the proportion of processing trade in the foreign trade structure is relatively large. The imbalance between energy and environmental sustainability: At present, the world economy is in the fifth cycle of economic growth. This cycle of innovation is dominated by new energy, new materials, and biotechnology, with a clear "green". The imbalance of technical innovation support for industrial upgrading: The basic form of manufacturing enterprises participating in the international market competition is to provide products with innovative and independent intellectual property rights. The lack of new product development capability has become one of the major bottlenecks that have constrained the sustainable improvement of China's industrial competitiveness.

**The Main Factors Affecting the Upgrading of China's Manufacturing Industry.** In the 21st century, industrial intensiveness at all levels resulting from the "waterfall effect" of global value chains has presented comprehensive challenges to Chinese companies and policy makers who are entering global competition. Under this background, the upgrading of China's manufacturing industry is inevitable. However, the upgrade process does not take place in isolation. Rather, it is a systematic project. The strength of the relationships or connections between the systems can make the large system holistic with respect to its goals or characteristics. This article believes that the rise of China's manufacturing industry is the result of the combined effect of endogenous and exogenous factors in the company. The interdependence and strengthening of various factors is a source of power for upgrading (Fig. 1).

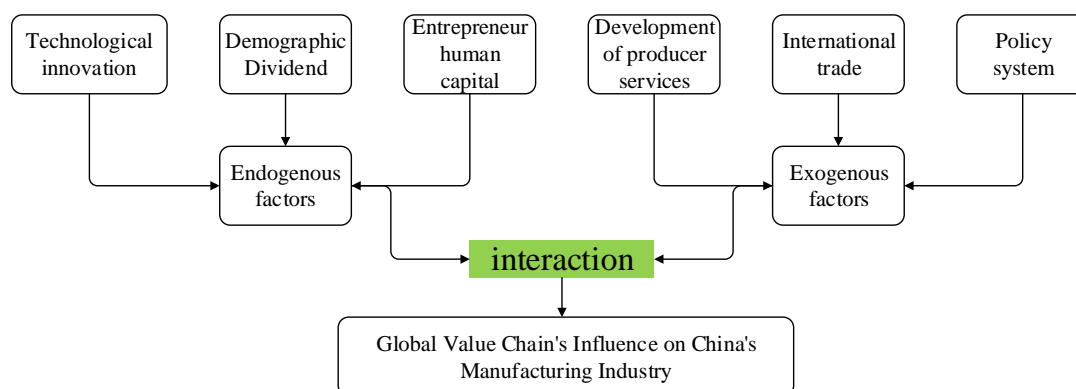


Figure 1. Finite The model of influencing factors of china's manufacturing industry under the global value chain model

The influence of technological innovation on Chinese manufacturing industry in the global value chain. Industrial technology innovation is a complex interaction network that includes both internal technological innovation capability systems and external technological innovation support systems. Among them, the industrial technological innovation capability system is the decisive factor of technological innovation, and the external technological innovation support system plays an auxiliary role in technological innovation. Both are integral to manufacturing technology innovation activities. The technological innovation capability system consists of innovation input capabilities, innovation output capabilities, introduction and absorption and digestion and re-innovation capabilities, and adaptability to innovation and competitive market changes. The technical innovation support system consists of government support and financial institution support. Therefore, the role of manufacturing technology innovation in the international competitiveness of its products is based on two components: the manufacturing technology innovation capability system, the manufacturing technology innovation support system, and the relationship between its product's international competitiveness.

Strengthening the support system for manufacturing technological innovation has an important auxiliary role in improving the international competitiveness industry. The influence of demographic bonus on Chinese manufacturing industry in the global value chain. The demographic dividend is the age structure of the population that has emerged during the process of demographic transition and has resulted in a high proportion of working-age population, strong population productivity, and high social savings. This demographic factor that has a positive effect on a country's economic growth has become a demographic dividend. On the one hand, since the reform and opening up, the demographic dividend has played a pivotal role in the formation of the international competitiveness of China's manufacturing industry. On the other hand, China's manufacturing industry will face the challenge of gradually disappearing labor cost advantages. The results of the sixth national census show that China's dependency ratio will have an inflection point after 2016 and begin to rise. This means that China's demographic dividend is gradually disappearing, which has caused China's manufacturing industry to lose its advantage in cheap labor and weakened it to some extent. International Competitiveness.

From the perspective of human capital, the growth of an enterprise cannot be separated from the cooperation of various types of human capital. Entrepreneurs have unique human capital and can fully understand and grasp the potential market opportunities brought about by technological advancement, and promote industrial upgrading through the integration of specialized human capital and general human capital. It is the division of labor and collaboration among various types of human capital that not only innovative companies can grow and develop, but also produce a group of followers and imitators through their influence[6]. This will lead the regional economy to emerge from low-level equilibrium traps, from traditional manufacturing to advanced manufacturing, and to upgrade China's manufacturing industry. The influence of the development of producer service industry on China's manufacturing industry in the global value chain. The producer service industry is a process industry that promotes the growth of other sectors, is an economic agent, and is an industry that facilitates all economic transactions. It is an impetus for the stimulation of commodity production.

Judging from the current stage of China's industrialization, as the productive service industry in most regions is not developed, the industry is in a period of rapid development. Due to the influence of resources and environmental constraints, it cannot follow the traditional mode of industrial structure upgrade. That is, the development of the manufacturing and service industries is detached, and the interaction between the manufacturing industry and the service industry is realized through the community-based and virtual interaction modes, thereby promoting the upgrading of China's manufacturing industry. The impact of international trade on China's manufacturing industry in the global value chain. As the socialization of production continues to deepen, the economic links between countries in the world are becoming more and more close. The change in the industrial structure of a country is increasingly influenced by the structure of foreign trade. Under the conditions of an open, globalized economy, the impact of exports on demand and imports from

supply to the structural adjustment of China's manufacturing industry has been fully reflected. In the trade in manufactured products, the proportion of labor-intensive products has decreased, and the proportion of capital goods and high-tech products has increased rapidly. In the future of international trade in goods, knowledge-technology-intensive products, especially high-value-added complete sets of equipment, will become the pillar products with the fastest export growth, the largest trade volume, and the most sustainable development potential. The influence of policy system on Chinese manufacturing industry in global value chains. The key to the role of the policy system is to eliminate the institutional obstacles to economic transformation and upgrading, and provide good policy guarantees for economic restructuring and upgrading. Because of the increasing scale of knowledge and technology, the gap between the economic development of developed and emerging countries is increasing.

## Conclusions

We must fully realize that on the one hand, the added value of China's manufacturing value-added exports in various industries is generally low and the gap is large; On the other hand, it should be noted that the United States and Japan have shown stronger strength. China's international division of labor in the capital, technology, and resource-intensive industries is still not high, and the gap with the world's top countries remains large. The factors that influence the evolution of the global value chain in China's manufacturing industry are the result of the joint action of the endogenous and exogenous factors of the company. The interdependence and strengthening of each factor is the power source for upgrading. Endogenous factors exist within the industry and play a key role in the formation of industrial competitiveness, including technological capabilities and supply of advanced human capital elements. Under the conditions of economic globalization, the interaction of internal and external factors is an opportunity and a test for the upgrading of China's manufacturing industry.

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