Challenges And Economic Opportunities for Developing Countries Under the Global Value Chain

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Abstract. Against the backdrop of deepening global economic integration, the global value chain (GVC) has become an important part of the international economic system. For developing countries, this system has brought unprecedented challenges as well as valuable opportunities. This paper first explores the concept and characteristics of the global value chain and the position and role of developing countries in the global value chain. Then, this paper analyzes the current situation of developing countries in the global value chain, including their limitations in terms of participation depth, trade scale, and governance structure. In addition, this paper further discusses the positive impact of developing countries' participation in the global value chain, including promoting export growth, driving industrial upgrading, and enhancing international competitiveness. Finally, this paper proposes strategies to increase the participation of developing countries in the global value chain, including industrial development strategies at the government level and capacity building at the enterprise level. Looking ahead, developing countries need to adapt to the new technological revolution and the trend of green and sustainable development, enhance their position in the global value chain and achieve sustainable economic growth.

Keywords: Global value chain; developing countries; export growth; industrial upgrading; international competitiveness.

1. Introduction

In the wave of economic globalization, global value chains (GVCs) have become an important driving force for international trade and production activities. The global production network promotes the division of labor and cooperation and commodity circulation among countries and regions. These value chains have greatly promoted the effective use of resources and production efficiency by breaking down the production process into multiple links and optimizing the allocation on a global scale. However, although the global value chain provides small and medium-sized enterprises (SMEs) with opportunities to participate in the international division of labor, the participation of developing countries in the global value chain is generally low, which not only restricts their development but also poses a challenge to the inclusive growth of the global economy.

The Organization for Economic Cooperation and Development (OECD) and the World Bank have given the core concept of inclusive global value chains, which mainly refers to global value chains that low-income developing countries can easily integrate into by overcoming participation barriers. The participation barriers are mainly the lack of business environment and system supporting small and medium-sized enterprises in low-income developing countries, which leads to high fixed costs and huge challenges in international market competition. The lack of participation of developing countries in the global value chain is mainly manifested in the following three aspects. First, the depth and breadth of participation are limited, and many developing countries can only engage in low-value-added links in the value chain. Second, the lack of technical level and innovation ability makes it difficult to upgrade to the high-end links of the value chain. Third, problems such as difficulty in financing and asymmetric market information limit the ability of developing countries to participate in the global value chain.

Studying participation in the global value chain has important practical significance for developing countries. First, improving the participation of developing countries in the global value chain can promote the export growth and foreign exchange earnings of these countries, and enhance their economic autonomy and risk resistance. Secondly, the promotion in the global value chain can drive the upgrading of the local industrial chain, promote technology transfer and knowledge spillover, enable developing countries to stand at the forefront of new products and new processes and improve the production efficiency and competitiveness of the entire country. In addition, participation in the global value chain is also an important indicator to measure a country's economic openness and international competitiveness.

In the context of globalization, economic globalization, and regional integration are developing rapidly, trade barriers are constantly decreasing, transportation costs are continuously decreasing, and information and communication technology is widely popularized. This series of changes has made the production process increasingly decentralized and complex, and the global value chain has become a key component of international trade and production activities. In this huge global value chain production network, developed countries occupy a dominant position. However, the participation of developing countries in the global value chain is generally low, which not only restricts their development but also poses challenges to the inclusive growth of the global economy. Therefore, in-depth research on the impact of participating in the global value chain on the economy of developing countries has great theoretical and practical value. This study hopes to provide useful references and inspirations for policymakers, business managers, and academia and jointly promote the sustainable development of the global economy.

2. Overview of Global Value Chains and Developing Countries

2.1. Concept and Characteristics of Global Value Chains

The global value chain is an important form of economic organization that breaks down the production process of products into multiple cross-border links. From the birth of product design concepts to the procurement and preparation of raw materials, to complex production and manufacturing, and finally sales and after-sales services, each link is optimized and configured globally. The global value chain shows distinct characteristics and is reshaping the global economic landscape.

First, the global value chain breaks the limits of national borders. Take smartphones as an example. The chip design may come from the United States, the raw materials come from many countries in Africa and Asia, the assembly is completed in China, and the final product is sold in the global market. This cross-border production layout closely connects global companies and forms an intricate production network.

Secondly, the global value chain reflects the characteristics of the fine division of labor. Take automobile manufacturing as an example. Engine research and development, parts production, and vehicle assembly are all handled by different companies or regions. Each link is like a unique small part on a precision machine. This fine division of labor enables each participant to focus on their areas of strength, thereby significantly improving production efficiency.

In addition, the global value chain has generated a strong synergistic effect. The various links in the global value chain are interdependent, and the development of information technology enables enterprises to communicate production information in real-time to ensure accurate connection. At the same time, efficient logistics and transportation systems ensure the timely transportation of raw materials and semi-finished products, realize seamless connection of the production process and make the entire value chain operate efficiently.

However, the imbalance in the distribution of benefits is significant on a global scale. Developed countries usually dominate the global value chain, making huge profits with their advanced technology, strong brand influence and mature market channels. For example, in internationally renowned electronic products, brand owners earn high profits, while companies in developing countries responsible for assembly can only get meager processing fees. Developing countries are relatively backward in technological innovation and brand building, and therefore are at a disadvantage in the distribution of benefits.

2.2. The Status and Role of Developing Countries in the Global Value Chain

First, most developing countries are mainly engaged in production and manufacturing links with relatively low added value in the global value chain. These links usually require many workers for processing and assembly, and the technical requirements are relatively low. Taking the clothing manufacturing industry as an example, factories in developing countries are often only responsible for basic processes such as cutting and sewing. Although these jobs can provide many local employment opportunities, the profit margins are quite limited. Due to the lack of core technology and independent innovation capabilities, developing countries have relatively weak bargaining power in the global value chain and can only passively accept the prices and rules set by companies in developed countries.

Developing countries have obvious shortcomings in technology research and development, brand building, and market channel development, and are therefore highly dependent on enterprises in developed countries. In terms of technology, developed countries have advanced production technology and key core technologies. If enterprises in developing countries want to produce, they need to introduce technology or purchase patents from developed countries. In terms of brand building, most of the world's well-known brands come from developed countries. Products from developing countries can often only enter the international market through OEM production, and most of the profits are obtained by brand owners. In terms of market channels, developed countries have mature market systems and extensive sales networks. The export of products from developing countries mainly depends on the markets of developed countries. Therefore, market fluctuations have a greater impact on the economies of developing countries.

However, developing countries provide low-cost labor, which plays an important role in the global value chain. The abundant labor resources in developing countries are an indispensable factor in the global value chain. A large number of cheap labors provides cost advantages for global production and manufacturing links, making the prices of global products more competitive. For example, the rapid rise of China's manufacturing industry in the past few decades has largely benefited from its large labor force, which can produce a variety of goods at relatively low costs to meet the needs of the global market, thereby promoting global trade and economic development.

At the same time, many developing countries have abundant natural resources, such as oil, minerals and agricultural products. In the global value chain, they are responsible for the development, production and supply of these raw materials, providing an important material basis for global industrial production. For example, oil-producing countries in the Middle East occupy an important position in the world energy market by exporting oil, which has promoted the development of the global energy industry. At the same time, the development and utilization of natural resources in developing countries has also promoted local economic development and increased residents' income levels.

In addition, with the rapid economic development and improvement of people's living standards in developing countries, their domestic market consumption capacity has been continuously enhanced, and they have gradually become an important part of the global market. The large population base in developing countries means huge consumption potential, providing a broad sales market for products in the global value chain. For example, the domestic consumer market in emerging market countries such as India and China have been expanding, attracting the attention and investment of many international companies. At the same time, companies in developing countries also can access advanced technology and management experience by participating in the global value chain, thereby enhancing their strength and competitiveness. In the process of learning and accumulating experience, some companies in developing countries have gradually begun to innovate independently and try to climb to the high-end links of the value chain, promoting the diversified development of the global economy.

3. The Status of Developing Countries in the Global Value Chain

have low participation in the global value chain. First, the industrial distribution of developing countries is concentrated in labor-intensive and resource-dependent industries. For example, in the manufacturing sector, developing countries often undertake simple assembly and basic processing, but rarely participate in high value-added links such as chip design and development, and high-end software programming. In agriculture, developing countries mostly export primary agricultural products, but lack deep processing of agricultural products. Secondly, the trade scale and share of developing countries in the global value chain are unbalanced. In the total global value chain trade, developing countries account for a relatively low share, especially in the trade of high-value-added products and services, which is extremely small compared to developed countries. Taking financial services trade as an example, the participation of developing countries in international financial derivatives trading, high-end financial consulting, and other businesses is almost negligible, and low-value products are also the main products in goods trade. Finally, the governance structure of developing countries is weak. In the governance of the global value chain, multinational corporations in developed countries control core technologies, key production links, and sales channels. Enterprises in developing countries can usually only passively accept orders and prices, find it difficult to participate in rule-making and production plan decisions, and are in a subordinate position in the value chain relationship [1]. These conditions can easily lead to developing countries becoming highly dependent on processing trade, foreign investment, foreign raw material industries, equipment industry imports, and international major buyers, which is likely to develop into a "dependent economy". Prebisch's theory of dependent economy points out that under the traditional international division of labor, the world economy is divided into "large industrial centers" and "peripheries" that "produce food and raw materials for large industrial centers". Historically, the spread of technological progress has always been unequal, which is the basis for the differences in income growth among countries in the world and the basis for the division into "center" and "periphery". The dependent relationship between "center" and "periphery" has become a relationship of "contracting" and "contracting", a relationship of "creation" and "manufacturing", a relationship of "high-end" and "low-end", a relationship of "control" and "being controlled", and a relationship of "boss" and "worker" in the global value chain [2].

The internal reasons for this situation include insufficient investment in scientific research and an imperfect technological innovation system in developing countries. Lack of advanced scientific research equipment and professional talents leads to weak technological research and development capabilities. For example, due to long-term insufficient investment in science and technology, some African countries have difficulty breaking through technical bottlenecks in modern manufacturing and high-tech industries and cannot participate in high-value-added links. Secondly, the level of education is constrained. The lack of educational resources and uneven educational quality have led to a shortage of high-quality talents. This makes it difficult for companies to obtain employees with innovative capabilities and professional skills and cannot meet the demand for talents in the high-end links of the global value chain. For example, in some South Asian countries, many workers lack basic vocational skills training and find it difficult to adapt to the requirements of modern industrial production. Third, backward infrastructure. Poor transportation infrastructure increases logistics costs and time and reduces product transportation efficiency. Insufficient communication facilities affect the timeliness and accuracy of information transmission, and an unstable energy supply will interrupt production. For example, in remote areas of some South American countries, due to inconvenient transportation, it is difficult to transport raw materials and products, which seriously hinders companies from participating in the global value chain.

The external reasons are mainly trade protectionism and the lack of dominance over rules. Trade barriers dominated by developed countries take various forms, including high tariffs and complex non-tariff barriers such as environmental standards and quality certification. These barriers increase the difficulty and cost for developing countries' products to enter the international market and restrict their participation in the global value chain. For example, certain EU environmental directives have caused some electronic products and textiles in developing countries to lose market share due to difficulties in meeting the standards. The rules of the global value chain are dominated by developed countries, and these rules tend to protect the interests of developed countries. Developing countries are at a disadvantage under rules such as intellectual property rights and market access. For example, under intellectual property rules, companies in developing countries have to pay high fees when using internationally advanced technologies, which increases costs and weakens their competitiveness [2].

4. The Positive Impact of Participating in the Global Value Chain on the Economies of Developing Countries

First, participation in the construction of the global value chain has promoted export growth and foreign exchange earnings. Developing countries can participate in the global value chain production with their comparative advantages such as cheap labor and abundant natural resources and produce cost-competitive products. For example, Southeast Asian countries have taken advantage of their labor cost advantages to mass-produce and export labor-intensive industries such as clothing and toys, increasing foreign exchange earnings. With the deepening of participation and industrial upgrading, the added value and quality of export products have continued to improve, further expanding the scale of exports and foreign exchange earnings.

By participating in the global value chain, can obtain stable foreign exchange income and reduce our dependence on the export of a single product or a limited number of products. The increase in foreign exchange reserves provides developing countries with more international payment capabilities for importing advanced technology equipment, energy resources, etc., and enhances economic autonomy and the ability to cope with external shocks. For example, some developing countries that rely on agricultural product exports have more diversified foreign exchange income and enhanced economic stability after participating in the processing and manufacturing industries of the global value chain.

Second, participation in the construction of global value chains drives the upgrading of local industrial chains. When multinational corporations invest and produce in developing countries, they bring advanced production technology and management experience. Local enterprises have the opportunity to contact and learn about these technologies and experiences by cooperating with multinational corporations or serving as their suppliers. For example, the Mexican automotive industry has gradually mastered advanced automobile manufacturing processes and quality control technologies in cooperation with international automobile giants, which has promoted the technological upgrading of local auto parts companies. In recent years, suppliers in the parts industry have announced major investment plans in Mexico, with more than 700 new supplier companies arriving. Cumulative foreign direct investment inflows from suppliers almost tripled to $6.142 billion between 2011 and 2016, compared with $2.182 billion between 2003 and 2010, as shown in Table 1. For example, Bosch, the world's largest German-origin supplier, is one of the major investors in Mexico's auto parts industry. In the past six years, it has announced investments of more than $1 billion to expand production capacity, build new plants, and develop new products to meet the growing demand for high-tech automotive products in North America and Latin America and reduce the consumption of consumables. Bosch now has 10 plants in Mexico.

Table 1. Announced investments by major Mexican automotive suppliers. (In millions of US dollars)

Proveedores	**2003-2010**	**2011-2014**	**2015**	**2016**	**Total**
Robert Bosch GmbH	570	503	683	109	1,865
Magna International Inc.	339	416	159	0	914
Halberg Précision	600	0	0	0	600
DPH Holdings (Delphi)	43	432	43	75	593
Caterpillar	0	500	0	0	500
Getrag Group	500	0	0	0	500
PPM Shenzhen	0	0	500	0	500
Johnson Electric	0	335	149	0	484
Yazaki Group	0	229	3	152	384
GKN	0	373	0	0	373
ThyssenKrupp (TK)	0	0	180	176	356
Continental AG	62	140	95	31	328
Commercial Vehicle Group	43	50	0	229	322
Autoneum	0	43	43	217	303
Hitachi	25	277	0	0	302
Total	2,182	3,298	1,855	989	8,324

In this way, the significant investments of foreign companies and the arrival of new plants have improved the prospects of the Mexican automotive industry and its production chain. In the Mexican automotive production chain, from the transformation of primary inputs to the distribution logistics for domestic and international consumers, about 54,000 economic units are involved1, of which 99% are micro, small and medium-sized enterprises, employing more than 1 million people. Of these companies, 78% are dedicated to the marketing and distribution of automobiles, 19.3% to the manufacture of other complementary parts, 2.5% to the manufacture of automotive components or assemblies and 0.3% to metal transformation [3].

Participation in the global value chain will promote closer links between related industries in developing countries. The development of an industry will drive the development of upstream and downstream industries, forming a complete industrial chain. Taking the electronics industry as an example, the development of chip manufacturing will drive the development of related industries such as semiconductor materials, packaging, and testing, promote the optimization and upgrading of the industrial structure, and create more high-value-added employment opportunities.

Third, participating in the construction of the global value chain will enhance the country's economic openness and international competitiveness. Participating in the global value chain will enable the economies of developing countries to be deeply integrated with the world economy and will prompt them to align with international standards in terms of trade policies, investment environment, and financial system. This will help developing countries learn from international advanced experience, improve their economic systems, and increase economic openness. For example, after joining the World Trade Organization, China has continuously optimized its trade policies and investment environment by participating in the global value chain, and its economic openness has been greatly improved.

In the competition of the global value chain, enterprises in developing countries face international competitive pressure, which prompts them to continuously improve their technology level, product quality, and production efficiency. This improvement in enterprise-level competitiveness will drive the enhancement of the competitiveness of the entire national economy. For example, South Korea's electronics and automobile companies have continuously innovated and developed in the global value chain, which has enhanced South Korea's position and influence in the international economy.

5. Strategies to Increase Developing Countries' Participation in Global Value Chains

The government should formulate a scientific and reasonable industrial development strategy based on the country's resource endowment and industrial status. Determine the key development industries and guide resources to gather in these industries by planning industrial parks and setting up special funds for industrial development. For example, the Thai government has made the automotive parts industry a key support target. Planning special industrial parks, it has attracted many related enterprises to settle in and promoted industrial development. At the same time, infrastructure should be built and improved. The government should also increase investment in infrastructure construction such as transportation, communications, and energy, build modern ports, highways, railways, and other transportation facilities, and improve logistics and transportation efficiency. And pay attention to education and talent training. In addition, the government needs to increase investment in education, improve the quality of education, and cultivate multi-level talents that meet the development needs of the global value chain. In terms of trade and investment promotion policies, the country needs to actively participate in the negotiations of multilateral and bilateral trade agreements, strive for more favorable trade conditions, and reduce trade barriers. At the same time, the government improves the domestic investment environment, provides preferential policies to attract foreign investment, and encourages multinational companies to establish joint ventures or carry out technical cooperation with local companies. For example, Chile has actively signed free trade agreements with many countries, attracting a large amount of foreign investment into its mining and agricultural processing industries.

At the same time, enterprises should also focus on improving their capabilities. Enterprises should establish an innovative consciousness, increase investment in R&D, establish their R&D centers or cooperate with scientific research institutions, pay attention to cutting-edge technologies in the industry, and improve product-added value and competitiveness through technological innovation. Enterprises should also carry out brand building and market expansion, improve brand awareness and reputation, and expand international markets by establishing international marketing networks and participating in international exhibitions. Enterprises can also learn from international advanced management experience, introduce modern management models, and improve their operational efficiency and management level. In addition, enterprises should actively carry out international cooperation, establish strategic alliances with international companies, share resources and technologies, and enhance their position in the global value chain. For example, Lenovo Group acquired the personal computer business of International Business Machines Corporation (IBM) and continuously optimized management, thereby enhancing its competitiveness in the global computer industry value chain [4,5].

6. Conclusion

Participation in the global value chain is both an opportunity and a challenge for the economic development of developing countries. At present, although developing countries face problems such as low participation and being at the low end of the global value chain, they have also gained positive effects in terms of export growth, industrial chain upgrading, and competitiveness improvement. Through a two-pronged approach of government policy support and enterprise capacity improvement, developing countries have the potential to increase their participation and status.

Looking ahead, the global economic situation continues to change, new technological revolutions such as artificial intelligence and big data continue to emerge, and the requirements for green and sustainable development are increasing. Developing countries need to keep up with these trends and actively adjust their development strategies. On the one hand, they should use new technologies to enhance their competitiveness in the global value chain, such as developing smart manufacturing and digital trade. On the other hand, they should follow the trend of green development, develop green industries and green supply chains, and meet the requirements of the international market for environmentally friendly products and sustainable production. The international community should also work together to build more fair and reasonable global value chain rules, create a better development environment for developing countries, and achieve inclusive growth and sustainable development of the global economy.

References

[1] Humphrey J, Schmitz H. How does insertion in global value chains affect upgrading in industrial clusters. Regional Studies, 2002, 36(9): 1017-1027.

[2] Liu Z B. The promotion of my country's export-oriented economic strategy in the global value chain: A case study of the Yangtze River Delta region. Chinese Economic Issues, 2007, (01): 9-17.

[3] Kaplinsky R. Globalisation and unequalisation: What can be learned from value chain Analysis. Journal of Development Studies, 2010, 37(2): 117-146.

[4] Wang J Y. Foreign direct investment in Mexico's automotive industry and its impact on industrial development. Dalian University of Foreign Languages, 2020.

[5] Yi J L. New structural economics: A framework of studying gov ernment and economics. Journal of Government and Economics, 2021, 2