

The Impact of Sino-U. S Trade Friction on the Export of Communication Equipment Manufacturing Industry

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Abstract. In the context of global economic integration, Sino-U.S. trade friction has profoundly impacted the global trade pattern. Based on the communication equipment industry trade data released by UN Comtrade, this paper empirically analyzes the impact of Sino-U.S. trade friction on China's communication equipment industry and its future trends. It was found that Sino-U.S. trade friction has significantly slowed down the growth of China's world exports of communication equipment products, and exports to the United States have shown a downward trend. The Sino-U.S. trade friction has impacted China's telecommunications equipment industry, yet it has also presented certain opportunities. Based on the analysis, the following recommendations are proposed: China and the United States should actively engage in peaceful negotiations to jointly foster a favorable international trade environment. The telecommunications equipment industry should expedite industrial upgrading and restructuring to achieve autonomy in high-end technologies. China should accelerate the development of a digital economy to enhance its international competitiveness.

Keywords: Sino-U. S trade friction, Communications equipment, manufacturing.

1. Introduction

The United States launched the Section 301 investigation report in March 2018 and took the lead in imposing tariffs on 34 billion Chinese products in July 2018. Sino-U.S. trade friction officially broke out. This friction mainly targets high-tech industries in the "Made in China 2025" plan, including pharmaceutical manufacturing, aerospace manufacturing, electronics and communications manufacturing, etc. The Sino-U.S. trade friction has a certain impact on China's overall economic system, especially the electronics and communications manufacturing industry. In August 2022, the Biden administration signed the "Chip and Science Act" requiring relevant companies to ban business activities in China, further suppressing my country's electronics and communications manufacturing industry.

The outbreak of Sino-U.S. trade friction has various degrees of impact on various industries in China and has a certain impact on the world economy. In this regard, scholars put forward different opinions on research and analysis of various industries. Some scholars believe that Sino-U.S. trade friction has a promoting effect on the development of China's economy and high-tech industries. Through the event study method, Liu Yu found that the stocks of listed companies in China's electronic information industry were on an upward trend [1]. It is believed that China's electronics industry has been affected in the short term, but in the long term, it will promote the development of China's high-tech. Scholars such as Zhu Weihua used the double difference method to study various listed companies in China and found that Sino-U.S. trade friction has a promoting effect on Chinese listed companies' transition from virtuality to reality, and this effect is particularly obvious in developed regions [2].

Some scholars also expound that trade friction has hurt China's economic development. Scholars such as Zhao Jianya and Chen Meihua found that Sino-U. S trade friction restricts the export of American chips to China, curbs the development of China's semiconductor industry, hinders China from using international resources to upgrade advanced production capacity, and threatens China's technological security [3]. Through empirical model analysis such as Propensity Score Matching and Differences-in-Differences (RSM-DID), scholars such as Wang Zeyu found that China's product exports did not decline significantly in the short term, but it hurt many Chinese companies [4]. Liu

Shenhua, Qu Yue, and other scholars found that Sino-U.S. trade friction has hurt the export volume of China's various high-tech industries, especially since the export of new electronic and communication equipment products declined significantly [5]. It also hurts the structure of my country's export industries to the United States. Yang Lan used the event study method to study the communication equipment industry and believed that the communication equipment industry was the focus of the United States' main tariff increases, and found that the U.S. tariff increases hurt the performance of companies in the communication equipment industry [6].

In summary, the literature above shows that Sino-U.S. trade friction mostly hurts the export of China's products and has a greater negative impact on China's private enterprises. However, in the long run, it has a positive impact on the transformation and upgrading of enterprises and technological innovation. Promoting effect.

With the development of economic globalization, technological innovation has increasingly become the main factor driving national economic competitiveness. The communication equipment manufacturing industry has the characteristics of a high technical level and strong innovation ability. On the one hand, the electronics and communication equipment manufacturing industry is not only one of the industries most affected by the Sino-U. S trade friction but also the communication equipment manufacturing industry accounts for a relatively large proportion of the global market (in 2021, China's communication equipment accounted for about 26% of the global market share). Therefore, the analysis and study of the communication equipment industry is representative of high-tech. On the other hand, although many scholars have conducted detailed research and analysis on Sino-U.S. trade friction, few scholars have conducted analysis and research on the communications equipment industry. This article analyzes the relevant data on the export of communication equipment manufacturing products in the context of Sino-U.S. trade friction and puts forward relevant measures and suggestions based on the conclusion, which can guide the development, transformation, and upgrading of enterprises in related industries and other high-end technology industries. Provide reference value to help enterprises provide a certain theoretical basis when carrying out reforms such as product structure adjustment and product production technology optimization.

2. Current Status of China's Electronics and Communications Manufacturing Exports

2.1. The Overall Situation of China's Communications Manufacturing Exports

Table 1. Statistics of import and export amounts of communication equipment in China from 2017 to 2023 (Unit: \$ Billion)

Year	Total imports and exports	Exports	Imports	Exports-Imports
2017	41.75	36.14	5.61	30.53
2018	48.29	42.25	6.04	36.21
2019	52.98	46.59	6.39	40.20
2020	54.92	48.18	6.74	41.44
2021	60.82	51.76	9.06	42.70
2022	62.91	52.95	9.96	42.99
2023	52.44	43.09	9.35	33.74

Research findings show that in recent years, the main export countries of China's communication equipment manufacturing enterprises are developing countries. However, as Chinese telecommunications equipment manufacturers have advanced in technology and quality, Europe, the United States, and East Asia have gradually emerged as the primary export destinations for these Chinese enterprises [7]. Table 1 shows China's communication equipment exports from 2017 to 2023. China's communication equipment exports show a steady upward trend before 2023. In 2022, there is an obvious shortage of chips in our country because of the signing of the "Chip Act" by the U.S., which restricted the production of high-end processors in China's communication equipment.

Resulting in a significant decline in my country's exports in 2023. As the United States imposed additional tariffs on Chinese communications equipment in 2018, Figure 1 shows that the growth rate of China's communications equipment exports slowed down significantly after 2018. However, China's import of communication equipment has maintained a steady growth trend. Due to the large scale of China's communication equipment exports, the trade surplus is the norm in China's communication equipment industry. Except for the trade surplus shrinking in 2023, the trade surplus is increasing year by year. This forces the Chinese government to purchase a large amount of U.S. Treasury bonds. Once the U.S. economy declines, it affects China's foreign trade industry to a great extent [8]. The Chinese government has formulated a series of measures to deal with the US chip blockade, such as accelerating the development of third-generation semiconductor chips and quantum chips [9]. However, the current turmoil in the international market greatly affects the export of China's communication equipment, making international communication equipment trade more difficult to predict. After the export volume and trade surplus of communication equipment dropped significantly in 2023, the subsequent development process is still difficult to predict.

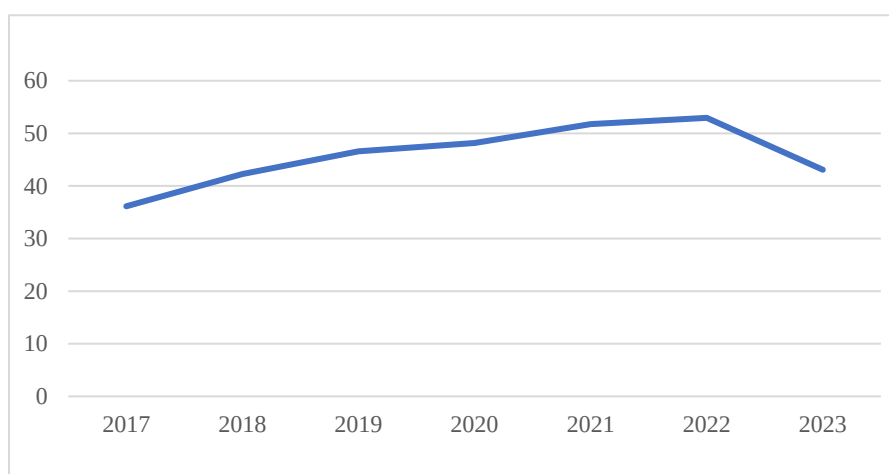


Figure 1. Statistics of export amounts of communication equipment in China from 2017 to 2023
(Unit: \$ Billion)

2.2. Current Situation of Sino-U. S Communications Manufacturing Trade

Figure 2 shows the export volume of the United States to China in recent years. China's export volume to the United States shows an overall trend. There was an upward trend before the trade friction broke out in 2018, but after the trade friction began, China's exports of communication equipment products to the United States began to show a downward trend. In 2020, after China and the United States signed an economic and trade agreement, the downward trend of China's exports to the United States slowed down and there will be a periodic upward trend in 2022. However, after 2022, the U.S. government signed the "Chip and Technology Act", and China's communication equipment exports were affected, making the exports decline significantly.

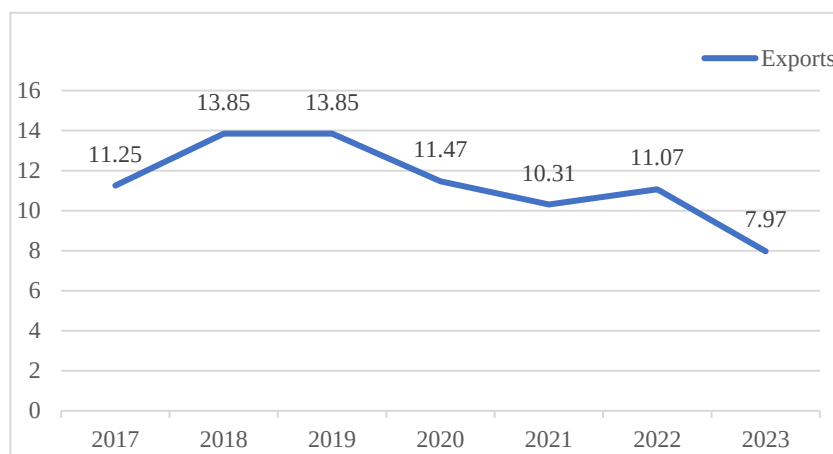


Figure 2. Statistical of China's export amounts of communication equipment to USA
(Unit:\$ Billion)

2.2.1. Analysis of China's export of communication equipment products to the United States

According to China's exports of communication equipment to the United States from 2017 to 2023, since 2018, due to the impact of Sino-U.S. trade friction, China's communication equipment exports to the United States have shown a clear downward trend. Before 2023, the decline in China's communications equipment exports to the United States will be relatively flat. Compared with 2019, exports of communications equipment to the United States fell by approximately 17.18% in 2020. After China and the United States signed an economic and trade agreement in 2020, Sino-U.S. trade eased to a certain extent. Compared with the previous year, exports of communication equipment to the United States in 2021 only dropped by about 10.11% and showed an upward trend in 2022. However, after the U.S. government issued the "Chip and Science Act" in 2022, China's exports of U.S. products dropped significantly, down by approximately 28.00% compared with 2022. This shows that China's communications equipment industry is relatively dependent on American chips.

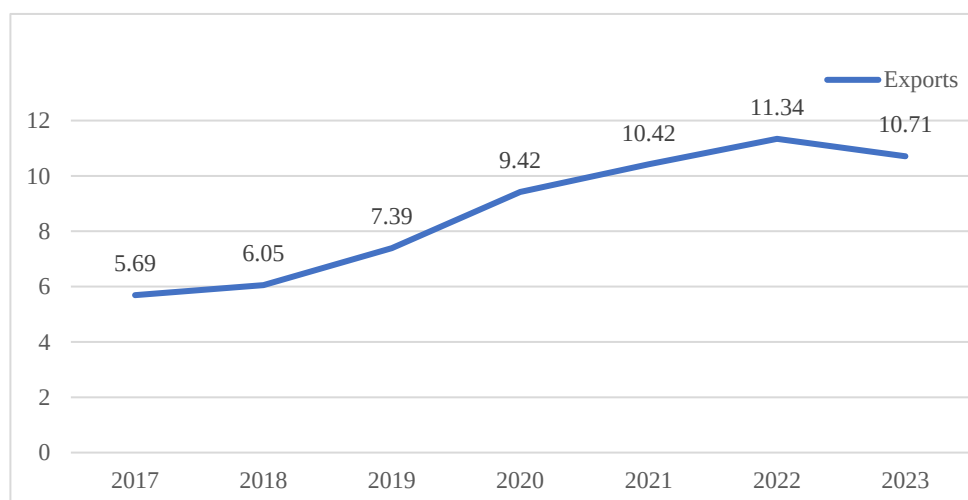


Figure 3. Statistical of China's export amounts of communication equipment to the belt and road
(44 countries) from 2017 to 2023 (Unit: \$ Billion)

On the other hand, the China government is actively exploring overseas markets such as the U.S. market. By analyzing the export volume of China's communication equipment products to 44 countries along the "Belt and Road" from 2017 to 2023, except for the slight decline in China's export volume of communication equipment products to the countries along the "Belt and Road" in 2023. In 2017 Since then, export volume has shown a steady upward trend year by year, as shown in figure 3. This has reduced the losses caused by Sino-U.S. trade friction to a certain extent and reduced the overcapacity situation in the communication equipment industry.

2.2.2. Analysis of U.S. exports of communication equipment to China

As shown in Figure 4, according to the export data of U.S. communication equipment products to China from 2017 to 2023, it is found that although the U.S. exports of communication equipment to China are generally on a downward trend, the fluctuation range is not large. Compared with China's exports of communication equipment products to the United States, the gap is large. Between 2017 and 2023, taking the minimum value of China's exports to the United States (2023, \$7.97 billion) and the maximum value of U.S. exports to China (2018, \$0.55 billion) as an example, the U.S. exports to China are only China's exports to the United States. 6.90% of exports. This shows that American products lack competitiveness in the Chinese market. This is also one of the reasons for the trade friction between China and the United States. Some studies have pointed out that China's communication equipment manufacturing industry is a labor-intensive and capital technology-intensive industry, with the characteristics of high product quality and low price. With the advancement of science and technology in China's communication equipment industry, the U.S. market has higher expectations for China's communication equipment products' degree of dependence [9]. Since 2012, the United States has held the position of China's primary exporter. The focused export of Chinese goods to the U.S. market has contributed to a trade deficit in the United States. This situation has resulted in trade disputes between the two countries [11]. The long-term trade deficit of the United States also reflects the truth of its dual imbalances in domestic savings and investment, as well as savings and consumption.

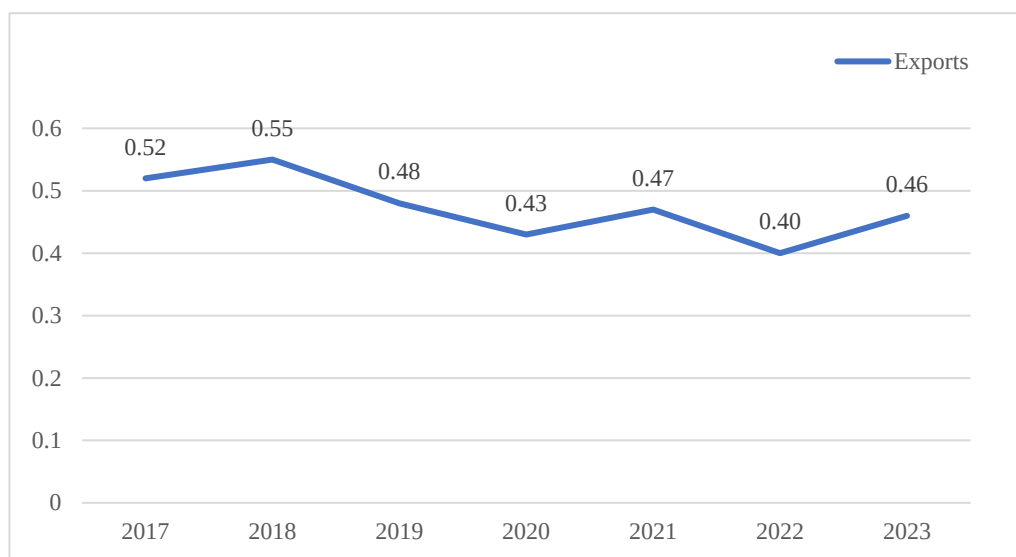


Figure 4. Statistical of USA export amounts of communication equipment to China from 2017 to 2023 (Unit: \$ Billion)

2.2.3. Comparison of China's communications equipment manufacturing industry's exports to the United States, 44 countries along the "Belt and Road", EU countries and the United Kingdom

Since President Xi Jinping proposed the Belt and Road Initiative in 2013, China has continuously promoted trade construction, expanded economic scope, and deepened cooperation with countries along the route. Figure 5 selects the export volume of China's communication equipment products to 44 countries and regions along the "Belt and Road" including Russia and India (the 44 countries exclude overlapping parts with EU countries), EU countries, the United Kingdom, and the United Kingdom. It can be seen from Figure 5 that despite the increasing trade friction between China and the United States, the United States will still be China's largest export country as of 2023. In addition to the United States, China's communication equipment exports to the EU, UK, and The Belt and Road have shown a steady growth trend. Exports to countries along the Belt and Road have grown significantly, although the United States will increase in 2022 after the signing of the first phase of the economic and trade agreement in 2020. It will reach 11.34 billion in 2022, exceeding the

developed countries of the European Union, the United Kingdom, and the United States. This shows that on the one hand, China is increasingly cooperating with the "Belt and Road" countries, and on the other hand, China's trade in communication equipment products is shifting.

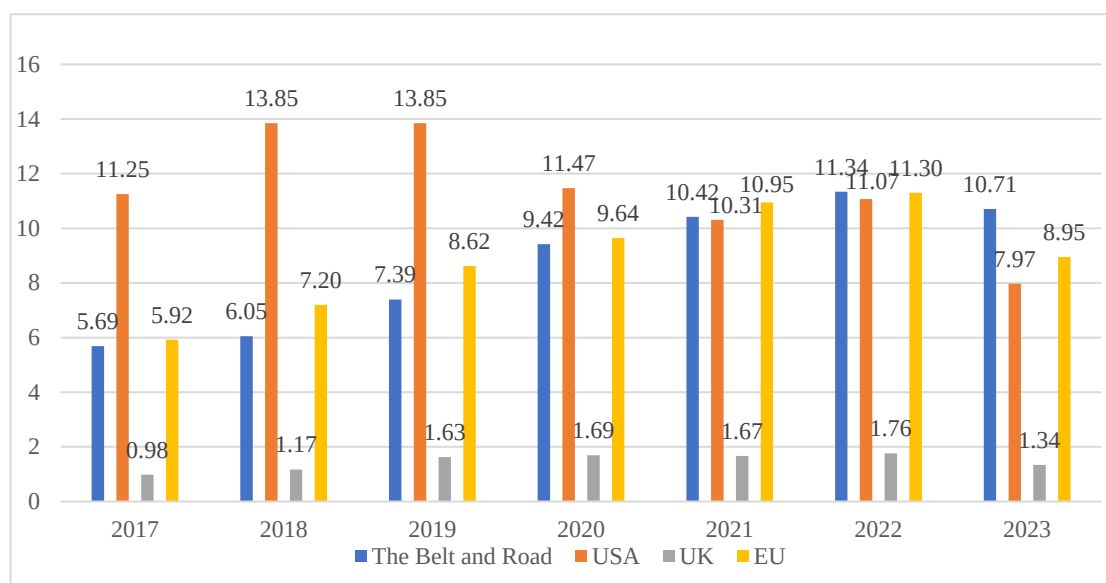


Figure 5. Statistical of China's export amounts of communication equipment to USA, UK, EU, and the belt and road from 2017 to 2023 (Unit: \$ Billion)

3. Opportunities and Challenges Faced by China's Communication Equipment Manufacturing Trade under Trade Friction

3.1. The Impact of Trade Friction on China's Telecommunications Products

Since 2018, the United States has imposed additional tariffs on China and increased trade barriers. As a labor-intensive industry, China's communication equipment manufacturing industry has significantly weakened its advantage of low labor costs, and its competitiveness in the U.S. market has declined, resulting in a downward trend in China's exports to the United States. On the other hand, as China promotes the "Made in China 2025" plan, it is crucial to upgrade the industrial structure of the manufacturing industry. Sino-U.S. trade friction not only hurts the transformation of industrial structure in areas with weak economic foundations in China but also damages the transmission mechanism between foreign trade and industrial structure upgrading of China's communication equipment manufacturing industry [12]. The United States has passed a bill to restrict the export of high-end chips to China. Some studies have pointed out that China's high-end communication equipment products will have a "core shortage" problem in the short term, which will limit the technological progress and production of communication equipment products and cause a greater impact on the communication equipment industry [13].

3.2. Opportunities Brought by Trade Friction

The occurrence of trade friction has objectively impacted China's communications equipment industry and hurt technological innovation in the communications equipment industry. But at the same time, trade friction has also brought new opportunities to the development of China's communications equipment industry.

First, the Chinese government realizes the importance of chips and accelerates the research and development of high-end chips. In the long run, China is expected to break through the technological blockade of high-end chips in the United States and further get rid of its dependence on the United States. This will lay the foundation for technological innovation and development in China's communications equipment industry. Secondly, the Sino-U.S. trade friction has also exposed the

shortcomings of China's manufacturing structure and economic development. The Chinese government has accelerated the reform of industrial upgrading and technological adjustment as well as trade structure adjustment for the communications equipment manufacturing industry. Chinese enterprises can more clearly find their positioning under economic globalization [14]. This will help the Chinese government establish and improve the market economic system optimize the market economic environment, and improve the competitiveness of the communications equipment industry in the international market.

Finally, trade friction provides new opportunities for China to develop new trade routes and deepen cooperation with neighboring countries along the "One Belt, One Road" initiative.

4. Conclusion

Trade friction has caused a decline in China's exports of communication equipment products. The United States is an important partner in China's communications equipment manufacturing industry, and trade frictions have had a huge impact on China's communications equipment industry. The United States has imposed sanctions on China by imposing additional tariffs on Chinese communications equipment products and restricting chip exports, resulting in a significant decline in China's exports of communications equipment products to the United States. Trade friction has diverted China's communication equipment trade and deepened its relationship with other trading partners. After the trade friction, the communication equipment trade between China and the United States was affected. There was a risk of overcapacity in China's communication equipment industry. This promoted China's trade cooperation with its current trading partners and developed new trading partners and made the trade structure more complex. Diversification. China has been actively promoting the construction of the "Belt and Road" initiative, and the occurrence of trade frictions has created opportunities for China to deepen cooperation with countries along the "Belt and Road" initiative.

The international market is still relatively volatile, and although China is actively developing new partnerships, the long-term forecast remains difficult. From the "Chip and Science Act" promulgated by the United States in 2022, this research can see that for high-tech industries such as China's communications equipment industry, Sino-U.S. trade is still likely to intensify. At present, China's communication equipment industry has a serious problem of lack of high-end chips. The future development trend of China's communication equipment is largely linked to China's future chip development level. The government needs to grasp the international market situation in real-time and make policy adjustments.

Peaceful dialogue between China and the United States should be actively promoted. As the world's largest and second-largest economies, China and the United States should actively build a positive trade environment. China and the United States should actively carry out cooperation and exchanges, objectively analyze the advantages and shortcomings of China and the United States in the communications trade industry, and learn from each other's strengths and weaknesses through win-win cooperation to jointly strive to create an international peaceful and friendly trade environment. China's friendly trade with the United States in the past has proved that only peaceful development for China and the United States in the international market is a more lasting and effective way. As a labor-intensive industry, the communication equipment manufacturing industry should speed up the adjustment of industrial structure. Respond to the transformation and upgrading of the communications equipment manufacturing industry into technology-intensive and knowledge-intensive industries. The Chinese government should improve relevant policies, and encourage the communication equipment industry to carry out technological reforms and industrial transformation to achieve industrial upgrading and improve the competitiveness of the communication equipment manufacturing industry in the international market. At the same time, the government should actively carry out the development of core technologies and independent intellectual property rights to reduce China's high-tech products' dependence on developed countries such as the United States. The

Chinese government should speed up the construction of the digital economy and improve relevant policies and laws on digital trade. Actively promote the trade transformation of China's other communication equipment industries, thereby promoting the export of Chinese communication equipment products for cross-border e-commerce trade and actively introducing e-commerce talents into the field of communication equipment to improve international competitiveness.

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