

Analysis of the Korea's Trade Deficit with China in 2023

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Abstract: The establishment of diplomatic ties between China and South Korea dates back to 1992, marking over three decades of bilateral relations. The bilateral trade has generated fruitful outcomes between the two nations. In the background of the accelerated evolution of century-old transformations, profound changes are occurring in the global and regional economic landscape. During the post-epidemic period, China-South Korea economic and trade cooperation encounters numerous challenges, including structural adjustment and restructuring of industrial chains and supply chains. This paper based on the analysis of Sino-South Korea trade data by the Ministry of Commerce of China. Firstly, this paper introduced the "Trade Integration Index" to measure the level of trade interdependence between China and South Korea, revealing a significant degree of mutual reliance in their trade relationship. However, South Korea exhibits a higher degree of economic interdependence with China and relies heavily on trade. In recent years, the trade complementarity between China and South Korea has diminished while competition has intensified. By examining the global trade system, this paper conducted a comparative analysis of South Korea's import and export partners, revealing a significant reliance on China. Based on this, this paper puts forward some suggestions on Korea's trade deficit.

Keywords: Korea's trade, Deficit, Trade Integration Index(TI)

1. Introduction

"Trade Deficit" refers to the situation in which imports of a country or region are greater than exports in a certain period. In this article, South Korea's trade deficit with China signifies that its imports from China surpass its exports to China.

This article employs the "trade integration index" methodology to calculate and examine the current Sino-Korean trade pattern. Building upon this analysis, it further utilizes the similarity index of export products between both countries to assess the competitiveness and complementarity of Sino-Korean trade, while also analyzing the competitive advantages within their respective commodity structures. Consequently, this research provides a realistic foundation and data support for estimating bilateral trade potential between China and South Korea. The study is revealed through a comprehensive review of the literature. The research on the trade between China and South Korea primarily centers around South Korea's trade surplus, as evidenced by recent findings. While the pace of economic globalization is intensifying. In 2023, South Korea recorded a full-year trade deficit with China for the first time since the establishment of diplomatic ties between the two countries, marking a return to a trade deficit after more than 30 years. The amount of the deal

reached 18 billion US dollars, and it has failed to make a profit for 11 consecutive months. With the continuous improvement of the competitiveness of China's manufacturing industry, more and more Chinese products have flooded into the South Korean market, which has already formed a trade deficit situation between South Korea and China. The paper provides a valuable resource for future scholars delving into the realm of Sino-Korean trade.

2. Overall Development of Bilateral Trade Between China and South Korea

The bilateral trade between China and South Korea witnessed a year-on-year decline of 16.2%, amounting to 230.35 billion US dollars from January to September 2023. Among them, the exports to South Korea were 111.89 billion US dollars, down 7.5%; Imports from South Korea were 118.46 billion US dollars, down 23%; The trade deficit was US \$6.57 billion, narrowing by 80% [1]. Over the past three decades, the trade partnership between China and South Korea has significantly deepened, and the total trade volume has increased by 72 times [2]. South Korea heavily relies on China, as evidenced by its 18 consecutive years of China being its largest trading partner. In 2019, bilateral trade between China and South Korea reached 284.54 billion US dollars, down 9.2 percent from the previous year. Among them, China's exports to South Korea reached 110.97 billion US dollars, an increase of 2% over the previous year; Imports from South Korea reached 173.57 billion US dollars, down 15.2 percent from the previous year. In 2021, the bilateral trade volume will exceed 360 billion US dollars(refer to Table 1).

According to official statistics from China's Ministry of Commerce, the trade volume between China and the Republic of Korea was initially modest, standing at approximately 6.38 billion US dollars, but experienced rapid growth in subsequent years. According to statistics, at the beginning of the global coronavirus outbreak, the total trade volume between China and South Korea in 2020 was 285.26 billion US dollars, surpassing that of South Korea's trade with both the United States and Japan during the same period, reflecting the obvious trend of important trade partners between China and South Korea, and South Korea's trade dependence on China is nearly 25%. The economic and trade cooperation between China and Korea has not only established a solid foundation for the development of bilateral relations but also made significant contributions to regional and global prosperity [3]. From January to September 2023, the total trade of bilateral trade between China and South Korea was 230.35 billion US dollars, down 16.2% year-on-year. Among them, the exports to South Korea were 111.89 billion US dollars, down 7.5%; Imports from South Korea were US \$118.46 billion, down 23%; The trade deficit narrowed by 80% to 6.57 billion US dollars[4].

Table 1: Overview of Bilateral trade between China and South Korea since 2019 (Unit: billion US dollars)[5]

Years	Total volume of trade		Exports to South Korea		Imports from South Korea		Deficit
	Amount	Increase/ decrease rate	Amount	Increase/ decrease rate	Amount	Increase/ decrease rate	
2019	2845.4	-9.2	1109.7	2	1735.7	-15.2	-625.74
2020	2852.6	0.3	1125.0	1.4	1727.6	-0.5	-602.55
2021	3623.5	26.9	1488.0	32.4	2134.9	23.3	-646.23
2022	3622.9	0.1	1626.0	9.5	1996.7	-6.5	-370.46
2023	3107.4	-13.5	1489.9	-7.2	1617.5	-18.7	-127.64

3. Enhanced Bilateral Trade Interdependence Between China and South Korea Based on the TI Index.

Firstly, This paper introduced the "Trade Integration Index" to measure the level of trade interdependence between China and South Korea. Based on the index, employing the similarity index of export products between the two countries, it also further measures the competitiveness and complementarity of Sino-Korean trade and analyzes the competitive advantages of both sides in the commodity structure. Therefore, it provides a realistic basis and data support for estimating the bilateral trade potential between China and South Korea.

Trade intensity is an important index reflecting the strength of trade relations between two countries. Trade intensity can be further divided into export intensity and import intensity.

The formula is:

Export intensity = (Country A's exports to country B)/(Country A's total exports)/(Country B's total imports/total imports in world trade)

Import intensity = (Country A's imports from Country B/Country A's total imports)/(Country B's total exports/total exports in world trade)

The bilateral trade relationship between the two countries is considered relatively close if the trade intensity exceeds 1. This shows that the two countries are each other's important trading partners. The trade density being less than 1 signifies a weakness in ties in the bilateral trade relationship between the two countries. This indicates that the two countries do not even reach the average level of their respective trade relations with all their trading partners.

Table 2: Bilateral TI Index of China and South Korea, 2019-2022 [6]

Years	China to Korea	Korea to China
2019	1.63	2.24
2020	1.63	1.81
2021	1.64	2.23
2022	1.59	3.42

This article is based on trade data released by China Customs and Korea International Trade Association. During 2019-2022, the bilateral trade density between the two countries is greater than 1, indicating that bilateral trade is closely linked. At the same time, the TI index of Korea to China consistently surpasses that of China to Korea. This indicates that Korea is more dependent on China for trade. Notably, the substantial growth in exports to China has emerged as a pivotal driver for South Korea's economic advancement (refer to Table 2).

4. Korea's Trading Partners for Import and Export in the Global Market

Among South Korea's other major export markets, China has consistently remained the largest import and export market for five consecutive years (refer to Table 3). South Korea's exports to China are declining, while imports are increasing. As a "canary" in the global economy, South Korea's enterprises have consistently demonstrated their unique position in the international market through astute market intuition, robust export momentum, and exceptional self-adjustment capabilities. Its dependence on foreign trade is 77.7%, one of the highest in the world [7].

South Korea is also relying on strong manufacturing and export trade, once ranked among the world's top ten economic powers. It not only wields considerable influence in global trade and finance but also plays a crucial role as a key participant in the chip industry, high-end manufacturing, and other important sectors of the industrial supply chain. In 2021, it was

recognized as a developed country by the United Nations Conference on Trade and Development. However, in the first half of 2023, South Korea's foreign trade performance was not ideal, and its exports and imports both fell sharply.

According to the data of KOICA(refer to Table 4), the value of South Korea's exports in the first half of 2023 amounted to 253.9 billion U.S. dollars, reflecting a YoY decline of 10.2 percent. Among them, the exports of South Korea to major trading partners, including the United States, the European Union, Japan, and China, have all experienced varying degrees of decline.

Table 3: Changes in South Korea's major export trading partners [8]

Top 5 export markets					
Rank	2019	2020	2021	2022	2023
	Country/region	Country/region	Country/region	Country/region	Country/region
1	China	China	China	China	China
2	America	America	America	America	America
3	Vietnam	Vietnam	Vietnam	Vietnam	Vietnam
4	Hong Kong, China.	Hong Kong, China.	Hong Kong, China.	Hong Kong, China.	Japan
5	Japan	Japan	Japan	Japan	Hong Kong, China.

Table 4: Changes in South Korea's major import trading partners [9]

Top 5 import markets					
Rank	2019	2020	2021	2022	2023
	Country/region	Country/region	Country/region	Country/region	Country/region
1	China	China	China	China	China
2	America	America	America	America	America
3	Japan	Japan	Japan	Japan	Japan
4	Saudi Arabia	Vietnam	Australia	Australia	Saudi Arabia
5	Vietnam	Australia	Vietnam	Vietnam	Australia

5. Analysis of Korea's Transition from a Surplus Country to a Deficit Country with China

5.1. Analysis of Korea's Trade Deficit from the Perspective of Commodity Structure and Division of Labor

From the perspective of commodity structure, in January 2023, South Korea's deficit with China was primarily driven by precision chemical raw materials (-1.85 billion US dollars), dry batteries and accumulators (-1.38 billion US dollars), computers (-1.12 billion US dollars), and industrial electronic equipment (-730 million US dollars) [10]. China has successfully fostered a number of globally renowned companies in Korea's traditional export sectors, including automobiles, mobile phones, and home appliances. As a result, bilateral trade between the two countries has progressively shifted towards intra-industry trade[7].

Strengthening high-end industrial cooperation is of great significance to China-ROK economic and trade relations. The reason why the competitiveness of South Korea's real economy has declined, which has dragged down exports sharply, is not that South Korean companies themselves are not hard enough, but to a greater extent, it is closely related to the limited scope of the international export market and strong competition for South Korean export products which are

major factors contributing to the challenges faced by South Korean companies. Approximately 60% of South Korea's semiconductor products are exported to the Chinese market. In the first quarter of 2023, semiconductor exports to China witnessed a year-on-year decline of 44.5%, which is 12.8 percentage points higher than the decrease observed in the fourth quarter of 2022. This substantial drop significantly impacted South Korea's exports to China and had a severe impact on its overall export trade. Moreover, in recent years, China's high-end consumer goods market has developed rapidly, and South Korea's consumer goods exports to China account for only about 5% of total exports, while in these export consumer goods, the proportion of high-end products has increased to nearly 70%.

In order to maintain a favorable trade balance, the Korea International Trade Association places significant emphasis on expanding the export of high-end products to China. It suggests broadening the export of advanced intermediate goods, such as core materials and parts, while also suggesting South Korean enterprises target China's affluent consumer goods market in order to transform their export commodity structure.

The rapid growth of China's chip industry has greatly reduced the dependence on external supplies in trade with China. The latest data from China's General Administration of Customs show that China imported 479.5 billion integrated circuits in 2023, down 10.8% from 2022; Imports totaled 349.4 billion U.S. dollars, down 15.4 percent year-on-year. In addition, China's imports of diode and similar semiconductor components also fell 23.8% in 2023. The decline in China's semiconductor imports not only reflects the deliberate obstruction of China by the "chip alliance," but also signifies the remarkable progress made by Chinese enterprises in recent years to enhance their research and development capabilities and achieve autonomy in control.

In fact, the production capacity of China's domestic semiconductor manufacturers is projected to increase by 12% annually in 2023, with a current operational count of 44 semiconductor companies and an additional 22 under construction. The trade products between China and South Korea in the early 1990s mainly included agricultural products, mineral fuels, chemical fiber staple fiber, man-made fiber filament and other primary products and raw materials. South Korea mainly exports fiber raw materials, petrochemical products, iron and steel products to China, while China exports agricultural products, textiles, mineral fuels and iron and steel products to South Korea [11]. However, since the mid-1990s, there has been a rapid expansion in the trade of electronic and electrical products. Computer and mobile phone parts as well as auto parts have emerged as crucial trade commodities. The trade structure between China and South Korea has undergone a transformation from raw materials to components and intermediate goods, while the nature of products has shifted from labor-intensive to technology-intensive. Since the beginning of the 21st century, South Korea's exports of electronic products and auto parts to China have increased significantly, helping China become the world's processing and assembly center of the electronics industry. The share of intermediate goods in China's exports to Korea has witnessed a notable increase, rising from 48.6 percent in 1992 to 64.5 percent in 2021. Similarly, the proportion of intermediate goods in China's imports from Korea has also experienced an upward trend, climbing from 74.1 percent in 1992 to 80.1 percent in 2021. This characteristic feature of Sino-Korean trade is further exemplified by the growing prominence of processing trade, with the proportion reaching a significant level of 39.6 percent for China's imports from South Korea in 2020 – twice as much as the overall figure of China's total imports (19.6 percent).

5.2. Analysis of South Korea's Trade Deficit from the Perspective of Sino-US Relations

Since the Yin Xiyue administration assumed office, there has been a perception among certain individuals that South Korea's diplomatic strategy has transitioned from "balanced diplomacy" to a more pronounced inclination towards the United States. The transformation of trade relations is not

solely an economic matter, but also a strategic political decision [12]. According to a report by the Korean Institute for Foreign Economic Policy, Sino-US trade frictions will have a direct negative impact on Sino-Korean trade, especially the impact on the information technology industry, which accounts for 47% of China's exports, is particularly noteworthy. During the period of Moon Jae-in, the South Korean government maintained close economic and trade cooperation with China, which injected impetus into the sustainable development of the South Korean economy [13]. After taking office, Minister Yoon put forward a diplomatic principle: rebuild the Korea-U.S. alliance and enhance global cooperation based on the values of freedom and democracy. This shows that Yin Xiyue is trying to change the balance of diplomacy between China and the US as Wen Zaiyin pushes forward. This has caused a decline in South Korea's international rating and damaged the Korea-U.S. alliance. However, under the administration of Yin Xiyue, South Korea pursued a foreign policy aligned with that of the United States, neglecting its domestic economic development foundation. Consequently, the trade deficit issue between South Korea and China escalated significantly, which can be regarded as an outcome resulting from self-inflicted damage.

The Korean government's alignment with the United States and active participation in a containment strategy against China is a significant contributing factor to the trade deficit. Despite the close economic and trade ties between China and South Korea, which has many companies in China, including chip manufacturing giants, South Korea has sacrificed its interests in the Chinese market to side with the United States.

Particularly amidst the "chip war" instigated by the United States, South Korea actively engaged and imposed restrictions on a substantial number of chip products from accessing the Chinese market, resulting in a direct impact on South Korea's export trade. The significant decline in profits experienced by South Korea's prominent chip manufacturers serves as a clear illustration, highlighting how South Korea's assertive endeavors to contain China have ultimately backfired and undermined its own interests. South Korea's trade deficit has taken a toll not only on the economy but also on the government's approval ratings. President Yin Xiyue's approval rating has plummeted as the trade deficit has widened. People began to question the government's decisions and its ability to control the economy.

For South Korea, it would be wise to establish long-term cooperation with China. South Korea's actions serve as a reminder that countries should thoroughly consider their actual circumstances and development needs when formulating trade strategies, and never sacrifice their own economic interests and deep economic and trade relations.

6. Conclusion

This paper mainly discusses the trade deficit between South Korea and China in 2023. With the evolution of the world political and economic pattern, the changes in the geopolitical and economic environment brought about by the strategic game between China and the United States, as well as the uncertain factors brought about by the foreign and security policy tendency of the new South Korean government, Sino-South Korean relations have been severely tested. At present, South Korea, which has long been more than 60% dependent on the foreign economy, is facing the most severe problems since the 1997 Asian financial crisis, such as high exchange rates, high inflation, high-interest rates and trade deficit. It is obviously difficult to solve them by itself or the US-South Korea alliance. China and South Korea need to continue to strengthen economic cooperation. At the same time, the trade deficit issue also reminds us that economic development should not depend on a single industry or market. South Korea's difficulties in the chip and automotive industries show that technological innovation and industrial diversification are key factors in cross-border trade. The country should increase its support for emerging industries to avoid risks caused by over-reliance on traditional industries. Finally, the trade deficit between China and South Korea reminds us that

economic cooperation between countries is interdependent, and the pursuit of long-term and stable cooperation can achieve win-win results. Countries should uphold the principles of equality, justice and mutual benefit, jointly promote the building of an open, inclusive and universally beneficial global economic system, and jointly address the challenges facing economic development.

This paper does not use the ESI index research method to comprehensively evaluate the environmental sustainability performance of China and South Korea in the future forecast of bilateral trade between China and South Korea. Future research can focus on the issue of Sino-Korean bilateral trade continuity.

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