Industrial Upgrade of China's Equipment Manufacturing Industry——Based on the Perspective of Global Value Chain

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Abstract: At present, the precise pattern of China's direct investors still lacks rationality. China belongs to an independent market body country, and the exact design for large in and small out is not conducive to China's long-term development. From the perspective of long-term strategic growth, Chinese enterprises should adhere to the principles of cooperation and joint development and maintain trade balance in their event. In the process of pursuing the strategy of going out, we must pay attention to technological innovation and growth.

1. Introduction

In recent years, the overall national strength of all countries in the world has increased. In the development environment of economic globalization, the factors of production and the circulation of commodities show the characteristics of transnational flows, and the global production pattern has changed significantly. Under this development situation, as a developing country, China's economic growth rate has slowed down significantly, switching from the previous high-speed growth to the current high-speed growth. At the same time, the pressure on the national economy has risen. For a long time to come, the critical goal of economic development is to improve the quality and efficiency of construction. In the past, the different problems that were ignored and covered up due to the rapid economic development have been intensively displayed, requiring enterprises to upgrade further and transform. In this paper, the research on the industrial upgrading of China's equipment manufacturing industry-related research based on the perspective of the global value chain, its significance can be summarized as theoretical research significance and practical research significance.

2. Research Status of Equipment Manufacturing Development

Many developed countries abroad attach great importance to the equipment manufacturing industry. Lu K (2018) analysed the development status of the equipment manufacturing industry in the research. The above scholars believe that Japan's manufacturing sector developed earlier and has achieved outstanding achievements since the 1980s. With the help of manufacturing, it has improved its competitiveness in the international market. The rise of Japan's manufacturing industry has had a positive impact on the development of the US domestic market, which has caused the United States to feel a crisis of national economic development. In response to this phenomenon, the United States began to focus on the equipment manufacturing industry, and successively issued various supporting policies for the equipment manufacturing industry. Fang M (2018) pointed out that Americans have re-recognized the role of equipment manufacturing in the development of the national economy. In the late 1980s of the last centuries, the Massachusetts Institute of Technology cooperated with more relevant experts and scientific research structures. Through cooperation, the current status, problems and countermeasures of the equipment manufacturing industry in the US were analysed. Published books related to manufacturing recession and policy. In related publications, the importance of the equipment manufacturing industry to economic development is expounded in-depth, and the government should propose a series of policy measures in response to

the development status of the equipment manufacturing industry. After the United States paid more attention to the development of the equipment manufacturing industry, using various policies, it regained the position of the United States in the equipment manufacturing market more than ten years later. In his research, Zhen L (2017) analysed the stagnation of the US manufacturing industry. The above scholars have selected more than 100 machine tool manufacturers. Through the comparative analysis of data in different periods, they have found that most small-scale machine tool manufacturers have reduced the production scale of their products to a great extent. The reason for the decline. The conclusion from the question is that it is particularly necessary to attach importance to technological innovation in the development of the machine tool industry. Geng W (2017) conducted research and development on sectors such as mechanical equipment, power equipment, and transportation equipment, and analysed the impact of the development of the three industries from the funding level, thus summarizing the effects of government investment policies and the development of equipment manufacturing. Besides, the research also pointed out that the degree of development of the machinery manufacturing industry can measure the comprehensive national indicators to a certain extent. Most Western developed countries are developing, and their machine manufacturing strength is relatively stable.

3. Research Status of Industrial Upgrading

In the field of industrial upgrading, foreign scholars have made more achievements. In terms of the concept of industrial upgrading, Hongxia Z (2018) conducted an in-depth analysis of the idea of technical improvement in his research. The above scholars will discuss the clusters and value chains and explain the integration of enterprise upgrades. By improving the performance and efficiency of high-quality products, they will obtain relatively wealthy profits. In the global value chain analysis framework, the concept of industrial upgrades will be introduced. It is believed that industrial upgrading is the entry of enterprises into higher profitable areas under the influence of global value chains. Buer S (2018) provides a detailed overview of industry classification. It divides the industry classification into five parts for upgrading. First, the improvement between industries. This type of upgrade is mainly a speciality within the industrial structure. Smaller value-added industries in the industrial construction are transferred to more significant value-added sectors. Second, updates between elements. This type of update is mainly the transfer of production factors between each other, and the structure of production factors is transferred from natural endowment assets to creation of assets. Third, demand upgrades. This upgrade is mainly from necessities of life to luxury goods. Fourth, the function upgrade is mostly the assembly of mechanics in the value architecture, which is transferred to the manufacture of components and the development of commodities. Fifth, chain transfer. It is mainly the transfer of physical goods to invisible goods that cannot be seen.

In terms of industrial upgrade path: Coolay N (2017) believes that the industrial road is an integral part of the analysis of industrial development. The above scholars believe that upgrading the process flow to a chain is a common industrial upgrading path. In this upgrade path, it can generally be divided into four types from the perspective of the global value chain. The first type is process upgrade; the second type is product upgrade; the third type is function upgrade; the fourth type is a value chain upgrade. Lin S (2018) analysed the leading upgrade path of leading industries. The scholar systematically defined the prominent industries. The study believes that leading industries have a prominent role in promoting economic development. By giving priority to leading industries, it will encourage the overall development of the national economy as a whole. At this stage, the theory of developing leading industries in emerging industries in Western countries has played an important role. Through the analysis of critical development strategic industries, the industrial-technological gap between developed countries has been narrowed.

In terms of industrial upgrading evaluation: Ma X (2017) pointed out in the study that the assessment of industrial upgrading can be summarized in two aspects. On the one hand, it is an indicator of the degree of industrial structure advancement; on the other hand, it is an indicator of the degree of industrial structure rationalization. The evaluation indicators of the advanced industrial structure are usually based on the Huffman ratio index and the index of industrial growth.

The signs of the rationalization degree of industrial structure are usually based on the indicators of industrial level satisfaction rate and industrial sustainable development degree. In addition, industrial correlation indicators can also play an essential role in the evaluation of industrial upgrading. The index of industrial relevance can reflect the relationship between input industries to a certain extent and reflect the coordination between the industrial structures and the degree of optimization and upgrading. Gao Y (2017) believes that products, elements and composition are the essential contents of industrial upgrading evaluation. At the product level, the product upgrade index is the main factor; at the factor level, it includes labour productivity, R & D density index, etc.; at the structural level, it includes standard structure comparison methods and structural efficiency indexes. The above scholars pointed out that different evaluation methods have different effects on industrial upgrading evaluation.

4. Research Status of Equipment Manufacturing Industry Upgrade

He-Liang Z (2017) launched a study on the upgrading of the equipment manufacturing industry. It believes that equipment manufacturing is a different term in China, and it is generally defined as an essential industry abroad. The equipment manufacturing industry is an essential industry driven by high technology. The scholars, as mentioned above, conducted an in-depth analysis of the changes in gross industrial value from the overall level through the use of national machinery and equipment industry subsidies. From a more comprehensive perspective, they have clarified the supporting role of the government in industrial upgrading. At the same time, through the study of the manufacturing sector, it further revealed the import and export trade structure and promoted the promotion of high-tech manufacturing. Yi L (2018) discussed the industrial agglomeration when analysing the upgrading of the equipment manufacturing industry. It is believed that industrial agglomeration is the aggregation and clustering of specific regions, and enterprises are related and similar to each other. Industrial agglomeration has a high positive external effect on industrial development. Within a specific geographic area, agglomeration can fully achieve the sharing of relevant information between different enterprises in the same industry, laying a solid foundation for the development of industrial innovation activities. Liang Y (2018) pointed out that industrial agglomeration plays an important role in the extension of enterprise information sharing. In the agglomeration area, enterprises have different characteristics and different advantages, and they can improve optimization within a specific range through complementary advantages and resource sharing. Rationality. This phenomenon can effectively promote the industrialization upgrade of the equipment manufacturing industry and improve its technical level. The equipment manufacturing industry itself involves many types of industries, and the technical composition has a specified complexity, and the industrial relevance is relatively large. Therefore, objectively, companies need to cooperate with each other and write to give full play to the advantages of the equipment manufacturing industry upgrade and lay the foundation for the sustainable development of the equipment manufacturing industry.

5. Research Status of Technological Progress

In terms of types of technological progress: Lu Y (2016) analysed the technological progress in the research. It believes that technological progress is the process by which old technologies replace new technologies and the process of continuous development and improvement of technologies. According to the analysis of the content of technological progress, it can be clarified that the content of technological progress can be summarized in several aspects. One is to organically combine science, technology and production so that the three can develop in harmony. Second, the use of new technologies, processes, and equipment to innovatively design the original production technology or means. The fundamental purpose is to increase production efficiency and create new products. Third, improve the overall ability and quality of workers. Technological progress is the continuous development of people's collation, creating a good environment for talents. With the help of modern science and technology, it will fundamentally promote the overall development of

people and improve the management level. Fei L (2017) explored the types of technological progress through analysis of technological progress. The study pointed out that according to different principles of division, technological progress can be divided into different types. If we divide from the cause of technological progress, we can say that technological progress can be divided into endogenous technological progress and exogenous technological progress. Among them, endogenous technological progress reflects the real economy in a hypothetical way, and exogenous technological progress analyses convenience in a hypothetical way. If it is divided from the form of technological progress, it can be divided into gradual technological progress and leaping technological progress. Continuous technological progress is based on the original technical route, from quantitative change to qualitative change. Leap-forward technological progress is to achieve leap-forward progress from the perspective of change in accordance with technological principles. Ou J (2018) also divided the types of technological progress from the perspective of factor bias and actual results. In terms of factor bias, it can be divided into labour-saving technological progress and capital-saving technological progress. In terms of actual results, it can be divided into product technology progress and process technology progress. Among them, product technology advancement is the use of new technology or new principles to produce new products that are different from the original products. The technological progress of the process is to optimize the original production process and tools, transform the production process, and make the production process more scientific.

In terms of measurement methods for technological progress: Zhang C (2017), when analysing the measurement methods for technological progress, believes that the direct quantitative indicators of technical measurement methods are more important than others. Among such indicators include the number of patent applications and the output value of new products. These two indicators reflect the technological progress of enterprises from the perspective of results. According to the analysis, it is found that the indicators have a relatively narrow measurement angle in the application, which leads to the direct quantification of indicators that cannot fully reflect the specific conditions of enterprise technological progress. Ai CH (2017) discussed indirect quantitative indicators in the study. In his opinion, in view of the limitations of current direct quantitative indicators in measurement, indirect quantitative indicators have been widely used and have made outstanding achievements. Measuring enterprise performance can effectively reflect the current level of technological progress in enterprise development and can provide a basis for the formulation of enterprise technological progress development plans. At this stage, the commonly used indirect scale indicators are mainly based on total factor productivity. Zhan J (2017) analysed the calculation of technological progress. It believes that the reason for carrying out the calculation of the level of technological progress lies in the academic disputes with the World Bank. The relevant report of the World Bank pointed out that in the development of some western countries in the more than ten years since the 1960s, the growth rate of the technological level has been slow, or not even increased. Analysing the reasons for the increase in output value is the increase in labour force and the increase in the number of capital elements. In other words, such countries are not making corresponding contributions to technological progress in their development. In view of this, from the perspective of the specific analysis of Conge 's specific problems, he focused on the economic development, technological progress and Xining exploration of such countries, and discussed the measurement of technological progress. Ho VD (2017) used the implicit variable method to estimate the total factor productivity in different periods in Western countries. After analysis, it was found that the proportion of total factor productivity increased, and there was an alternating instability in fluctuations.

6. Research Status of Global Value Chain

Connotation of the global value chain: Zhongdong Y (2018) analysed the implication of the worldwide value chain in the research. It believes that the relevant theories of global value chains were originally developed in the 1980s. The root of its development is the value chain theory, proposed by international business researchers. Among them, among the several standard value

chain theories, the Porter value chain develops the fastest, and Kogart 's value theory is most significant in the formation of the global value chain theory. In the production network theory, according to the summary of the value chain theory, it also contributed to the creation of the worldwide value chain theory. The structure of the inter-firm relationship network emphasized by the production network corresponds to the production sequence in the value chain theory. Xiaojun M (2018) believes that in the academic field, global value chains are also called value chains, commodity chains, value networks, and production networks. In global value chains, they mainly research global economic organizations, and the research characteristics are Longitudinal research. Kummritz V (2017) analysed the dynamic characteristics of the global value chain in the study. It first investigated the value and creators of the global value chain and believed that not every link in the global value chain is a creator and that the strategic relationships in the value chain are the critical links in creating value. Therefore, when manufacturers control the global value chain of the industry, they need to seize strategic value links. Shuli W (2017) defines the global value chain. It believes that, in order to increase the value of goods or services globally, network organization measures such as production and sales connections are called global value chains. The concept focuses on the interrelated interactions between different value chains in different countries and regions in the development of various types of global activities. Lin-Hi N (2016) divided the global value chain model. It believes that the producer-driven model and the buyer-driven model are standard models in the global value chain. Among them, the producer model regards industrial capital as a driving force, and producers further expand market demand through investment. The buyer model is to use commercial money as a driving force and come from a well-known company to increase the rate of commodity circulation.

The relationship between the global value chain and technological progress: Meng B (2017) analysed the relationship between the global value chain and technological advancement in the research. The scholars, as mentioned above, believe that the integration of global value chains in industrial development can prompt the country to give full play to its advantages and improve the level of industrial progress. In the study, Singapore data was used to conduct an in-depth analysis of the technological progress effect of integrating into the global value chain. Through the summary of the research results, it was found that the outsourcing international outsourcing division of labour can improve the technological progress effect. Nauhria Y (2017) analysed Irish manufacturing data from different periods in the study. The research summarizes the results based on data analysis and believes that manufacturing outsourcing has a specific role in promoting the effect of technological progress. Tanaka K (2018) conducted an empirical analysis of panel data from different periods in the British industrial industry. The study pointed out that the integration of global value chains into technological progress can promote the ongoing improvement of total factor productivity in the manufacturing industry, with industries with higher capital and export intensity being the most prominent. Grimes S (2017) conducted research on panel data of some sectors in the United States during the study. The study found that participating in the international vertical specialization division has fully improved the technology made in the United States

7. Conclusion

In conclusion, there is an excellent future belongs to Chinese Equipment Manufacturing Industry. However, disadvantage exists in the industrial upgrade of China's equipment manufacturing industry based on the perspective of the global value chain? How to analyse the status of the integration of the global value chain of each sub-sector of the equipment manufacturing industry from a deep level, how to interpret the specific path of the industrial upgrading of the equipment manufacturing industry from the perspective of the global value chain, how to use cases to explore the Measures to upgrade the equipment manufacturing industry in the context of value chains? Those are two crucial, valuable question for us to research in the future when we continue our research related areas.

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Reference

[1] Fang M, Yang R. Research on effects of input servitization on export technological complexity of manufacturing industry of China[J]. Design Automation for Embedded Systems, 2018, 22(3):279-291.

[2] Geng W. Research on the ability to access added value of Chinese manufacturing and service industry and their subdivisions in the global production network: from the perspective of “position-participation-revealed comparative advantage”[J]. Journal of International Trade, 2017.

[3] Ho V D, Ho M D, Ha T V, et al. The upgrading of the cyclic neutron activation analysis facility at the Dalat research reactor[J]. Journal of Radioanalytical and Nuclear Chemistry, 2017.

[4] Hongxia Z, Zhe Z, Kerong S. Effects of Global Value Chain Position on the Carbon Emissions of Manufacturing Industry in China: An Empirical Study Based on the STIRPAT Model[J]. Meteorological and Environmental Research, 2018, 9(05):56-61.

[5] Kummritz V, Taglioni D, Winkler D E. Economic Upgrading Through Global Value Chain Participation: Which Policies Increase the Value Added Gains?[J]. Social Science Electronic Publishing, 2017.

[6] Lu K, Chen Y, Zhai X. Research on Promoting the International Competitiveness of China’s Manufacturing Industry under the Background of TPP[J]. IOP Conference Series Materials Science and Engineering, 2018, 398.

[7] Wu H C. Cross-Regional Corporations and Learning Effects in a Local Telecommunications Industry Cluster of China[J]. Journal of the Knowledge Economy, 2017, 8(1):337-355.

[8] Xiaojun M, Yudong L, Xinyu Z, et al. Research on the ecological efficiency of the Yangtze River Delta region in China from the perspective of sustainable development of the economy-energy-environment (3E) system[J]. Environmental Science and Pollution Research, 2018.

[9] Zhan J J, Wu Z F, Shang Y, et al. Current situation of drying methods for Chinese material medical extract and analysis on existential problem[J]. Chinese Traditional and Herbal Drugs, 2017, 48(12):2365-2370.

[10] Zhen L, Hong Z, Economics S O, et al. Research of the Paths of OFDI in Upgrading Equipment Manufacturing Industry's International Competitive Advantage[J]. Journal of Business Economics, 2017.

[11] Zhongdong Y. China’s photovoltaic industry policy performance from the perspective of global value chain[J]. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 2018, 40 (14):1737-1742.