

# *The Impact of Free Trade Agreements on Intermediate Goods Trade*

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**Abstract.** With the deepening of the global value chain division of labor, Intermediate goods trade has become the main form of international trade. At the same time, free trade has a profound impact on the cross-border flow of intermediate goods and the layout of global production networks. This study is based on relevant literature in recent years and systematically reviews the impact of free trade agreements on intermediate goods trade through a literature review and theoretical analysis. Research has found that with the development of intermediate goods, free trade is showing a trend towards diversification. Meanwhile, free trade has had a cost-reducing effect on intermediate goods. Secondly, free trade agreements have promoted the advancement of participating countries and their enterprises in the global value chain, enabling the circulation of intermediate goods in global trade. Finally, free trade agreements facilitate the circulation of intermediate goods between developed and developing countries, maximizing the benefits of technology-intensive industries. Leading enterprises are utilizing free trade rules for global layout, and small and medium-sized enterprises are also facing opportunities.

**Keywords:** Free Trade Agreement, Intermediate Goods Trade, Free Trade Zone, Tariff Reduction, Global Industrial Chain.

## **1. Introduction**

With the development of information and communication technology and the continuous evolution of economic globalization, complex transnational production cooperation has become possible. The production process is no longer confined to a single country, and the parts required for a commodity come from different countries and regions. For example, the core area for the supply and assembly of parts for Apple mobile phones in the United States is undertaken by Taiwan Semiconductor Manufacturing Company Limited in Taiwan, China, while Samsung in South Korea is one of the core suppliers in terms of display and storage. This shows that the cross-country production collaboration of Apple mobile phones is inseparable from the rise of the global value chain. In the past few decades, the continuous improvement of international commerce and the continuous decline of global tariff levels have intensified the circulation of capital and other factors of production around the world, which has contributed to the global production chain Revolution [1]. In addition, the trade of intermediate goods is a focus that can not be ignored in the global value chain. Taking China's accession to the World Trade Organization in December 2001 as an example,

before it acceded to the World Trade Organization (WTO), the tariff rate faced by Chinese enterprises was 16.5%, which fell to 7.5% in 2007 [2]. It can be seen that the liberalization of intermediate goods trade has reduced the cost of enterprises' import and export of intermediate goods. A country's competitive advantage depends not only on the ability to produce final goods, but also on whether it can integrate into the "intermediate goods trade" stage. The substantial reduction of tariffs and the rapid circulation of factors of production in the world are essentially free trade agreements signed by various countries and important measures for docking multilateral trade. For example, the North American Free Trade Agreement (NAFTA) was established by joining Mexico on the basis of the trade agreement between the United States and Canada. Since the establishment of NAFTA, Mexico, as a developing country, has achieved greater benefits in terms of economic welfare driven by the economies of the United States and Canada [3]. The formulation of free trade has made the trade between participating countries closer, and also led other countries to follow suit, reshaping the global trade structure. Scholars have discussed this issue before, First, the research on the construction of free trade zone mainly promotes growth by increasing export categories and quantity, and promotes the transformation of trade mode to general trade [4]. Secondly, high standard trade agreements reduce the risk of supply chain disruption by improving the institutional environment, thereby enhancing the resilience of global supply chains [5]. Finally, the research shows that the liberalization of China's intermediate trade improves the export tendency of enterprises by improving the profits of enterprises and optimizing the efficiency of the export sector [6]. A study of the existing literature shows that free trade agreements promote the development of intermediate trade. However, most studies focus on tariff reduction, pay less attention to rules of origin, liberalization of trade in services and other in-depth provisions, and mostly focus on developed countries, ignoring some developing countries and some small and medium-sized enterprises. Based on the above research status, the research aims to systematically sort out and comment on the topic of "the impact of free trade agreements on intermediate trade", and clarify the impact of international trade agreements on intermediate trade in terms of tariffs and value chain, as well as the opportunities and challenges that the agreements have brought to national enterprises, regions and industries. The significance of the study lies in enriching the relevant theories of free trade agreements, intermediate goods trade and global value chain, improving the limitations of traditional trade theories that blindly focus on final goods trade, and improving the differences of rules of different types of free trade agreements by analyzing the free trade agreements signed by different countries.

## 2. Core concept theory

### 2.1. Classification of intermediate goods in intermediate goods trade

The trade of intermediate goods is essentially a cross-border distribution of "production process". Referring to the literature on trade liberalization and quality upgrading of imported intermediate products, this paper classifies intermediate products into the following three categories: industrial raw materials, semi-finished products and mechanical parts. First of all, industrial raw materials refer to primary products that have not been processed and remain at the initial stage, such as crude oil and logs, which are the beginning of the production chain. The second is semi-finished products, which are partially processed but have not yet become final products, such as screws, textile yarns, etc., which are in the middle of the production chain. Finally, there are mechanical parts. The parts and accessories of machinery and vehicles are a good example. They need to be assembled to form the final product. Such a separate classification of intermediate goods ensures the purity of the

research object. More importantly, such a classification can analyze the relationship between trade liberalization and intermediate goods trade. According to the research of Yu and Li, the degree of tariff reduction and exemption for these three products is not the same, they all show significant differences - they have a significant positive impact on the quality of semi-finished products and parts, but the impact on the quality of raw materials is relatively negative or even negative [7]. This shows that in the face of tariff reduction policy, different semi-finished products receive different benefits.

## 2.2. Diversification of free trade agreements

In an international society with the in-depth development of economic globalization, the path of trade liberalization shows a trend of diversified development. When it comes to the diversification of free trade, the rules-based global trading system dominated by the World Trade Organization (WTO) cannot be bypassed. Since the Second World War, the multilateral trading system has been gradually improved under the joint promotion of the international community. It is one of the most representative and most outstanding systems in the field of the global economy in the post-war period. It broke the core of the trade policies of European powers with discriminatory tendencies, and generally implemented monopoly trade measures to restrict market competition, and gradually expanded its development by inviting countries with different levels of development in different regions of the world to participate. At the same time, it has also successfully reduced the trade protection of developed countries. For example, at the end of the 1990s, developed countries had many trade barriers, and the average tariff was 20% -30%. However, after several rounds of multilateral trade negotiations, the tariff level of developed countries was gradually reduced to 4% of that of the Uruguay Round [8]. But with the development of time, the dividend period of the system gradually declined. The Doha round of negotiations was launched in 2001 to reduce tariffs and open up the market, but a comprehensive agreement could not be reached due to major differences, which posed a challenge to the prospects of the multilateral trading system. In addition, after Trump took office in January 2025, tariffs will be imposed on imports from Canada, Mexico, China and other countries. As early as 2017, when Trump took office for the first time, the U.S. government repeatedly claimed to withdraw from the World Trade Organization and promote "U.S. priority". However, it is still the general trend for Global trade to break the single dependence and expand multiple dimensions.

## 2.3. Theoretical analysis

The new trade theory and scale economy theory introduce scale economy and imperfect competition. The theory holds that even in the absence of comparative advantage, enterprises can reduce unit costs by expanding production scale, so as to win in international competition. This is very important for the trade of intermediate goods. The production of spare parts and intermediate services often has huge economies of scale. David Ricardo's comparative advantage theory reveals the fundamental motivation of the international division of labor and trade. Even if a country faces higher production costs for all goods relative to other nations, it can still benefit from trade by exploiting its comparative advantage through specializing in and exporting goods that are relatively less costly for it to produce.

### **3. The core mechanism of free trade agreement affecting intermediate goods**

#### **3.1. Cost reduction**

The most direct impact of free trade on intermediate goods is the cost reduction effect. For intermediate goods that need to cross borders many times in the global value chain, the cost savings in any link will be amplified, which will have a profound impact on the decision-making of enterprises' procurement and production layout. The cost reduction is divided into two aspects, the first is tariff reduction, tariff is the core cost barrier in international trade, and the tariff concession policy of the free trade agreement has an immediate effect on the trade of intermediate goods. When the agreement comes into effect, most of the goods of the contracting parties, especially intermediate goods, will be subject to zero tariff or a phased zero tariff, which will reduce the cost of enterprises on the Cost, Insurance and Freight (CIF) price of imported goods. The second is the reduction of time cost, and the risks brought by time cost and uncertainty, which are even more important than the tariff cost. The free trade agreement usually requires both parties to simplify the customs declaration and customs clearance process, and implement the pre-ruling, early declaration, electronic single window and other processes. This directly shortens the detention time of goods at the port and speeds up the circulation of intermediate products.

#### **3.2. Promotion of value chain status**

The free trade agreement has promoted the participating countries and their enterprises to achieve the promotion of their status in the global value chain. First, free trade agreements have accelerated the cross-border flow of knowledge, technology and know-how by promoting deep integration. For example, strong intellectual property protection, fair competition policy and transparent regulatory environment have released positive signals to the global high-end production factors. Secondly, in the face of the huge market created by free trade, enterprises can focus on a very subdivided intermediate field for large-scale and specialized investment and production, so as to achieve economies of scale. This specialization of production has established an irreplaceable competitive advantage in specific links of the value chain, thus occupying a unique ecological position. Finally, by integrating into the regional value chain, enterprises can obtain higher quality and more kinds of intermediate products, improve production efficiency and product quality and variety. At the same time, the division of labor in the value chain is also more clear. According to the theoretical framework of Kee and Tang, the framework clearly explains the model of enterprise heterogeneity, imported intermediate goods and export domestic value-added rate, and distinguishes the division position and added value of enterprises in the global value chain [9].

#### **3.3. Optimal allocation of resources**

Resource optimization will put the limited resources into the fields and links with high output and high interest through the market mechanism and the government's macro-control. The China ASEAN Free Trade Area (CAFTA) is a good example, Xie and Wang pointed out in the literature that after reaching the zero tariff between China and ASEAN, China's wheat and other grain exports increased and rice imports increased slightly, which means that resources such as land and agricultural labor will be concentrated in China's non grain production sectors, which is essentially the effect of comparative advantage and optimal allocation of resources, indicating that China's

comparative advantage in non rice production in CAFTA region has been strengthened and resources are flowing to these sectors [10].

### **3.4. Improve supply chain resilience and reduce trade risks**

In view of the trade blockade and technological repression of developed countries under the wave of anti-globalization, it is necessary to actively develop and cultivate emerging markets, maintain the stability of external supply chains, and strengthen commercial and economic collaboration with countries in accordance with the Belt and Road framework and Regional Comprehensive Economic Partnership (RCEP) member countries. The Belt and Road framework project proposed by China provides an inspiring way to strengthen the resilience of the global industrial supply chain. The main function of the "Belt and road" initiative is to establish a multilateral intermediate path and disperse the risks of relying on a single trade path. By strengthening the industrial chain cooperation between China and the economy, and cooperating with major trading partner countries, it has taken several "intermediate routes". For example, when the direct trade between China and the United States is affected and faces "decoupling", these intermediate lines can effectively reduce the trade risk caused by disconnection from the supply chain, which reflects the value of "supply chain resilience" and also ensures the sustainable development of trade [11].

## **4. Empirical research progress**

### **4.1. Impact on the country**

The growing prominence of the Global South is a phenomenon that cannot be ignored. Xu and Shen pointed out in the literature that the (Brazil, Russia, India, China) BRICs' share of global Gross Domestic Product (GDP) in dynamic markets continued to increase [12]. The year 1990 saw emerging markets and developing economies represent a mere 36.9% of the global total, which increased to 58.3% in 2022. Free trade agreement (FTA) serves as a key component in promoting the economic growth of participating countries by facilitating the cross-border flow of goods and services and lowering duties and regulatory obstacles. For example, China's free trade agreements with ASEAN and many African nations have helped countries in the "Global South" join the global production network and become an important pillar of national economic development. In addition, countries such as Indonesia and Saudi Arabia benefit from the advantages of important mineral resources (nickel, lithium, oil, etc.) in the global supply chain. Strengthen its voice in building a global economy and trade agreement through a free trade area. It can be seen that FTA is not only a tool for economic cooperation but also a platform for increasing international political influence.

### **4.2. Impact on the region**

The role of free trade in fostering intermediate goods trade, especially the regional impact of China's vegetable export under the framework of RCEP. As the most extensive free trade agreement in the world, RCEP has strengthened the trade of intermediate goods among member countries through tariff reduction, simplifying customs clearance procedures and unifying rules of origin. For example, China exports a large number of fresh vegetables, dried vegetables and other primary intermediate products to ASEAN, which are processed in ASEAN and then exported to high consumption markets such as Japan and South Korea. Under RCEP, the "China breeding ASEAN processing Japan and South Korea import" industrial chain distribution mode has been strengthened, improving the overall competitiveness of the region [13]. At the same time, the document also pointed out that

due to the convenience of intermediate trade between RCEP member countries, the link in the field of vegetable processing has been transferred to ASEAN, and China's vegetable product export has changed from "finished products" to "semi-finished products". This shows that China's role in the vegetable industry chain has changed from the final exporter of products to the supplier of intermediate products.

### 4.3. Impact on enterprises

Sheng and Hao pointed out that for every 1% increase in the FTA holding depth index at the enterprise level, the quality of export products will be significantly improved by about 0.064 units [14]. This shows that the more actively and fully companies use FTA rules, the more obvious the effect of improving the attributes and standards of exported goods will be. In addition, the strengthening of the free trade agreement has enhanced market competition. Second, it is the attraction of high-quality companies. High performance and high quality companies will have a vast market area. Finally, the industrial structure has been optimized. With the dynamic change between companies and the new distribution of market share, the average quality of exports of the whole industry will be improved.

### 4.4. Impact on the industry

For the impact of the industry, taking the impact of free trade on the agricultural products industry in Liaoning as an example, RCEP covers 15 countries, including many countries with rich agricultural resources, providing a huge market for agricultural products in Liaoning Province. By reducing tariffs and trade barriers, it has made contributions to expanding the export of agricultural products in Liaoning, such as rice, fruits and seafood. In addition, the construction of international logistics channels, such as the China-Europe Express, provides a more efficient and stable way for the transportation of agricultural products. In particular, the cold chain products in the Liaoning pilot free trade zone use institutional innovations such as cold chain transportation and multimodal transport to improve the export efficiency of agricultural products [15].

## 5. Conclusions

This study systematically examines the existing literature, systematically combs the classification of intermediate goods and the diversification of free trade agreements in theory. It reveals the three mechanisms of free trade agreements through cost reduction, optimal allocation of resources, value chain climbing and supply chain toughness improvement. In terms of empirical research and progress, it systematically explains the impact of free trade agreements on countries, regions, enterprises and industries. Four cases are also introduced when discussing these four aspects, namely, the benefits of "Global South" countries, China's vegetable exports under the framework of RCEP, how free trade agreement shape the growth environment of enterprises, and RCEP's help to Liaoning's agricultural exports. But there are also some limitations. First of all, this paper focuses on the construction and sorting out of the theoretical mechanism, and fails to make an empirical test of the mechanism. Secondly, due to the limited availability and length of literature, the coverage of the review may not be comprehensive enough, especially the latest research on the cases of "Global South" countries. Based on the above limitations and research status, future research can strengthen the research on the impact path of the "South South trade agreement". In terms of enterprises, it should not only focus on the impact of free trade agreements on their environment, but also delve

further into the micro level of enterprises to explore the internal relationship between enterprises and the utilization rate of free trade agreements. At the same time, small and medium-sized enterprises should be included and pay attention to how to overcome capacity barriers to make full use of the dividends of the free trade agreement. Finally, focus on industries other than agricultural products.

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