

Analysis of China's Industrial Value Chain Upgrading Strategy under the "Belt and Road" Strategy

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Abstract

Since General Secretary Xi proposed the "Belt and Road" strategic concept in 2013, after unremitting efforts in recent years, China's cooperation projects with countries along the "Belt and Road" have continuously achieved new results, enhanced political mutual trust, optimized cooperation environment and promoted China's investment, export, and technological development. Although China's development is booming, compared with other developed countries, China's industrial value chain is still in the low-end position. The proposal of the "Belt and Road" strategy has created a better environment for China to integrate into the global value chain system. China can upgrade the value chain through continuous high-end cooperation and undertaking international industries. Based on the existing literature research, this paper sorts out the research status in this field, combines the research methods and results of different experts and scholars, and uses panel data from 12 industries in China to empirically analyze the factors affecting China's GVC status, Analysis of the Impact of China's "Belt and Road" Strategy on the Transformation and Upgrading of China's Industrial Value Chain.

Keywords

"Belt and Road", Industrial value chain, OFDI, Industrial upgrading.

1. INTRODUCTION

The "Belt and Road" is the "Silk Road Economic Belt" and "21st Century Maritime Silk Road". It is a region that spans Asia and Europe and is committed to achieving independent, pluralistic, balanced and sustainable development with the countries along the route. The "One Belt, One Road" strategic construction adheres to the principles of consultation, sharing, and co-construction. It is a strategic policy to promote China's opening to the outside world and enhance China's international political and economic status in the context of deepening economic globalization, this is of great significance to China's modernization construction and industrial transformation and upgrading.

In the past few decades, China has actively integrated into the global value chain system, mainly relying on low-cost labor factors and participating in the division of global value chains in the form of processing trade, thus gradually becoming the world's largest trading nation and the famous "world factory". However, disproportionate to the trade boom, China is facing a severe situation of "locking in the low end of the value chain". At present, with the continuous growth of China's economy and gradually entering the forefront of the world, China's labor factor endowment has changed significantly, and the advantages of cheap labor endowment have gradually disappeared. Labor-intensive industries have already entered the bottleneck period of development, and have continuously exposed multiple levels of disadvantages and unsustainability. However, most of China's industrial structure is still in the previous state,

which leads to the gradual loss of comparative advantages of labor-intensive goods, and there is still a large gap between capital technology products and developed countries. Therefore, China's industrial value structure urgently needs to be transformed and upgraded to improve the status of China's global value chain so as to cope with the changing economic environment.

In recent years, the continuous reform of China's supply side and the comprehensive launch of China's smart manufacturing have accelerated the adjustment of the industrial structure from the inside out. The deployment of the "Belt and Road" strategy, investment and cooperation in the countries along the route have also driven China's technological progress and capital accumulation. The scale of OFDI in our country is constantly expanding, and the reverse technology spillover effect on investment in developed countries has also continuously driven the progress of China's industrial technology. These foreign investment and cooperation, from the outside to accelerate China's industrial upgrading. The "Belt and Road" strategy provides a good opportunity for China's economic development and industrial value upgrade. Through continuous learning and cooperation, China's industrial structure will usher in a new era and the industrial value chain will rise to a new height.

2. LITERATURE REVIEW

Maoqing Fan & Wei Huang(2014) research found that Chinese companies are clearly on the rise in the GVC division of labor system. The proportion of China's intermediate goods trade in the world is also increasing year by year, China is gradually climbing from the low-end GVC link to the high-end GVC link. At the same time, trade in China's knowledge-intensive industries has also grown rapidly. Lan Wang (2014) studied the path of China's manufacturing industry's integration into the GVC division of labor from the perspective of the trade value-added decomposition framework, and found that after joining the WTO, China's GVC status has shown a trajectory of decline before rising. Compared with other countries, the proportion of domestic value added in China's exports is still low, indicating that China's GVC status is still low. In terms of specific industries, the integration of the GVC division of labor into industries with lower technical levels such as textiles and footwear has gradually increased the position of the above-mentioned industries in the international division of labor. However, for capital and knowledge-intensive industries such as machinery and electronics, China's participation in the GVC division of labor is mainly based on processing trade, which is obviously in the downstream link and there is a risk of being locked in the low-end link. Jing Chen (2015) pointed out that Chinese companies are facing the pressure of "low-end lock-in" from the high end of global value chains and fierce competition from the same links in the value chain, the type of Chinese companies joining the global value chain also restricts the transformation and upgrading of enterprises. Therefore, it is necessary to overcome the original low-end dependency and strive to build a global value chain led by China. Qi Meng (2016) studied the construction of the global value chain of the "Belt and Road" manufacturing industry. China is facing a situation where the low end of global value chains is locked. Realizing the upgrading of global value chains requires building a new type of global value chain system. Long Wei et al. (2016) believe that the "Belt and Road" provides China with an opportunity. China can use this opportunity to change from the role of an embedder in the global value chain dominated by Europe, America, and Japan to the dominant role in a new regional value chain. They calculated the RCA index and RGVC index of China and the "Belt and Road" countries, and found that China does have the conditions to dominate regional value chains at the industrial level. Monan Zhang (2016) analyzed the cooperation of global value chains under the "Belt and Road" strategic framework. She put forward the realistic basis of international capacity cooperation, the challenges faced by the cooperation, and finally innovated a new mechanism for global value chain cooperation along the "Belt and Road". Build a "Flying Geese Model" with China as the head of the wild goose under the "Belt and Road" framework. Actively promote the establishment of global value chain

partnerships. Binghui Wang (2017) analyzes and studies the path of China's industrial upgrading under the "Belt and Road" policy based on the perspective of global value chains. He started from the analysis framework of trade value-added accounting, based on the GVC analysis of total export value-added decomposition method and input-output analysis method, combined with transnational input-output tables, the total exports can be decomposed by value-added sources through matrix operations. In order to explore the role of the "Belt and Road" cooperation in promoting China's GVC status, a new global value chain with China as its core will be constructed.

Nowadays, under the overall layout of the "Belt and Road" countries, relying on policy communication, facilities connectivity, unimpeded trade, financial and financial support, and people-to-people connectivity, will help improve the acceptance of Chinese companies in host countries. It is a favorable opportunity for Chinese enterprises to upgrade the industrial value chain and lead the industrial value chain.

3. RELATED THEORETICAL ANALYSIS

3.1. Marginal Industry Expansion Theory

The theory of marginal industrial expansion is an international direct investment theory proposed by the Japanese scholar Kiyoshi Kojima in the 1960s based on the current situation in Japan. It is believed that through direct foreign investment, industries that are relatively disadvantaged at home can be transferred overseas, so that resources can be concentrated to develop industries with comparative advantages. In this theory, the "marginal industry" is "marginal" for both the home country and the host country. For the home country, the industry is at the bottom of the comparative advantage order, and for the host country it is at the top of the comparative advantage order. Through the transfer of "marginal industry" production, the home country can get rid of industries with weak comparative advantages, and domestic resources can flow to high-tech industries with comparative advantages, thereby adjusting and upgrading the domestic industrial structure. For the host country, it also promotes the development of labor-intensive industries, which in turn drives the host country's population employment and industrial adjustment.

K. Kojima's theory of marginal industrial expansion well reveals the reasons and industry characteristics of developing countries' foreign direct investment, and makes up for the original theory of international direct investment that can only explain the situation in developed countries. It has pointed out the direction and path for China's vast number of developing countries to carry out foreign direct investment, and has great reference and guidance significance. Research in related fields is also based on the following two aspects:

3.1.1 Strategic asset seeking

Strategic assets are those assets that form the basis of a company's cost advantage or differentiation advantage in a specific market. It can bring long-term competitive advantages to the company, and it is difficult to be imitated or replaced, non-transactional, slow accumulation process, and creating customer value. The research on the perspective of strategic asset seeking emphasizes that the strategic resources required by enterprises can be obtained through transnational investment, and the competitive position of enterprises is strengthened. Dunning (1993) proposed the "strategic asset acquisition theory", which argues that an important purpose of developing countries' direct foreign investment is to obtain strategic assets from the host country and build new comparative advantages for the country. Mathews (2006) proposed the "Linkage Leverage Learning (LLL)" theory for the foreign direct investment behavior of multinational companies in emerging Asia-Pacific countries. He believes that in order to catch up with incumbent multinational companies, late-developing multinational companies generally choose to establish joint ventures with each other first to form relationships, and then

use the strategic resources of incumbent companies in a leveraged manner. At the same time, through continuous learning to improve their own production and management level and core competitiveness, so as to achieve the upgrading of industrial structure.

3.1.2 Reverse technology spillover

The reverse technology spillover effect means that developing countries gradually establish close ties with the technological leaders of the host country through foreign investment projects, attract and learn relevant advanced technologies from the host country, and reduce production costs in the home country. It is mainly achieved through technology spillovers and other ways to obtain positive spillover effects. Qiaoqin Wei and Dakai Yang (2003) believe that foreign direct investment can effectively improve the human capital level of the home country, at the same time can obtain reverse technological spillovers, and promote the advanced domestic industrial structure. Investment in developed countries, through reverse technology spillovers, will greatly promote the development of China's high-end technology fields and the upgrading of industrial value chains.

3.2. Flying Geese Model

The concept of the "Flying Geese Model" was first proposed by the Japanese scholar Akamatsu in his paper in 1932, and at the same time he put forward the theory of the geese industry development pattern. Akamatsu will conduct an empirical study on the development of the cotton spinning industry in the early years of the Meiji era in Japan, noting that the development of the Japanese industry usually goes through the four stages of importing new products, import substitution, exporting, and re-importing. Later, with the improvement and development of Okita (1985) and Kojima (2000), etc., the Flying Geese Model has become a more complete theory of industrial upgrading.

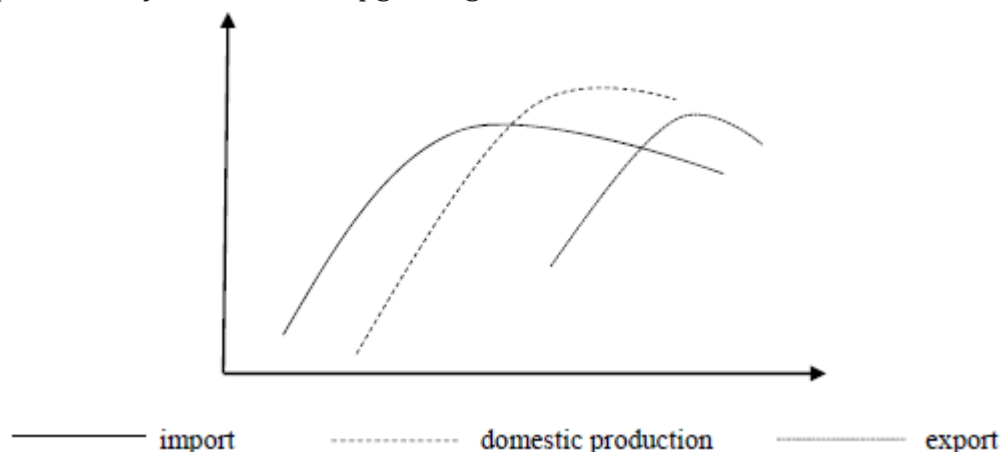


Figure 1.

Akamatsu's "Flying Geese development theory" believes that when entering the industrialization period, some developing countries have to open certain product markets to developed countries due to economic and technological backwardness. When the domestic demand for this product reaches a certain number, basic market conditions and technical conditions are prepared for the production of this product in the country. At this time, the domestic production technology of this product has been initially grasped. Due to the advantages of domestic resources and labor prices, the import of this product has gradually given way to domestic production. With the expansion of production scale, the use of economies of scale, and the advantages of cheap labor, the international competitiveness of domestic products has continued to rise. Ultimately, the export of such products has been achieved, and the purposes of economic development and industrial structure upgrading have been achieved.

When the phenomenon of division of labor in the global value chain has not yet appeared or matured, the traditional industrial upgrading theory represented by the Flying Geese Model explained the phenomenon of industrial upgrading well. However, with the maturity of the new world division of labor in the global value chain, the international division of production has deepened into the division of labor within the industry, and countries have divided labor between different production links in the value chain. Therefore, industrial upgrading is no longer limited to cross-industry upgrading. Industrial upgrading also includes upgrading between different links in the value chain that belong to the same industry.

3.3. Smile Curve Theory

The "Smiling Curve" theory was proposed by Zhenrong Shi, the founder of China's Acer Group, in 1992. The two ends of the smile curve point upwards. In the industrial chain, the added value is more reflected at both ends. The R & D and sales department has the lowest added value in manufacturing and assembly in the middle. The middle manufacturing assembly and R & D on the left belong to global competition, and the marketing on the right is mainly local competition.

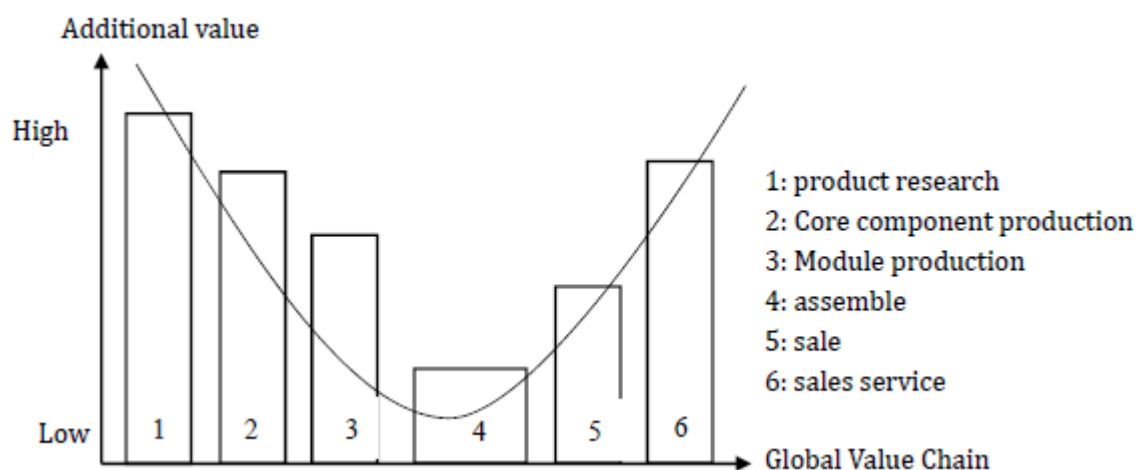


Figure 2.

The formation of the smile curve theory stems from the transformation of the international division of labor from product division to factor division. That is to say, the enterprises of various countries participating in the international division of labor and cooperation have changed from producing final products to endowments based on their respective factors, and only completed a certain part of the work in the formation of the final product. The production of final products has formed a complete chain after market research, creative formation, technology research and development, module manufacturing and assembly processing, marketing, and after-sales service. Due to the lack of core technologies, enterprises in developing countries are mainly engaged in the production of manufacturing and processing links, which are replaceable in different countries.

4. OVERVIEW OF CHINA AND THE "BELT AND ROAD" REGIONAL DEVELOPMENT

In 2014, China's gross domestic product exceeded 10 trillion U.S. dollars, reaching 10.4 trillion U.S. dollars, accounting for about 14% of the world's total GDP, and steadily ranking the world's second largest economy. In 2014, China's contribution to world economic growth was 27.8%, making it the country that contributed the most to world economic growth during the year. In 2015, even if China's economic growth slowed, China's contribution to the world

economy reached 30%. In 2016, China's contribution to world economic growth reached 33.2%, still ranking first. In 2017, China's total GDP exceeded 82 trillion yuan, with an annual growth rate of 6.9%, and the global GDP contribution rate was about 28%. China's economic growth has had an increasing spillover effect on global regions. The amount of China's foreign investment has increased year by year, coupled with the promotion of the PPP model, more and more companies in China have gone abroad, which has also accelerated the upgrading of China's manufacturing capacity and structural transformation.

The countries along the "Belt and Road" are dominated by developing countries, and the economic growth of this region has been particularly significant in recent years. The "Belt and Road" region covers a total population of approximately 4.6 billion people (more than 60% of the world's population) and a total GDP of US \$ 20 trillion (about 1/3 of the world). From 2010 to 2013 (the period after the outbreak of the international financial crisis), the average annual growth rate of foreign trade and net foreign capital flows in the "Belt and Road" regions reached 13.9% and 6.2%, respectively, 4.6 percentage points higher than the global average and 3.4 percentage points. As of 2015, China's total import and export trade with the countries along the "Belt and Road" was close to US \$ 1 trillion (US \$ 995.5 billion), a year-on-year increase of 25%, of which exports increased by 27% and imports increased by 22.7%.¹ However, it should be noted that the economic development levels of the countries along the "Belt and Road" are quite different. East Asia and Europe have relatively high levels of economic development, while Central Asia and South Asia have relatively low levels of economic development. There is also a large gap in the per capita GDP levels of the countries along the "Belt and Road". As the "Belt and Road" strategy continues to deepen, China's cooperation and exchanges with countries in Central Asia, West Asia, and Eastern Europe are increasingly strengthened, which will greatly help China's industrial capacity and industrial added value. As for the countries in the "Belt and Road" region, most of them are located in inland areas due to their own resources and geographical conditions, and their infrastructure construction levels are generally backward. Backward infrastructure has made these countries unable to integrate well into the world economic and trade division of labor system, and the level of manufacturing development is low. With the exception of East Asia and the Pacific, manufacturing is undeveloped in other regions. Central and Western Asia is mainly concentrated in the energy extraction industry. Due to the relatively low cost of energy extraction, the benefits of energy deep processing are relatively low. In the manufacturing value chain, East Asia has outstanding manufacturing capabilities, complete industrial categories and relatively advanced technologies. The vast Central and South Asian countries are rich in labor resources and have advantages in labor-intensive manufacturing. West Asia has a relatively strong capacity for resource extraction and deep processing, so it has a large space for cooperation.

5. OPPORTUNITIES FOR CHINA'S VALUE CHAIN UPGRADE UNDER THE BELT AND ROAD INITIATIVE

The economic development of various countries in the "Belt and Road" region faces great challenges and "growth shortcomings", but this is precisely the driving force for China to promote a new round of cooperation. Infrastructure investment in countries along the "Belt and Road" has become a "short board" that restricts the division and cooperation of regional value chains. At present, the development of infrastructure in the "Belt and Road" region still lags behind economic growth, and is lower than international standards in terms of quality and quantity. The backwardness of software and hardware infrastructure has become the biggest

¹ The above data is compiled with the websites of the People's Bank of China and the World Bank.

obstacle hindering regional economic and trade cooperation. In addition, the port cooperation mechanisms of various countries have not yet been formed, the degree of transportation facilitation is not enough, the logistics costs are high, and the port facilities in some countries are backward, which has increased the difficulty of the circulation of goods and services. For us in China, it is precisely the opportunity to transfer China's excess capacity, increase China's foreign investment, enhance mutual political trust and cooperation among countries, and build an emerging value chain system headed by China. China can drive the upgrading and development of China's technology, build Chinese standards, and increase its capacity status through the construction of infrastructure such as external rail transit, bridges and tunnels, and the development of high-tech electrical equipment, electro-optics, and energy structures.

Trade cooperation within the "Belt and Road" region is still at a low level. Compared with regions such as the European Union and ASEAN that have made substantial progress in regional integration, the imports and exports of the countries related to the "Belt and Road" towards countries in the region account for a lower proportion of all foreign trade, regional economic and trade cooperation is still in its infancy. However, from the perspective of future cooperation, the development potential of economic and trade cooperation is huge. The "Belt and Road" cooperation framework can be regarded as a new type of "trade synergy strategy". Since the accelerated development of economic globalization at the beginning of the 21st century, especially since the global financial crisis, the world economic structure has shifted from a "central-peripheral" single-cycle system to a "dual-circulation" system. At the same time, global trade has achieved synergistic growth, which will also lead to adjustments in new trade growth models. China should take this opportunity to promote trade with the countries along the "Belt and Road" and strengthen the integration and interaction of trade with direct investment and industrial transfer, accelerate the transformation of inter-industry trade to intra-industry trade, promote the readjustment of trade structure and terms of trade, and then promote the multi-level development of China's economy and trade, and steadily develop its position in global economic and trade relations.

Most countries along the "Belt and Road" are facing the risk of "low-end lock-in" in global value chains. Emerging economies' participation in the value chain division of labor is increasing, and they have gained the economic growth effect of participating in the value chain division of labor. However, it is still in the development stage of using primary elements such as resources and labor, and is facing the risk of deteriorating trade benefits. In addition, the slump in the international market, the slowdown in world economic growth, and fluctuations in international energy prices will have a huge impact on the domestic economy, and the emergence of new international energy will declare the end of the golden age of these countries. Countries that participate in labor-intensive links in the global value chain with low-cost labor are highly dependent on foreign technology and capital, and it is easy to form the lock-in effect of division of labor in the low-end links. At the same time, they will also face competition from low-cost labor in many developing countries. The benefits of international trade are bound to be squeezed further. After the financial crisis in 2008, the economies of the western developed countries were widely affected and the economic recovery was weak. At the time, our country withstood the downward pressure of the economy, and the impact was not serious compared to Western countries. After buffering, China's economic development repeatedly hit new highs, and the global economic influence continued to rise. In the context of the "Belt and Road", China can seize the opportunity to promote research and development and cooperation in the field of new energy. During the period of domestic economic prosperity, increase the depth and breadth of OFDI in our country and implement the "go global" policy. This will not only speed up the upgrading of domestic production capacity structure, but also promote the infrastructure construction and economic and energy development of the countries along the route, achieve

the purpose of mutual benefit and win-win, and common development, and promote the construction of a new economic system in Asia and Europe.

6. ANALYTICAL METHODS AND EMPIRICAL ANALYSIS

6.1. KWPP Indicator

Analyzing the status and participation of China's global value chain will help us to combine the current status of China's industrial structure and find out that China's current industrial structure is shortcomings, so as to implement targeted domestic industrial value chain upgrade strategies. Common indicators used to measure global value chain status are export complexity and upstream level. Export complexity is an indicator proposed by Hausmann, Hwang Rodrik (2007) based on the research of Rodrik (2006), and aims to characterize the level of productivity in a certain country's commodity exports. The calculation method is based on traditional trade accounting data, not from the perspective of added value. Therefore, if the proportion of foreign value added in a country's exports is high, the results of this method will overstate the country's true industrial status. The method of describing the participation of global value chains can be measured by the proportion of trade in intermediate goods to the total trade, and also by the proportion of foreign value added in total exports. Hummels, Ishii & Yi (2001) proposed the concept of vertical specialization and gave a specific calculation method, this method is called HIY method. But this method needs to be based on strict assumptions, which is quite different from the actual situation.

At present, the relatively accurate indicator for measuring a country's global value chain participation and global value chain status is the KPWW indicator proposed by Koopman et al (2010). KPWW indicators include two indicators of global value chain participation and global value chain status. Based on the decomposition of the total export value added, KPWW indicators can be constructed. The GVC participation index is defined as the proportion of indirect value added and foreign value added in total exports measured by value added. The specific calculation formula is as follows:

$$GVC_Participation_{ir} = \frac{IV_{ir}}{E_{ir}} + \frac{FV_{ir}}{E_{ir}}$$

Among them, IV_{ir} refers to the indirect value-added exports in the exports of the r industry in country i , FV_{ir} refers to the foreign value-added part of country i 's industry r , and E_{ir} refers to the total exports of country i 's industry r as measured by value added.

The indicator of GVC status is defined as the gap between indirect value added and foreign value added included in a country's industrial exports. The specific calculation formula is as follows:

$$GVC_Position_{ir} = \ln\left(1 + \frac{IV_{ir}}{E_{ir}}\right) - \ln\left(1 + \frac{FV_{ir}}{E_{ir}}\right)$$

$GVC_Position_{ir}$ represents the status of the country i industry in the global value chain, \ln represents the logarithm, and other symbols have the same meanings as above. If a particular industry in a country is upstream in the global value chain, the index value is relatively large. Conversely, if a particular industry in a country is downstream in the global value chain, the index value is relatively small.

6.2. Revealed Comparative Advantage(RCA)

Revealed Comparative Advantage (RCA) is an index proposed by Balassa (1965) to describe the comparative advantage of a specific industry in a country. Explicit comparative advantage is defined as the ratio of the share of a country's total industrial exports in that country's total exports to the world's total industry exports in the world's total exports. When the RCA index is greater than 1, the country has a comparative advantage in the industry; when the RCA index is less than 1, it indicates that the country has a comparative disadvantage in the industry. The standard calculation formula for the RCA index is as follows:

$$RCA_i^r = \frac{X_i^r / \sum_i^n X_i^r}{\sum_r^G X_i^r / \sum_r^G \sum_i^n X_i^r}$$

The above formula shows the dominant comparative advantage index of the *i* industry in country *r*, assuming that there are *G* countries and *n* industries. The traditional calculation method of the RCA index is based on traditional trade accounting data. As more and more intermediate goods are traded, the problem of repeated calculation of the added value of traditional trade accounting data becomes increasingly apparent. In this case, the RCA index based on traditional trade accounting data will cause a large error. Therefore, the best method is to calculate a new RCA index based on the value-added trade data. The specific method is to replace the export data in the original formula with the domestic value-added data included in the export.

Citing the TiVA database jointly released by the OECD-WTO, this database includes international trade data of 61 countries and regions that have a greater impact on global trade, with a time span from 1995 to 2011. The export trade of 61 major countries in the world has been decomposed, and GVC-related indicators and RCA_VA indexes of 61 major countries and regions in the world have been measured on this basis. Of the 61 countries and regions, a total of 30 belong to the "Belt and Road" related countries or regions.

According to the author's calculation and analysis, it is found that: (1) China's overall GVC participation level has stabilized after a rapid rise and ranks among the top of all 61 economies. In 2009, 2010, and 2011, China's overall GVC participation ranked first among 61 economies for three consecutive years. (2) After years of development, China's GVC status has risen, but compared to the major economies, China's GVC status is still low. In 2010, China's overall GVC status was not only lower than that of developed countries such as the United States and Japan, but also lower than developing countries such as Turkey, Russia, Indonesia, Saudi Arabia, and India. China's overall GVC status does not match China's GVC participation. (3) In terms of industries, in the past two decades, GVC participation in various industries in China has increased significantly. Generally speaking, compared with the major economies, China's manufacturing industries rank higher in GVC participation. As for the GVC status of various industries, although the GVC status of some industries in China has been significantly improved, the GVC status of other industries has not significantly increased. (4) Judging from the calculation results of the RCA_VA index, China's comparative advantage industries have undergone dynamic changes. China's comparative advantage industries are gradually shifting from labor-intensive industries to capital and knowledge-intensive industries.

6.3. An Empirical Analysis of the Impact of China's GVC Status

This paper uses the OECD-WTO's TIVA database, selects panel data of 12 industries in China from 1995 to 2011, and constructs a measurement model to study the factors affecting China's GVC status. The model is as follows:

$$GVCpos_{it} = \beta_0 + \beta_1 GVCpar_{it} + \beta_2 RCA_VA_{it} + \beta_3 \ln_Exp_{it} + \alpha_i + \gamma_i + \mu_{it}$$

In this model, *i* represents the industry, a total of 12; *t* represents the year, 1995, 2000, 2005...2010, 2011; *GVCposit* indicates the global value chain status index of the *i* industry in *t*; *GVCparit* indicates the global value chain participation index of industry *i* in year *t*; *RCA_VAit* indicates the dominant comparative advantage index of industry *i* in year *t*; *ln_Expit* represents the logarithm of the export value of industry *i* in year *t*; α_i is the industry unobservable benefit; γ_t is the annual observation effect; μ_{it} is the random error term. *GVCposit*, *GVCparit*, and *RCA_VAit* refer to Wang Binghui's decomposition of the measured data, and *ln_Expit* uses the TIVA database's original data to summarize and sort it out. The results are as follows:

	(1)	(2)	(3)	(4)
	GVCpos	GVCpos	GVCpos	GVCpos
GVCpar	0.9918*** (4.3251)	1.0280*** (4.0501)	1.0560*** (4.7426)	0.9918*** (4.3251)
RCA_VA	0.1005*** (3.9625)		0.0798*** (4.5317)	0.1005*** (3.9625)
Ln_Exp	-0.0279 (-1.1315)			-0.0279 (-1.1315)
_cons	-0.5777* (-1.8807)	-0.7504*** (-4.3449)	-0.8621*** (-5.6187)	-0.5535* (-1.7697)
R2	0.948	0.688	0.764	0.769
F	57.79	20.49	25.89	23.26

$p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This paper establishes four econometric models. Model (1) uses hybrid OLS regression. Models (2)-(4) use fixed-effect regression to control the year and industry effects. In model (1), *GVCpar* and *RCA_VA* were significant at a significance level of 1%, and *Ln_Exp* was not significant. From the models (2) to (4), independent variables were added to control the year and industry fixed effects. Similarly, *GVCpar* and *RCA_VA* were significant at the 1% significance level, and *Ln_Exp* was not significant.

It can be seen from the regression results that the degree of GVC participation significantly affects the level of GVC status. Extensive participation in the global value chain system and active integration into the global value chain have greatly helped China's GVC status. The implementation of the "Belt and Road" strategy provides a good opportunity for China's industrial transformation and upgrading and wider participation in the construction of global value chains. The *RVA_VA* index is significantly positive, which also shows that industries with comparative advantages generally have higher GVC status. It is not difficult to understand that industries with higher comparative advantages have stronger industrial competitiveness globally and can be integrated into the value chain division of labor at a lower cost. In the "Belt and Road" region, China's high-tech industries are relatively developed compared to other countries, and some capital and technology industries have good comparative advantages. In

building a China-based regional value chain with the “Belt and Road” as the background, China can better dominate the upstream industries, thereby further improving China's GVC status.

7. CONCLUSION AND SUGGESTION

The proposal of the “Belt and Road” strategy has created a favorable environment for the transformation and upgrading of China's industrial structure. Although China still faces the dilemma of “locking the low end of the value chain”, compared with the countries along the “Belt and Road”, China still has a comparative advantage in capital and knowledge. The countries along the “Belt and Road” region have different natural driving forces and advantages in industrial transfer among countries in different stages of industrialization. According to the relative comparative advantages of labor costs and natural resource enjoyment in various countries, China's labor-intensive industries and capital-intensive industries are expected to shift to the countries surrounding the “Belt and Road” and along the route in turn. This will drive the industrial upgrading and industrialization of the countries along the route, and build a new “geese array model” with China as the geese. Accelerate the development of domestic science and technology and capital, and then enhance the status of China's industrial value chain.

Second, we will improve the policies and mechanisms for enterprises to “go global”, expand opening up, and encourage more enterprises to go abroad and participate in transnational operations and competition. Focus on promoting technology-intensive enterprises to participate in direct investment in developed countries, and improve the absorption capacity of advanced technologies. Enterprises can invest and cooperate with developed countries in East Asia and Eastern Europe under the favorable environment of the “Belt and Road”, own foreign enterprises through overseas mergers and acquisitions or other direct investment methods, and obtain advanced technological resources of enterprises. Establish in-depth technical strategic alliances with developed countries to improve the reverse technology spillover effect of OFDI. Make good use of the domestic and foreign markets to continuously improve core competitiveness, and finally realize the global value chain upgrade of China's manufacturing industry.

In addition, we must firmly grasp the domestic industrial transformation and capacity upgrade. Under the supply-side reform, we will actively increase investment and R & D in some high-tech industries and extensively train technical talents. According to the “Smile Curve”, we must vigorously climb towards the two ends of the curve, promote the development of product research and development, core component production, and sales services, and gradually get rid of the industrial model mainly based on assembly and foundry. Furthermore, it will continue to increase the participation and status of China's GVC and break the situation of “locking at the low end of the value chain”.

Finally, the government should actively create a good situation of mutual trust and mutual trust in the “Belt and Road” initiative and build a “value chain partnership”. Accelerate the construction of municipal infrastructure at border ports and central cities, the expansion and reconstruction of cross-border railways, and the construction of interconnected infrastructure projects such as port highways. At the same time, we should speed up the practice with other countries in terms of law, trade, and policies, and promote the unification of policies, information, industrial standards and rules.

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