

A Decade of Transformation: Changes in Bilateral Trade Structure and Evaluation of the Korea-China FTA^{*}

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Amidst the pervasive expansion of global uncertainty, trade and the associated division of labor between Korea and China are undergoing significant structural transformations. To accurately estimate the Korea-China Free Trade Agreement's effect, this study controlled for these various confounding factors to isolate the specific impact of the agreement on bilateral trade. We employed a multifaceted methodological approach, incorporating techniques such as Two-Way Fixed Effects (TWFE), the Staggered Difference-in-Differences (Staggered DiD) framework, and event study analysis. Furthermore, the scope of the investigation was delineated by analyzing both aggregate trade flows and trade disaggregated by end-use. The findings confirm that even when juxtaposed against underlying structural changes in both economies and the prevailing uncertainty in the global trade landscape, the Korea-China Free Trade Agreement successfully acted as a stimulant for bilateral trade.

Keywords: Korea-China FTA, Korea-China Trade, Gravity Equation

JEL Classification: F13, F14, F15, C23

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I. Introduction

As Korea is one of the most open economies in the world, the importance of trade policy for Korea is paramount. When measuring trade openness by the ratio of trade volume (exports and imports) to GDP, it has steadily increased from 42.27% in 1993, reaching a peak of 86.14% in 2011, then gradually declined to 74.43% in 2023, indicating that it still remains at a high level. Consequently, the importance of international economic policy, particularly trade policy, cannot be overstated. Since the mid-2000s, the Free Trade Agreement (FTA) has been a primary instrument of Korea's trade policy. Although the country was relatively late in pursuing its FTA policy, the simultaneous and proactive negotiation of FTAs has resulted in 22 agreements with 59 countries being in effect as of September 2025, with an additional five FTAs having been concluded. As a result of concluding FTAs with key trading partners, the share of Korea's total exports directed to FTA partner countries reached 74.1% in 2024. By country, the top destinations were China (19.5%), the United States (19.5%), Vietnam (8.5%), India (2.7%), and Singapore (2.7%).

This study examines the structural changes in Korea-China trade and analyzes the performance of the Korea-China FTA (hereafter, KCFTA), which entered into force on December 20, 2015. The reasons for selecting the Korea-China FTA as the subject of analysis are threefold. Notably, among all FTA partners, China remains Korea's largest trading partner, accounting for an average export share of 19.6% and an import share of 22.2% during the 2023-2024 period. More than ten years have passed since the entry into force of the Korea-China FTA, making it possible to secure time-series data sufficient for a rigorous assessment of its performance. Furthermore, trade between Korea and China has undergone substantial structural changes over the past decade, and evaluating the performance of the Korea-China FTA amid these structural transformations constitutes an academic challenge.

The study distinguishes itself from prior research in the following three key aspects:

First, the most rigorous evaluation of FTA's performance is typically conducted through the assessment of FTA implementation status based on the Trade Procedure Act. This study enhances the methodology of these implementation assessments by incorporating the unique characteristics of Korea-China trade and performing robustness checks using a variety of analytical approaches.

Second, reliable statistics on Korea-China investment were employed. Korea-China trade is deeply interconnected with bilateral investment and the structure of global

supply chains. Verifying this relationship requires credible investment statistics. This study addresses the issue of time-series data fragmentation by employing the time-consistent bilateral investment data compiled by Kox (2025).

Finally, diverse model specifications and methodologies were applied to isolate the effect of the FTA, effectively controlling for various factors such as the THAAD deployment and the U.S.-China trade conflict that influenced bilateral trade after the KCFTA's entry into force.

The remainder of this paper is structured as follows. Chapter II examines the structural changes that have occurred in the economic relationship between Korea and China. Specifically, it first reviews the changes in bilateral trade, investment and global value chain relations and then identifies the underlying causes of the structural shifts observed in the Korea-China economic ties. Chapter III evaluates the performance of the KCFTA based on the structural analysis of the bilateral economic relations presented in Chapter II. This chapter utilizes various model specifications and approaches, drawing upon both previous studies on FTA effectiveness and the analysis conducted in the preceding chapter. Chapter IV summarizes the main findings of the study and includes policy recommendations for the constructive development of the future Korea-China economic relationship.

II. Structural Changes in Economic Relations between Korea and China

1. Trade Relations between Korea and China

Korea's trade volume grew more than 32 times, from \$39.8 billion in 1980 to \$1,274.8 billion in 2023. The high correlation between export and import trends reflects Korea's substantial reliance on imported intermediate goods, whereby an expansion of exports necessitates a corresponding increase in imports. In other words, Korea has grown by effectively utilizing the global value chain. The trade balance shifted from a deficit of \$4.8 billion in 1980 to a surplus in 1998, reaching a peak surplus of \$95.2 billion in 2017, though the surplus has been decreasing since then. Particularly in 2022 and 2023, due to a sharp rise in raw material prices and depreciation of Korean won caused by geopolitical risks, Korea recorded trade deficits of \$47.8 billion and \$10.4 billion, respectively. However, as of May 2024, the trade balance turned to a surplus of \$15.1 billion. The deteriorating trade balance has concurrently diminished the contribution of net exports to economic growth.

Based on the 2023-2024 average, China is Korea's largest trading partner. China accounts for 21.3% of Korea's total exports and 21.7% of its total imports. The United States, Vietnam, and Japan follow, with trade shares of 14.1%, 6.2%, and 6.0%, respectively. In terms of total trade volume, Korea's dependence on China is 21.5%, which is higher than the combined total of its second and third-largest trading partners, meaning that China's importance to Korea remains significant.

Figure 1 shows the trend of Korea's current account balance with China. The majority of trade between Korea and China consists of goods trade, followed by primary income and services trade. Even within services trade, components closely related to goods trade, such as processing services and transportation services, account for a significant portion. Notably, the transportation balance, which records a deficit, accounts for 75-90% of Korea's services trade deficit with China, while the transportation, IPR, and information balance that records a surplus makes up about 60% of the services trade surplus.

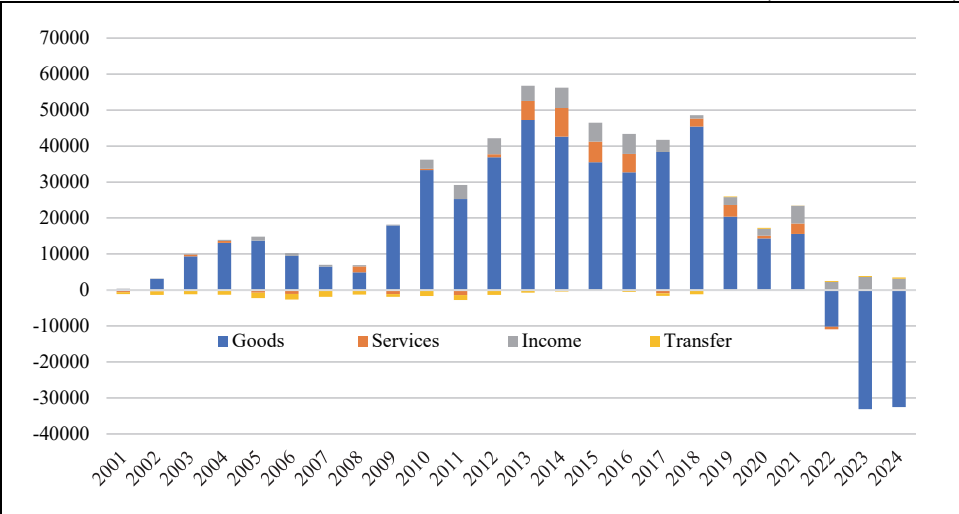
In 1994, Korea's exports to and imports from China were \$6.2 billion and \$5.5 billion, respectively. By 2023, these figures had increased approximately 20-fold and 26-fold, to about \$124.8 billion and \$142.9 billion, respectively. Particularly, since 1994, Korea has consistently recorded a trade surplus with China, peaking at \$55.6 billion in 2018, after which the surplus began to decrease. Korea recorded a trade deficit of \$5.2 billion with China in 2023 and \$18.1 billion by May 2024. Since the KCFTA came into effect in December 2015, Korea's exports to China increased until 2018, after which they fluctuated, whereas imports from China have consistently risen, though they slightly decreased in 2023.

FTAs create more favorable environments in the partner country's market by offering preferential market access. Therefore, it is essential to examine bilateral relations not only in terms of trade volume but also from the perspective of market shares. Figure 2 shows the trend in Korea's trade share with China. Korea's export share to China rose to 25% in 2010 and remained relatively stable until 2022, after which it declined to 22.8% in 2022 and 19.7% in 2023. Meanwhile, Korea's import share from China has shown a gradual upward trend, fluctuating from 16.5% in 2010 to 22.0% in May 2024. While Korea's export share to China is decreasing, its import dependence on China is steadily rising, suggesting a possible structural shift in the bilateral trade relationship. Examining the trend in China's trade share with Korea during the same period, the export share remained relatively stable, from 4.6% in 2005 to 4.41% in 2023. However, the import share decreased significantly from 11.65% in

2005 to 6.34% in 2023, almost by half. Particularly, even after the KCFTA came into effect in 2015, China’s dependence on imports from Korea has continued to decline.

Figure 1. Trends in Korea’s Current Account Balance with China

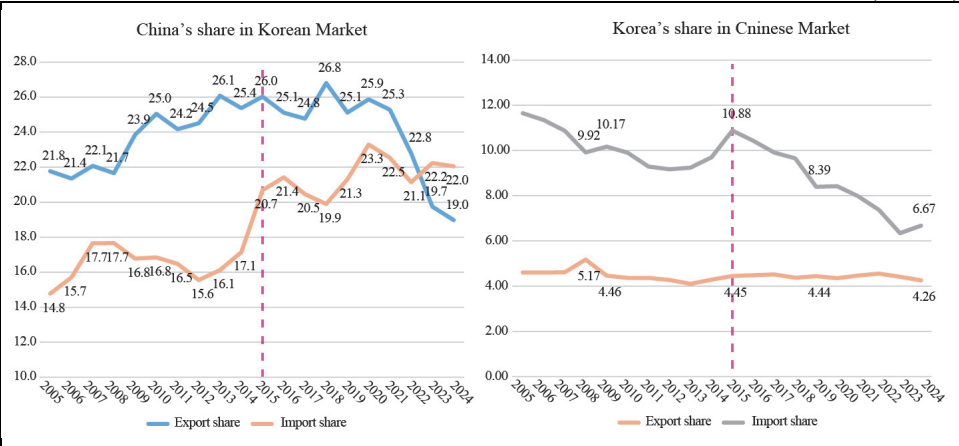
(Unit: Million USD)



Source: Bank of Korea.

Figure 2. Market Shares of Korea and China in Bilateral Trade

(Unit: %)



Source: KITA.net.

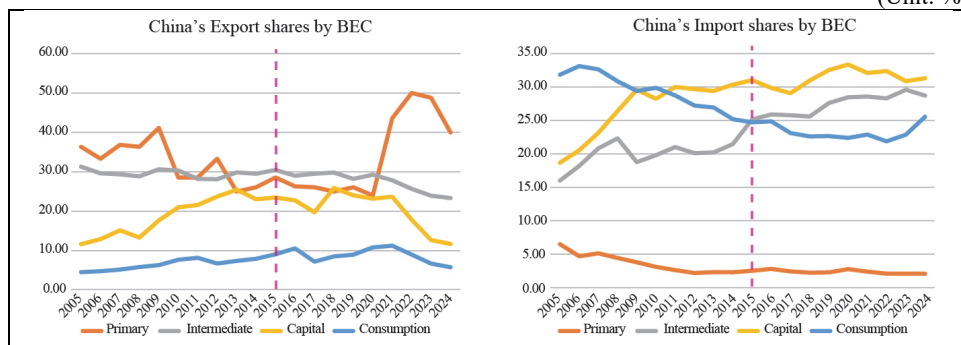
In summary of the mutual dependence, Korea's reliance on imports from China is increasing, whereas China's dependence on Korea as an export market remains stable. From Korea's perspective, China's status as an export market has slightly declined in recent years, while Korea's market share in China's import market has been steadily decreasing since peaking at 10.88% in 2015. Although China appears to be benefiting from the KCFTA by increasing its market share in Korea's import market, Korea's market share in China's import market has actually declined since the FTA came into effect, indicating the need for a more detailed analysis.

To examine trade patterns in more detail, the share of each country in the other's total trade by product type is analyzed below. The export share of China in Korea's primary goods exports declined gradually from 36.36% in 2005 but surged after 2021, reaching 48.78% in 2023. In consumer goods exports, China's share fluctuated, increasing gradually from 4.55% in 2005 to a peak of 11.25% in 2021, before declining to 6.71% in 2023. The share of China in Korea's capital goods and intermediate goods exports has been declining recently, with capital goods peaking at 25.89% in 2018 and then falling to 12.69% in 2023, and intermediate goods maintaining around 30% before dropping to 23.93% in 2023.

Looking at the trends in China's import share by product type, consumer goods imports from Korea decreased from 31.75% in 2015 to 22.53% in 2023, and dependence on imports of primary goods from Korea has dropped to below 1%. On the other hand, China's dependence on imports of intermediate goods and capital goods from Korea has been gradually increasing, rising from 15.47% and 18.23% in 2005 to 29.44% and 30.76% in 2023, respectively.

Figure 3. Trends in China's Export and Import Shares by BEC in Korea's Market

(Unit: %)



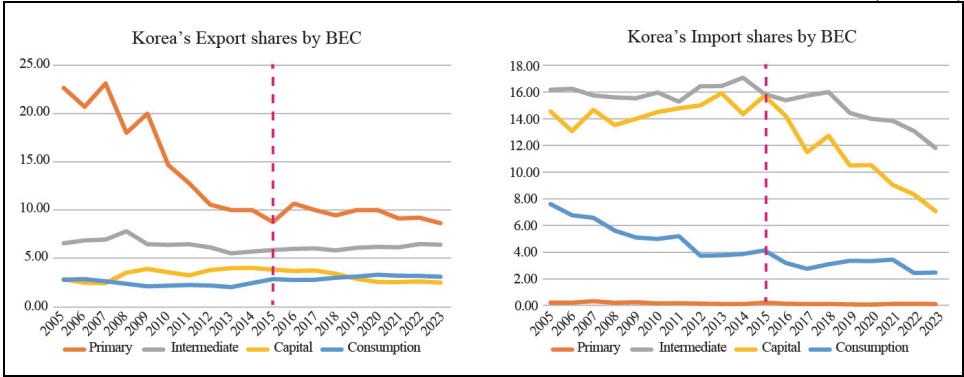
Source: KITA.net

Figure 4 illustrates the trends in Korea’s export and import shares by product type with China. Korea’s export share in primary goods to China declined sharply from 22.67% in 2005 to 8.64% in 2015, and has since stabilized at a lower level. The share of capital goods has also been decreasing gradually, reaching 2.47% in 2023. In contrast, the shares of intermediate and consumer goods have remained relatively stable, with intermediate goods at 6.40% and consumer goods at 3.08% in 2023, compared to 6.55% and 2.76% in 2005, respectively.

On the other hand, the share of Korea in China’s imports of intermediate goods, capital goods, and consumer goods has been decreasing. In 2005, the shares were 16.18%, 14.55%, and 7.6%, respectively, and by 2023, they had fallen to 11.82%, 7.08%, and 2.48%. Notably, since 2015, there has been a sharp decline in China’s dependence on Korean imports for intermediate and capital goods. This trend suggests that the decrease in Korea’s market share in China may be related to investment factors.

The changes in the share of exports and imports between Korea and China are primarily driven by shifts in dependence on intermediate and capital goods.

Figure 4. Trends in Korea’s Export and Import Shares by BEC in China’s Market (Unit: %)



Source: KITA.net

2. Korea-China Bilateral Investment

As of 2023, Inward foreign direct investment (IFDI) in Korea totaled \$19.49 billion, with the top three investing countries being the Cayman Islands, the United States, and Singapore. China ranked as the 11th largest investor, with a total investment of \$304.92 million in 2023. Korea’s outward foreign direct investment (OFDI) amounted

to \$64.5 billion in the same year, with the top investment destinations being the United States, the Cayman Islands, Canada, Vietnam, and China. China was the 5th largest investment destination, receiving a total of \$1.87 billion in 2023.

Table 1. Major Investment Partners for Korea (2023)

(Unit: Million USD)				
Rank	Country	Inward FDI	Country	Outward FDI
1	Cayman Islands	3,883.31	United States	27,842.99
2	United States	2,390.48	Cayman Islands	6,425.73
3	Singapore	2,099.28	Canada	3,612.28
4	Malta	1,654.62	Vietnam	2,648.08
5	United Kingdom	1,637.60	China	1,874.67
6	Netherlands	983.69	Singapore	1,262.31
7	France	936.47	United Kingdom	863.09
8	Japan	860.81	Mexico	746.24
9	Germany	548.01	Japan	699.30
10	Hong Kong	332.88	Hong Kong	276.51
11	China	304.92		
Total		19,488.63	Total	64,484.27

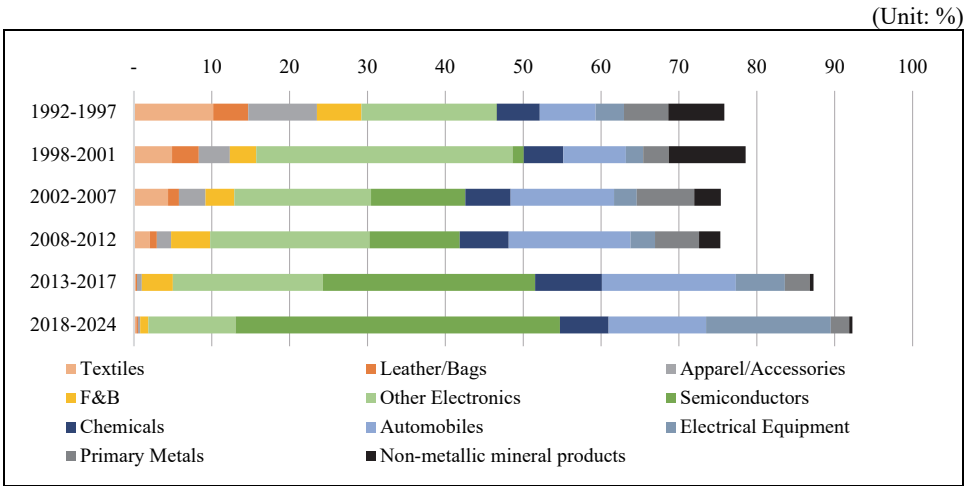
Sources: Export-Import Bank of Korea and Ministry of Trade, Industry and Energy.

The first stage, spanning from 1992 to 2001, marked the beginning of China-bound investment centered on processing trade, driven by Korea's Northern Policy and globalization strategy. During this period, investment was predominantly led by Small and Medium-sized Enterprises (SMEs), focusing on labor-intensive sectors such as textiles, apparel, leather/footwear, and certain home appliance and electronic components. As shown in Figure 5, the investment share in these sectors was nearly half of the total. However, as global investment contracted due to the Asian Financial Crisis, China-bound investment also entered a period of adjustment.

The second stage, spanning from 2002 to 2012, saw Korean firms increasingly enter the Chinese market with the goal of penetrating its domestic demand, following China's accession to the WTO (2001) and the subsequent opening of its internal market.

During this decade, China emerged as Korea's largest OFDI destination. Investment was characterized by the co-entry of large conglomerates and their vendor Small and Medium-sized Enterprises (SMEs), primarily in consumer goods industries such as

Figure 5. The Evolution of Korea’s OFDI Industrial Structure in China



Note: The proportions represent the sector’s share of the total investment.

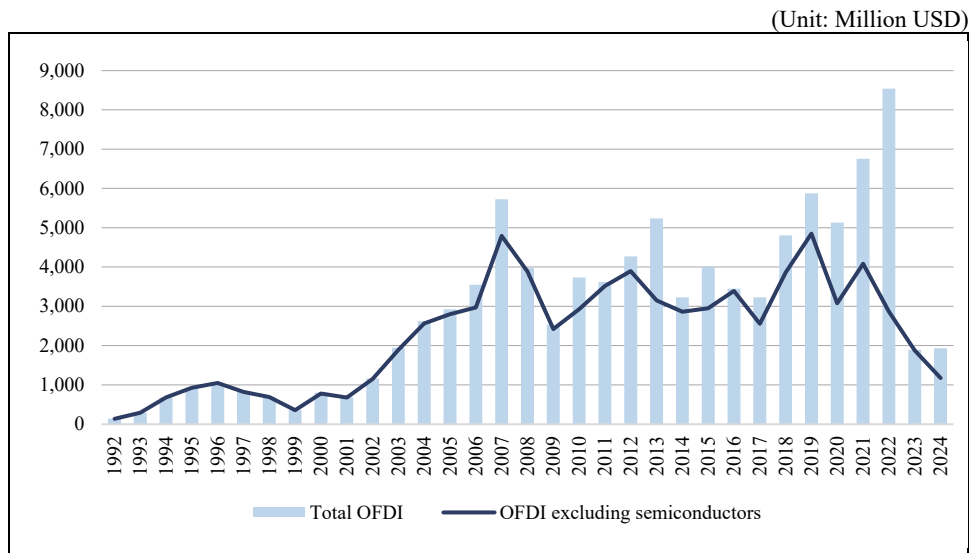
Source: Export-Import Bank of Korea.

automobiles and mobile phones. Furthermore, investment in the service sector—concentrated in finance/insurance, wholesale/retail trade, and real estate—also expanded significantly during this period. However, the investment momentum slowed, and Korea’s OFDI to China declined between 2008 and 2012, attributed to the deterioration of the business environment in China (e.g., rising labor costs and stricter environmental regulations) and the slowdown in global trade following the Global Financial Crisis. Moreover, investment by processing-trade-oriented SMEs was significantly curtailed due to China’s own industrial development and industrial upgrading policies, leading to the restructuring of many Korean enterprises that had invested in the country.

The third stage spans from 2013 to the present. This period saw the full-fledged deployment of large-conglomerate-centered investment into advanced component sectors (such as semiconductors, batteries, and LCDs) required for China’s various industrial upgrading strategies, as well as the automobile sector targeting the burgeoning domestic market.

However, the business environment for Korean firms operating in China began to deteriorate due to factors such as the worsening Korea-China relations (precipitated by the THAAD deployment dispute) and the rising competitiveness of local Chinese enterprises.

Figure 6. Korea's OFDI to China



Source: Export-Import Bank of Korea.

Particularly since 2018, the intensifying US-China friction has heightened the China risk within the high-tech sector, and the contraction of Chinese domestic demand following the COVID-19 pandemic has resulted in large-scale restructuring, primarily centered on major conglomerates, which continues to the present.

As shown in Figure 6, Korea's investment in China, excluding the semiconductor industry, rapidly declined after peaking in 2019. In other words, the temporary phenomenon of increased Korean investment in China after 2019 was solely attributable to semiconductor investment. This is analyzed as pre-emptive investment carried out in anticipation of tightening U.S. investment regulations targeting China between 2020 and 2022.

With the conclusion of this specific type of semiconductor investment, Korea's semiconductor OFDI to China plummeted by 99.8%, decreasing from \$5.671 billion in 2022 to only \$11 million in 2023. This sharp contraction is the primary factor behind the severe drop in Korea's total OFDI to China in 2023.

Choi and Yang (2024) investigate the reasons for the decline in Korea's OFDI to China as follows: a significant reduction in semiconductor investment, deterioration in investment conditions in China leading to a shift in investment destinations, and overall changes in global investment trends. Specifically, among the reduction in

OFDI to China in 2023, the decline in semiconductor investments accounted for \$5.661 billion (85% of the decrease), the decrease due to shifts in investment destinations was \$495 million (7.5%), and the reduction due to a decrease in Korea's global OFDI was \$517 million (7.7%). For semiconductor investments, it was noted that proactive investments were made in response to the anticipated strengthening of U.S. investment regulations towards China between 2020 and 2022. By 2023, these investments had already been completed, leading to a sharp reduction in this sector. The decrease in OFDI to China since the mid-2000s appears to have been affected by changes in the business environment within China, such as rising labor costs and increasing competition with local companies, as well as rapidly changing international circumstances.

Table 2. The Three-Stage Evolution of Korea's OFDI to China

Classification		Stage1 (1992~2001)	Stage 2 (2002~2012)	Stage 3 (2013~2023)
Investment	Type	SME Processing Trade-Oriented Investment	Co-entry by Large Conglomerates and SMEs	Large Conglomerate-Centered
	Objective	Utilize Low Wages, Resource Development	Penetrate China's Domestic Market (Consumer Goods)	China's Domestic Market (Intermediate Goods)
	Sectors	Home Appliances, Textiles, Footwear, Leather, Electronic Components, Non-Ferrous Metals	Computers, Automobiles, Mobile Phones	Automobiles, Semiconductors, Batteries, LCDs
Restructuring		OFDI adjustment phase (Asian Financial Crisis~)	1st restructuring (2008~2012)	2nd restructuring (2018~)
		Contraction of Korea's Capacity for Outward Investment	Rising Labor Costs , Stricter Environmental Regulations, Reduced Incentives for Foreign Enterprises, Selective FDI Policy	Worsening Korea-China Relations , US-China Friction, COVID-19 Pandemic, Enhanced Competitiveness of Chinese Enterprises

Source: Yang et al. (2024).

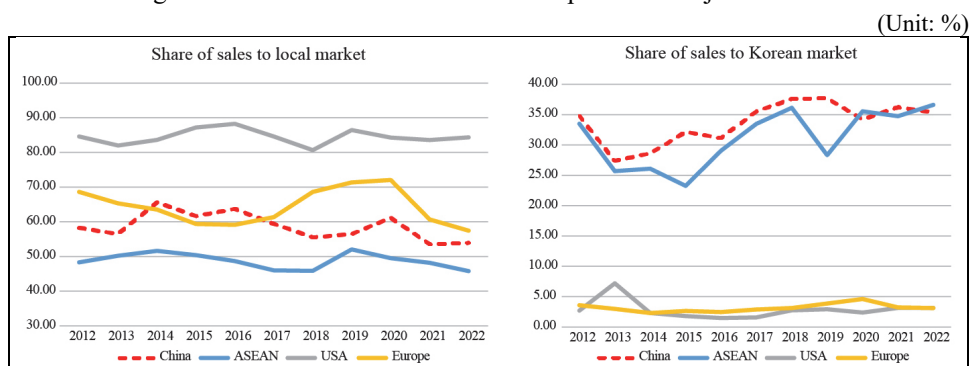
3. Relations between Investment and Trade

Investment is closely related to trade in intermediate and capital goods. Although the amount of investment in China has increased, the proportion of investment has decreased, which may also indicate a relative decline in China's importance as a market for intermediate and capital goods exports.

Below, we examine the sales and purchasing structures of Korean companies operating in China and their relationship with Korea-China trade. The following chart shows the sales structure of Korean companies operating abroad, divided into local sales in the host country, exports to Korea, and exports to third countries. For China, the proportion of local sales peaked at 63.73% in 2016 but has been on a declining trend, reaching 53.88% in 2022. The proportion of exports to Korea has been gradually increasing from 27.4% in 2013 to 35.37% in 2022. The proportion of sales to third countries was around 5% from 2014 to 2020 but has slightly exceeded 10% since 2021. In other words, Korean companies operating in China export about 55% to the local market, 35% to Korea, and the remaining 10% to third countries. However, the share of sales in China has been gradually decreasing, while the proportion of exports to Korea has been increasing.

In the ASEAN, the proportion of local sales and exports to third countries has been gradually declining, while the proportion of exports to Korea has been increasing. In the U.S., the proportion of local sales is nearly 85%, while exports to Korea account for only 3%. In Europe, local sales and exports to third countries each account for about 60% and 40%, respectively.

Figure 7. Sales Structure of Korean Companies in Major Countries

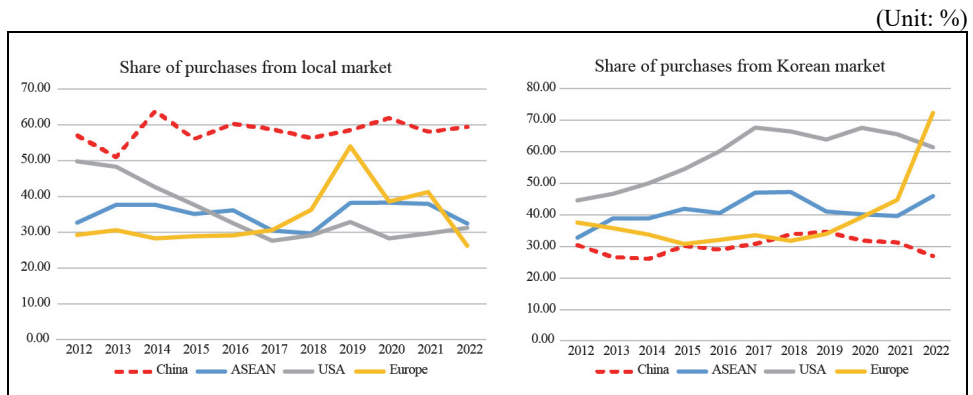


Sources: Overseas Business Analysis, Export-Import Bank of Korea, <https://keri.koreaexim.go.kr>

The following figure examines the purchasing structure of Korean companies operating abroad using the same method. For Korean companies operating in China, the proportion of local purchases remains in the 60% range, while the proportion of intermediate goods procured from Korea has gradually declined from 34.62% in 2019 to 27% in 2022. The proportion of imports from third countries has recently increased, exceeding 10%.

In ASEAN, the proportion of local purchase is generally above 30%, while the proportion of procurement from Korea has surpassed 40%, reaching 45.94% in 2022. For companies operating in the U.S., the proportion of local procurement has continuously decreased to around 30% in 2022, while the proportion of purchases from Korea has gradually increased to 61.41% in 2022. In Europe, the proportion of local procurement peaked at 54% in 2019 but has rapidly declined since then, whereas the proportion of procurement from Korea has increased since 2018, reaching 72.23% in 2022.

Figure 8. Purchasing Structure of Korean Companies in Major Countries



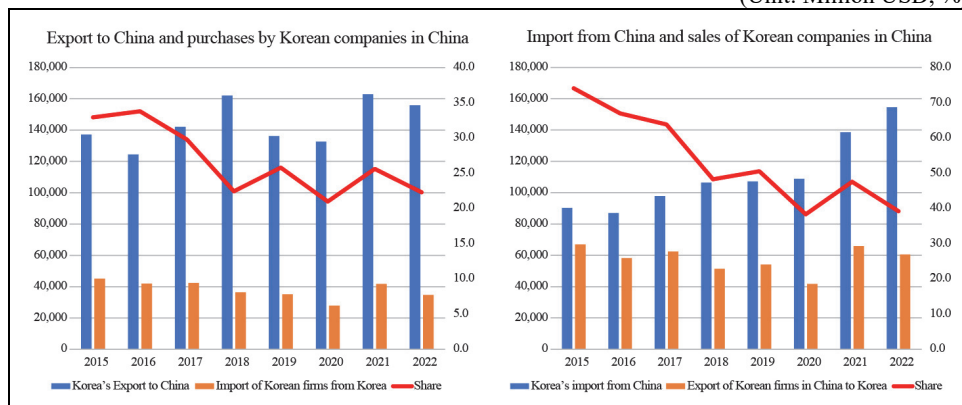
Source: Overseas Business Analysis, Export-Import Bank of Korea, <https://keri.koreaexim.go.kr>

Considering that the proportions of sales to and purchases from Korea by Korean companies operating in China are significant, we investigated the relationship between Korea's exports to China and the purchases from Korea by Korean companies in China.

The share of purchases from Korea by Korean companies in China out of Korea's total export to China decreased from 32.9% in 2015 to 22.3% in 2022. Similarly, the share of sales to Korea by Korean companies in China out of Korea's total import from China fell sharply from 74.1% in 2015 to 39.2% in 2022.

Figure 9. Trade with Korean Companies in China

(Unit: Million USD, %)



Source: Overseas Business Analysis, Export-Import Bank of Korea, <https://keri.koreaexim.go.kr>

In summary, the sales structure of Korean companies operating in China shows a trend of decreasing local sales and increasing exports to Korea, while the purchase structure indicates a slight decrease in the share of procurement from Korea. Although the share of transactions with Korean companies in China has been relatively high, it has recently shown a declining trend, especially in imports, where the share has rapidly decreased. This suggests that Korea-China trade is increasingly shifting from trade between Korean companies to trade between Korean and Chinese companies.

4. Relations between Global Value Chain and Export

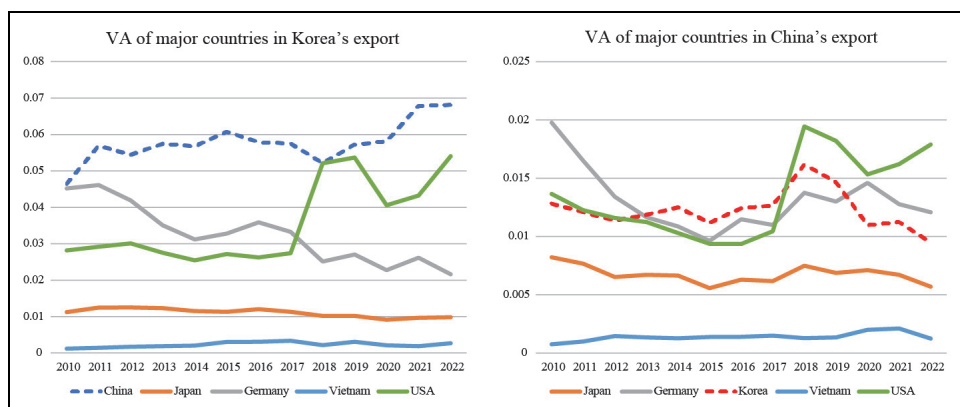
The high proportion of intermediate goods in Korea-China trade signifies the close integration between Korea and China from the perspective of the global value chain. The following figure illustrates the trend of value-added contributions from major countries in the exports of Korea and China.

Examining the share of major countries in Korea's exports, China's share has been increasing since 2019, reaching 6.8% in 2022. The United States follows with a share of 5.4%. Germany's value-added share has gradually declined from 4.5% to 2.2%, while Japan's share has remained around 1%.

In the case of China's exports, the value-added share from the United States has recently surged, reaching 1.8%, with Germany following at approximately 1.2%. The

value-added share from Korea peaked at 1.62% in 2018 but fell to less than 1% in 2022.

Figure 10. Value-Added Shares of Major Countries in Korea's and China's Exports



Source: ADB MIRO.

III. Evaluation of the 10th Anniversary of the FTA between Korea and China

1. Key Provisions of the FTA between Korea and China¹

The KCFTA includes provisions for the phased elimination of tariffs, a prohibition on tariff increases or the introduction of new tariffs (standstill), and other market access-related obligations. The tariff elimination periods and types of concessions for specific items are specified in the annexes of the agreement. The agreement stipulates that, except in cases covered by the FTA and Article 11 of the GATT and its interpretations, neither country can adopt or maintain prohibitions or restrictions on exports or imports between the two countries.

¹ The product sector refers to Chapters 2 through 7 of the Korea-China FTA Agreement. Relevant details were referenced from the Korea-China FTA Detailed Explanation, https://www.fta.go.kr/webmodule/_PSD_FTA/cn/doc/cn_description.pdf. The content in the main text is fully cited from *Evaluation Report on the Implementation of the Korea-China FTA*.

The FTA also introduces regulations to address non-tariff barriers, including the establishment of a non-tariff barrier working group for consultations and provisions for mutual recognition of testing and inspection agencies in the food and cosmetics sectors. The non-tariff barrier working group is to be established under the Goods Trade Committee.

The level of concessions under the KCFTA is such that, within 20 years of the agreement's entry into force, more than 90% of tariffs on all items will be eliminated. Korea's immediate tariff elimination covers 49.9% on the basis of the number of items and 51.8% on the basis of the value, China's immediate elimination covers 20.1% and 44.0%, respectively. Within 10 years, Korea is expected to eliminate tariffs on 79.2% of items and 77.1% of import value, while China will eliminate tariffs on 71.3% of items and 66.2% of value. Within 20 years, the targets are: Korea covers 92.2% of items and 91.2% of import value, while China covers 90.7% of items and 85.0% of import value. Non-linear tariff elimination schedules, partial reductions, or exemptions are applied to sensitive items in both countries.

Both countries agreed to open their service markets to the level of DDA-plus, adopting a negotiation method in which the agreement text and concessions will initially be prepared using a positive-list approach (Phase 1) and then transition to a negative-list approach (Phase 2) within two years of the agreement's entry into force through follow-up negotiations. Given that Korea already maintains a high level of service market openness, the level of openness under the KCFTA is somewhat lower compared to that of the Korea-U.S. FTA or Korea-EU FTA in the services sector. China has pledged a significant level of market openness in sectors such as legal, engineering, construction, distribution, environmental, and entertainment services. Additionally, China has, for the first time, established separate chapters for financial services and telecommunications services.

In the investment chapter, similar to the services chapter, the two countries have agreed to hold follow-up negotiations. In Phase 1, the agreement text was composed with provisions for investment protection. The scope of protection covers post-establishment investments, and the obligations under the agreement will apply to actions taken by both central and local governments.

2. *Effects of the KCFTA*

Key studies analyzing the effects of the KCFTA include Bae and Chung (2019) and *Evaluation Report on the Implementation Status of the Korea China FTA*.² These studies examined the KCFTA's impact by differentiating between all product categories and those eligible for preferential tariffs, employing the PPML estimation method within the gravity model framework. Their findings indicate that the KCFTA had a relatively larger impact on Korea's imports from China than on its exports to China, with the effect being particularly pronounced for preferential items.

Li et al. (2022) investigated the effects of the KCFTA on the real GDP, exports, and imports of both countries using panel analysis. They concluded that while trade between Korea and China was influenced by the FTA, it was also significantly affected by external factors, such as the U.S.-China trade war and geopolitical conflicts (e.g., the THAAD deployment).

This study primarily focuses on the impact of the KCFTA on bilateral trade in goods. As mentioned in Chapter II, the vast majority of trade between Korea and China consists of goods trade, with services trade largely dominated by supporting sectors such as transport, business services, and processing services that facilitate goods trade. While some liberalization in services and investment was achieved in the Phase 1 negotiations, the content of the currently ongoing Phase 2 negotiations is considered more crucial. Furthermore, the currently available bilateral statistics on services trade and investment present significant limitations for conducting rigorous academic analysis.

The trade in intermediate and capital goods represents a significant portion of goods trade and this trade is closely related to investments and global exports. Considering these factors, we assessed the effects of the KCFTA using a regression analysis approach.

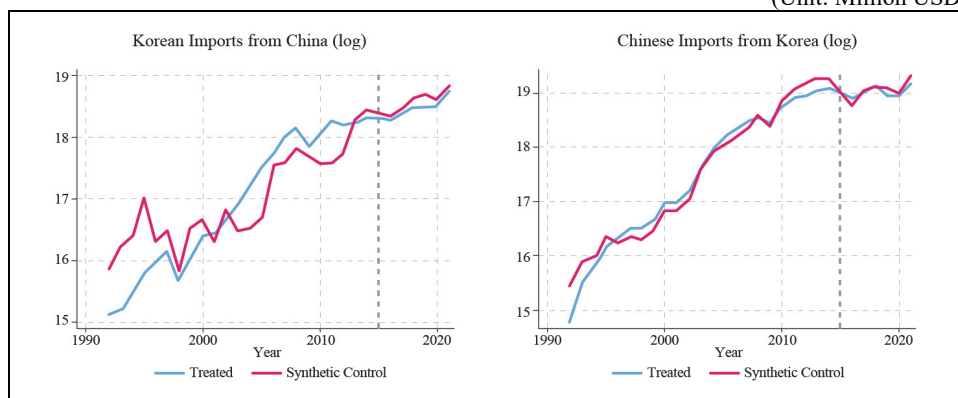
² Prepared by Korea Institute for the International Economic Policy (KIEP), the Korea Rural Economic Institute (KREI), and the Korea Maritime Institute (KMI) in 2022 (unpublished).

(1) Synthetic control model

The most straightforward approach for analyzing the KCFTA's effects involves selecting an appropriate control group and comparing its trade performance with that of the FTA partners (Korea and China) pre- and post-entry into force. To select an appropriate control group, approaches such as matching or synthetic control could also be considered. The synthetic control approach involves creating a hypothetical version of Korea and China (synthetic control) by assigning appropriate weights to their trading partners, and then comparing the actual trade between Korea and China with the trade between the synthetic control countries before and after the implementation of the KCFTA. However, the synthetic control approach is limited by its requirement for long time-series data and the resulting challenge in controlling for critical explanatory variables in the Korea-China trade relationship, such as investment and the Global Value Chain (hereafter GVC). The dependent variable is the logarithm of import value, and the explanatory variables used are the logarithm of import value from 1992, when diplomatic relations between Korea and China began, until 2014, before the KCFTA came into effect. Similar results were obtained when controlling for the logarithm of GDP and other explanatory variables. The analysis, as shown in the figure below, indicates that there was no significant difference between the actual trade and the trade simulated by the synthetic control after the KCFTA came into effect. However, given that China is the largest trading partner for Korea, it is impossible to create a hypothetical

Figure 11. Effects of the FTA Using the Synthetic Control Model

(Unit: Million USD)



Note: The analysis was conducted using STATA's `synth_runner`.

Source: Estimated by the author based on World Bank and WITS sources.

version of China by assigning appropriate weights to Korea's other trading partners. Thus, this makes it inappropriate to use the synthetic control method for analyzing the import effects of the KCFTA.

(2) Difference-in-Differences model

As an alternative approach to analyze the trade effects of the KCFTA, this study uses the widely used Gravity Model in international trade analysis. The Gravity Model employed in this study is based on the theory proposed by Anderson and Van Wincoop (2003). Larch and Yotov (2024) provide a thorough review of the various discussions related to the estimation of trade agreement effects. Furthermore, Nagengast and Yotov (2025) discuss the application of the Staggered Difference-in-Differences (DiD) method within the gravity model framework. Accordingly, this study selected its estimation model and methodology by considering the issues debated in these two papers.

To analyze the effects of the KCFTA, we established an estimation model that modifies the standard gravity model to reflect the Korea-China trade structure discussed in Chapter II.

$$\begin{aligned} \ln M^k_{ijt} = & \beta_0 + \beta_1 \ln GDP_{jt} + \beta_2 KCFTA_{ijt} + \beta_3 KCFTA_{ijt} * PI^k_{ijt} \\ & + \beta_4 otherFTA_{ijt} + \beta_5 \ln(Export\ GVC)_{ijt} \\ & + \beta_6 \ln(Inward\ FDI\ stock)_{ijt} + c_i + c_j + c_t + \varepsilon_{ijt} \end{aligned}$$

In this equation, i represents China or Korea, j represents the trading partner of i , t represents the year. For example, if i is Korea and j is China, then M_{ijt} denotes the import value of Korea from China in year t . k refers to the HS code at the 6-digit level.

In the empirical analysis, estimation was conducted separately for trade flows where the importing country was Korea and where it was China. Therefore, the importer's GDP is absorbed by the c_t (year dummy). The KCFTA is expected to reduce the bilateral trade costs (τ_{ij}) between the two nations. Other time-invariant trade costs are absorbed by the variables controlling for individual heterogeneity—a characteristic of the fixed effects model.

$KCFTA_{ijt}$ is a dummy variable to estimate the effect of the KCFTA, taking a value of 1 for bilateral trade between Korea and China since 2015 or 2016, and 0 otherwise. $KCFTA_{ijt} * PI^k_{ijt}$ is the interaction term between the KCFTA and preferential tariff

items, where PI_{ijt}^k is a variable that takes the value of 1 if item k is subject to preferential tariffs under the KCFTA, and 0 otherwise.

Thus, β_2 measures the effects on all items after 2016, capturing the effect of non-tariff barriers. The effect on only preferential tariff items after 2016 is $\beta_2 + \beta_3$, representing the combined effect of non-tariff barriers and reduced tariffs barriers. $otherFTA_{ijt}$ is a variable that takes the value of 1 if Korea or China has an FTA with another trading partner in year t , and 0 otherwise.

The theory underlying the conventional gravity model is based on the demand function for final goods. Jang and Song (2017) theoretically derived a gravity model for intermediate goods and proposed an estimation model that replaces GDP (value-added) with gross output. In reality, a significant portion of Korea's imports from China consists of intermediate and capital goods, and Korea largely relies on importing Chinese intermediate inputs for its exports. Therefore, as discussed later, Korea's imports from China—comprising primary products, intermediate goods, capital goods, and consumer goods—can be further categorized into items used for domestic consumption and production versus those used as inputs for exports.

To account for these trade characteristics, this study incorporates the Export GVC of the partner country's value-added used in exports and Inward FDI stock as additional explanatory variables. Export GVC is included to control for the impact of import demand utilized for exports, and it is expected to have a positive correlation primarily with the imports of primary products and intermediate goods. Inward FDI stock is also expected to have a positive relationship with intermediate goods imports; we consider the stock rather than the flow, as ongoing production from past investment will require continuous imports of intermediate inputs. However, the relationship between FDI stock and the import of capital goods for investment purposes may be ambiguous. Meanwhile, FDI may be driven by tariff-jumping motives, which could, conversely, inhibit the import of consumption goods.

The analysis uses import data from Korea and China covering 193 trading partners from 2010 to 2023, aggregated by HS code at the 6-digit level. The Poisson Pseudo-Maximum Likelihood (PPML) method proposed by Santos Silva and Tenreyro (2006) was used to address issues of zero trade and heteroscedasticity.

Several factors have influenced the Korea-China trade relationship since the KCFTA took effect in 2015.

The first factor is China's retaliatory measures following the deployment of the Terminal High Altitude Area Defense (THAAD) system in Korea. Korea introduced

Table 3. Descriptive Statistics for Analyzing the Effects of the KCFTA

Variable	Korea's import			China's import		
	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.
Import (1,000 USD)	1,245,072	5,155.59	126,758.50	1,413,902	15,250.69	370,317.00
Korea-China FTA	1,206,244	0.03	0.17	1,370,052	0.02	0.14
Korea-China FTA *Preferential Item	1,211,161	0.02	0.14	1,373,576	0.01	0.11
Other FTAs	1,203,802	0.60	0.49	1,365,238	0.18	0.38
ln(GDP)	1,244,604	6.54	1.76	1,413,114	6.34	1.65
ln(Export GVC)	1,054,143	7.60	1.71	1,178,645	8.14	1.54
ln(Inward FDI stock)	1,244,971	6,002.88	11,637.52	1,413,713	42,980.21	173,002.60

Source: KITA, CEPIL, ADB, and Kox (2025).

THAAD to counter the nuclear and missile threats posed by North Korea. The official decision for Korea's THAAD deployment was made on July 8, 2016. Immediately thereafter, China implemented a series of economic retaliation measures against Korea, including the imposition of restrictions on the Korean Wave (Hallyu) and the strengthening of tariff barriers against Korean products. These Chinese sanctions took diverse forms, such as boycotts of Korean goods, the suspension of cultural and tourism exchanges, and increased inspections of Korean companies and products regarding food safety and fire regulations (Yoo and Choo, 2017).

The economic impact of the THAAD deployment was expected to vary across industries. Negative effects were inevitable for consumer goods and service industries directly exposed to anti-Korean sentiment among Chinese consumers, while the intensity and impact of sanctions were anticipated to be limited for intermediate and capital goods, which are difficult to replace in the short term.

To distinguish the respective effects of the KCFTA and the THAAD deployment on China's imports from Korea, this study considered two approaches. One approach was to generate a dummy variable for the KCFTA based on its effective year, 2015, and then examine how the KCFTA's impact changed by adding a THAAD dummy variable based on 2016. The second approach was to differentiate the impact following the THAAD deployment immediately after the KCFTA's entry into force by dividing the analysis subjects by nature (primary products, intermediate goods, capital goods, and consumer goods).

The second influential factor is the full-fledged U.S.-China trade conflict that commenced with the arrival of the first Trump administration. The conflict began in July 2018 when the U.S. imposed a 25% tariff on \$34 billion worth of Chinese imports. In response, China retaliated with a 25% tariff on \$34 billion worth of U.S. imports, including agricultural products and automobiles. The scope of U.S. tariffs on Chinese imports was expanded and the tariff rate was increased over four phases, before some measures were eased through the U.S.-China Phase One trade agreement in 2020. However, the Section 301 tariffs on Chinese goods have been maintained even after the transition to the Biden administration.³

Due to the first term of the Trump administration's tariffs, China's market share in the U.S. declined significantly, whereas the U.S. share of China's import market remained largely unchanged. Prior studies on the economic impact of the first term of the Trump administration's tariff policy also evaluate that U.S. imports from China decreased following the tariffs, and imports from third countries, such as Mexico and Korea, increased instead.

In this study, to control for the impact of the U.S.-China tariffs, the same analysis was conducted exclusively on product categories not subject to U.S. tariffs. The imposition of U.S. tariffs on Chinese goods may have reduced China's exports to the U.S. and, instead, induced export diversion to third countries, including Korea. This possibility implies that the resulting increase in Korea's imports from China could lead to an overestimation of the KCFTA's effect, irrespective of the agreement's entry into force. Therefore, by limiting the analysis to products not targeted by U.S. tariffs, this study sought to control for the effects stemming from the U.S.-China trade conflict.

Regarding the estimation methods, two major approaches were considered. The first is the Two-Way Fixed Effects (TWFE) method, and the second is the staggered Difference-in-Differences (DiD) method. The former is an approach widely used in many prior studies to analyze the effects of FTAs.

However, as previously noted, Korea simultaneously pursued FTA negotiations with multiple countries and already had FTAs in effect with major trading partners, including ASEAN, the United States, and the EU, before the entry into force of the KCFTA. Consequently, these major FTA partners are included in the control group used for analyzing the KCFTA's effect. Although all FTAs concluded by Korea were

³ Since the analysis period of the study extends only up to 2023, the tariff policies of the second Trump administration are excluded from the discussion

added as explanatory variables, a potential criticism is that their implementation prior to the KCFTA makes them inappropriate for a proper comparison.

To address this, this study adopted the core idea of the staggered Difference-in-Differences approach by including only trading partners that have never concluded an FTA with Korea in the analysis dataset, and then compared these results with those from the conventional TWFE analysis. While one might reconstruct the data by aligning the effective dates of all FTAs to implement staggered DiD if the average effect of all FTAs concluded by Korea were the research interest, this study aimed to analyze the effect of the KCFTA after controlling for the effects of Korea's other FTAs. Therefore, an approach of adjusting the control group was adopted. In this case, due to the heterogeneity between the control group and China, an examination of whether the common trends assumption holds is necessary. To complement this, an event study estimation method was utilized.

Table 4 presents the estimation results of a model in which China's imports are the dependent variable. *KC_2015* and *KC_2016* are dummy variables that take a value of 1 if China's imports from Korea occurred after 2015 or 2016, respectively, and 0 otherwise. Models (1), (3), (5), and (7) consider only *KC_2016*, assuming that the KCFTA came into full effect in 2016.⁴ As the KCFTA entered into force in December 2015, the proportion of trade receiving preferential tariffs in 2015 was necessarily small. This consideration leads to the assumption that the KCFTA began to significantly influence bilateral trade only from 2016. Conversely, considering that the implementation date was known during the preparatory phase and firms were proactively preparing to utilize the KCFTA, it can also be assumed that the effect of the agreement was substantially realized even in 2015. Furthermore, as the effects of the THAAD deployment became fully evident in 2016, it is possible that the impacts of the FTA's entry into force and the THAAD deployment were conflated from 2016 onward. Models (2), (4), (6), and (8) account for both *KC_2015* and *KC_2016* to address this possibility.

Since China has not concluded FTAs with all major trading partners, the differences in coefficients between the Two-Way Fixed Effects (TWFE) and staggered Difference-in-Differences (DiD) models do not appear substantial, although some differences in statistical significance are observed. In Model (1), which only includes *KC_2016*, a statistically significant negative effect is observed. However, when this effect is

⁴ *Evaluation Report on the Implementation Status of the Korea China FTA.*

separated into KC_2015 and KC_2016 in Model (2), KC_2015 shows an insignificant but positive effect, while KC_2016 exhibits a significant negative effect.

This indicates that the KCFTA, which entered into force in December 2015, had a statistically insignificant but positive effect on China's imports from Korea, whereas the THAAD deployment led to a decrease in China's imports from Korea from 2016 onward. This phenomenon is consistently observed across all models. For products subject to the KCFTA preferential tariff (KCFTA_PI), China's imports from Korea were found to increase significantly after the FTA's entry into force. Furthermore, imports for China's global exports and investment from Korea also appeared to increase China's imports from Korea.

The analysis conducted exclusively on product categories not subject to U.S. tariffs on China (exception products only), which was done to isolate the impact of the U.S.-China trade conflict, showed that only KC_2015 and $\ln(\text{FDI_stock})$ statistically significantly increased China's imports from Korea. However, the interpretation of this result is reserved, considering the significant reduction in observations (due to the U.S. having imposed tariffs on a majority of product items) and the fact that the U.S. market share in China remained largely unchanged even after China's retaliatory tariffs.

Table 4. Effects of the KCFTA on China's Imports from Korea

Model	All				Exception product only			
	TWFE		Staggered DID		TWFE		Staggered DID	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
KC_2015		0.021 (0.681)		0.087 (0.106)		0.501*** (0.004)		0.356** (0.031)
KC_2016	-0.073** (0.024)	-0.089** (0.036)	0.002 (0.955)	-0.063 (0.159)	0.257* (0.060)	-0.128 (0.201)	0.146 (0.288)	-0.131 (0.138)
KCFTA_PI	0.115*** (0.002)	0.109*** (0.009)	0.153*** (0.000)	0.127*** (0.002)	-0.110 (0.416)	-0.267 (0.117)	0.054 (0.682)	-0.055 (0.745)
$\ln(\text{Exp GVC})$	0.327*** (0.000)	0.326*** (0.000)	0.425*** (0.000)	0.421*** (0.000)	-0.157 (0.219)	-0.161 (0.206)	0.042 (0.657)	0.039 (0.676)
$\ln(\text{FDI stock})$	0.038** (0.013)	0.039** (0.013)	0.055*** (0.006)	0.058*** (0.005)	0.161*** (0.003)	0.162*** (0.002)	0.101** (0.015)	0.105** (0.011)
Observations	1,104,746	1,104,746	886,083	886,083	32,389	32,389	26,485	26,485

Source: Authors' own estimation

Table 5 presents the estimation results of a model in which Korea's imports are the dependent variable, with the model specifications being identical to those described previously.

A comparison of the results based on the combination of KC_2015 and KC_2016 reveals that the coefficient of KC_2016 was consistently statistically significant and positive across the models. Although the THAAD deployment negatively affected Korean public sentiment towards China, given the absence of corresponding retaliatory measures by the Korean government against China's official or unofficial sanctions, KC_2016 can be interpreted as reflecting the effect of the KCFTA.

Models (11) and (12) present the results using the staggered Difference-in-Differences (DiD) approach, which only includes countries that have not concluded an FTA with Korea in the control group. In these models, the coefficients for KC_2015 and KC_2016 are not statistically significant, whereas the coefficient for KCFTA_PI (products subject to the KCFTA preferential tariff) is estimated to be statistically significant and positive.

The analysis period for this study spans from 2010 to 2022, which is when new bilateral investment statistics became available. This period follows the entry into force of FTAs with countries that have high tariff levels, such as India and ASEAN. Furthermore, considering that the FTAs with the EU and the US entered into force in July 2011 and March 2012, respectively, it can be assumed that FTAs with major countries were already effective during the analysis period. The control group, which comprises countries yet to conclude an FTA with Korea, includes major energy exporters. It is important to consider that the prices of major energy sources (such as petroleum, coal, and natural gas) entered a rising phase starting in 2015 and continued through the COVID-19 period. Therefore, while the KCFTA's impact is not observed across total imports, a clear effect is evident for products eligible for the KCFTA preferential tariffs.

Meanwhile, a review of the results from Models (13) through (16)—which exclusively analyze product categories exempted from U.S. tariffs on China in order to control for the impact of the U.S.-China trade conflict—show that both KC_2016 and KCFTA_PI exhibit a statistically significant positive result. Therefore, it is concluded that export diversion from China due to the U.S.-China trade conflict did not lead to an overestimation of the KCFTA's effect. However, Models (15) and (16) suffer from a sharp reduction in observations, resulting in a lack of statistical significance.

Hereafter, we examined the impact of the KCFTA on trade by commodity nature. Given the difficulty in clearly distinguishing the effects of the KCFTA from those of the THAAD deployment, the Two-Way Fixed Effects (TWFE) method was applied,

Table 5. Effects of the KCFTA on Korea's Imports from China

Model	All				Exception product only			
	TWFE		Staggered DID		TWFE		Staggered DID	
VARIABLES	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
KC_2015		-0.018 (0.726)		0.026 (0.748)		-0.099 (0.350)		-0.258** (0.048)
KC_2016	0.093*** (0.008)	0.104*** (0.001)	0.010 (0.856)	-0.001 (0.979)	0.365*** (0.000)	0.407*** (0.000)	0.244*** (0.000)	0.303*** (0.000)
KCFTA_PI	0.021 (0.570)	0.027 (0.541)	0.160*** (0.001)	0.152*** (0.005)	0.183** (0.019)	0.235** (0.024)	0.006 (0.945)	0.152 (0.204)
ln(Exp GVC)	0.336*** (0.000)	0.336*** (0.000)	0.501*** (0.000)	0.504*** (0.000)	-0.065 (0.260)	-0.068 (0.243)	0.496*** (0.000)	0.465*** (0.000)
ln(FDI stock)	0.028* (0.065)	0.028* (0.062)	0.022 (0.700)	0.020 (0.746)	-0.074** (0.012)	-0.073** (0.016)	0.066* (0.081)	0.088** (0.026)
Observations	984,606	984,606	203,738	203,738	34,173	34,173	6,860	6,860

Source: Authors' own estimation

including the KC_2016 dummy and its interaction term with preferential tariff items (KCFTA_PI).

Models (17) – (20) present the estimation results for a model where China's imports from Korea, categorized by commodity nature, are the dependent variable. In these models, KC_2016 encompasses factors influencing Korea-China trade after 2016, including the THAAD deployment. The coefficient was estimated to be significantly negative for both capital goods and consumer goods. The decline in consumer goods imports was likely influenced by anti-Korean sentiment and boycotts within China, while the reduction in capital goods may be associated with a decrease in Korean investment in China.

KCFTA_PI is a variable designed to identify the effect of preferential tariffs under the KCFTA. The analysis results showed that China's imports from Korea increased for all categories—primary products, capital goods, and consumer goods—except for intermediate goods. Given that China also operates a tariff drawback system for intermediate goods, the influence of preferential tariffs on this category may have been limited. ln(Export GVC) represents the Korean value-added embodied in China's global exports, which exerted a positive influence on both primary products and

intermediate goods. Lastly, Korean investment in China was found to promote exports of intermediate and capital goods to China.

Models (21) – (24) present the estimation results for a model in which Korea's imports from China, categorized by commodity nature, are the dependent variable. In the Korean import model, KC_2016 represents the effect of the KCFTA (KCFTA) after 2016, and KCFTA_PI can be interpreted as the additional impact on products eligible for preferential tariffs.

Korea's imports from China increased in both preferential and non-preferential items for primary products, intermediate goods, and capital goods, with no additional effect observed for preferential items. In contrast, for consumer goods, imports from China decreased after 2016 (presumably reflecting a lack of government response to China's THAAD retaliation). However, imports of preferential items statistically significantly increased. Therefore, for consumer goods, the analysis indicates that imports increased by approximately 6% (0.159 - 0.096) only for preferential items after the KCFTA's entry into force.

The Chinese value-added embodied in Korea's exports has been on a continuous upward trend. However, since the model includes the total Chinese value-added as an explanatory variable, it is not possible to clearly distinguish which types of imports are increasing. According to the analysis results, an increase in the Chinese value-added embodied in Korea's global exports was found to increase imports of primary products, intermediate goods, and consumer goods from China.

Table 6. Effects of the KCFTA by End Use

Model	China's Import from Korea				Korea's Import from China			
	Primary (17)	Intermediate (18)	Capital (19)	Consumption (20)	Primary (21)	Intermediate (22)	Capital (23)	Consumption (24)
VARIABLES								
KC_2016	0.162 (0.543)	-0.087 (0.119)	-0.187*** (0.001)	-0.477*** (0.000)	0.198* (0.086)	0.094** (0.043)	0.102** (0.036)	-0.096*** (0.000)
KCFTA_PI	0.571*** (0.004)	0.041 (0.404)	0.286*** (0.000)	0.444*** (0.008)	0.111 (0.701)	-0.009 (0.889)	0.086 (0.231)	0.159*** (0.000)
ln(Exp GVC)	0.871*** (0.000)	0.161*** (0.000)	-0.007 (0.898)	0.115 (0.174)	1.068*** (0.000)	0.248*** (0.000)	-0.084** (0.044)	0.097*** (0.009)
ln(FDI stock)	0.027 (0.494)	0.079*** (0.000)	0.053*** (0.003)	-0.006 (0.861)	-0.025 (0.555)	0.010 (0.568)	0.037** (0.027)	0.027** (0.038)
Observations	35,907	621,259	159,590	285,572	33,912	511,518	139,191	296,229

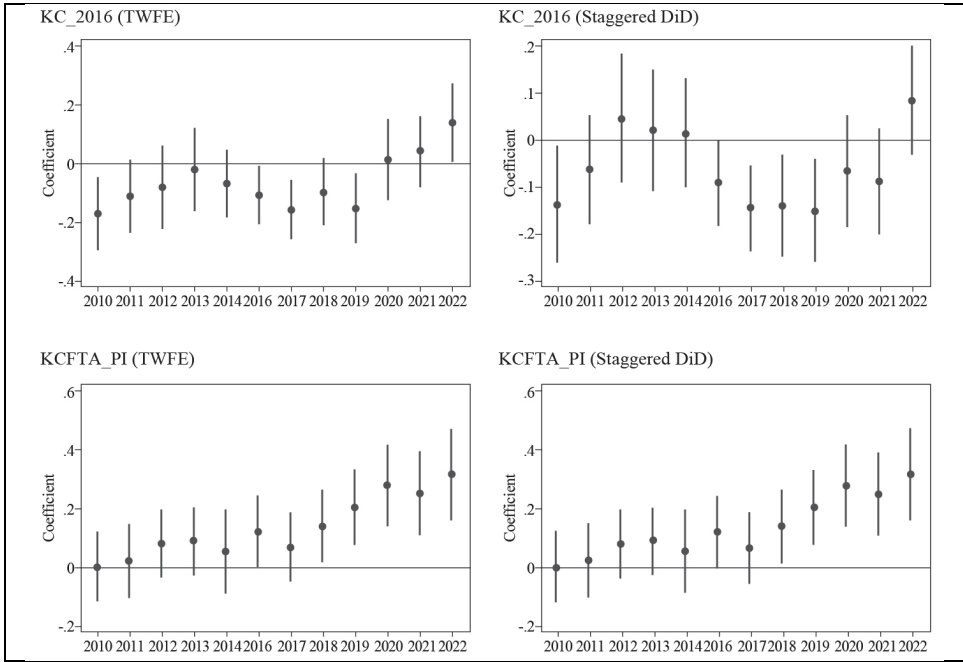
Source: Authors' own estimation

While the scale of China’s investment in Korea is not large, an increase in investment from China was found to boost Korea’s imports from China in the capital goods and consumer goods categories.

(3) Event study model

Hereafter, we examine the robustness of the preceding estimation results using the Event Study methodology. This study focused on two variables, KC_2016 and KCFTA_PI, for the Event Study analysis, setting the reference year as 2015. The Event Study technique is valuable not only for verifying the stability of the difference between the control and treated groups prior to the FTA policy adoption—i.e., confirming the common trends assumption between the two groups—but also for observing how the FTA policy’s effect changes over time. Regarding the impact of the KCFTA on China’s imports from Korea, for KC_2016, the difference between the control and treated groups was not statistically significant from 2011 to 2015, but it

Figure 12. Effects of the FTA on China’s Import from Korea

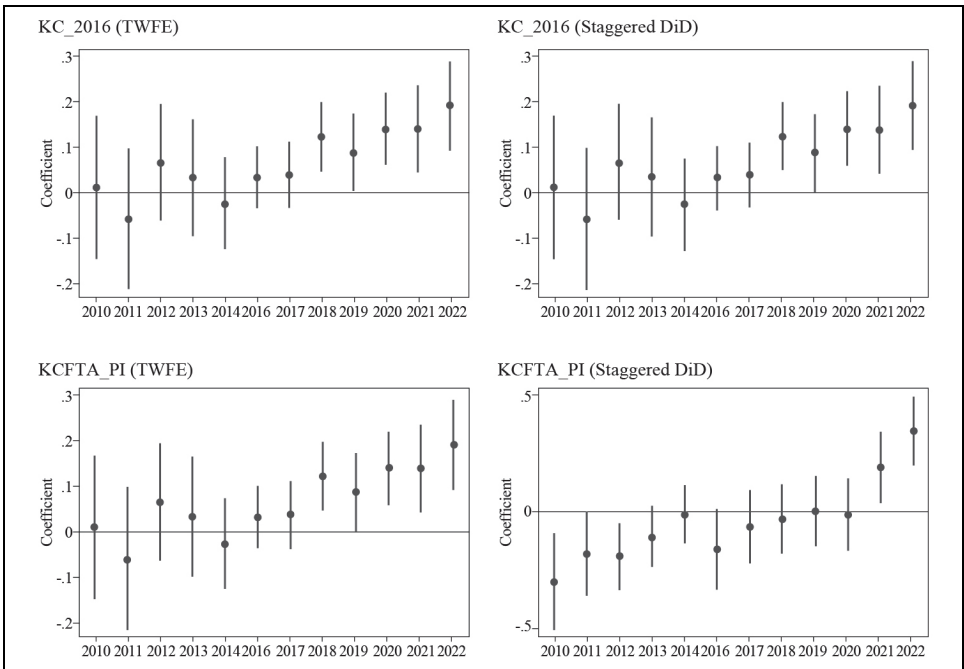


Source: Authors’ own estimation

showed a statistically significant decrease in China's imports from Korea starting in 2016. As discussed earlier, this decline appears to be influenced by the THAAD deployment. Examining changes in KCFTA preferential tariff items (KCFTA_PI), there was no difference between the two groups before the FTA's entry into force, but China's imports from Korea showed a clear increase starting in 2018.

The results of the Event Study methodology examining the impact of the KCFTA on Korea's imports from China are illustrated in the figure below. First, by examining the change based on 2016, the year the KCFTA fully took effect, there was no significant difference between China and Korea's other importing countries beforehand. However, Korea's imports from China showed a statistically significant increase after 2018. Furthermore, an Event Study analysis examining the change in the KCFTA preferential tariff items (KCFTA_PI) reveals the following: In the Two-Way Fixed Effects (TWFE) model, there was no significant difference between the two groups before the FTA's entry into force, but imports from China increased after 2018. In the Staggered Difference-in-Differences (DiD) model, there was no difference between

Figure 13. Effects of the FTA on Korea's Import from China



Source: Authors' own estimation

the two groups during the 2013-2015 period, but imports from China showed a statistically significant increase after 2021. However, in this latter model (Staggered DiD), it is deemed difficult to definitively conclude that the common trends assumption holds.

IV. Conclusions and Policy Implications

Amidst the pervasive expansion of global uncertainty, trade and the associated division of labor between Korea and China are undergoing significant structural transformations. Bilateral commerce between the two nations primarily consists of merchandise trade, characterized predominantly by intermediate and capital goods. This trading pattern is intrinsically linked to Korea's Foreign Direct Investment (FDI) into China and their respective roles within Global Value Chains (GVCs).

Recent observations reveal a distinct divergence in market dynamics: Korea's share in the Chinese import market is contracting, while conversely, China's share in the Korean market is expanding. The contraction of the Korean share in the Chinese market is particularly salient in the categories of intermediate and capital goods. This trend is primarily attributable to two factors: the recent decline in Korea's FDI toward China and the enhanced competitive strength of Chinese domestic enterprises. Conversely, the rising Chinese market share in Korea is being spearheaded by intermediate goods. This development is, in turn, associated with the increasing value-added content originating from China that is being embodied in Korea's exports to the rest of the world. Furthermore, the bilateral trade relationship is characterized by a deepening dependence on the top ten traded items, with the concentration on electronic integrated circuits having nearly doubled.

Since the KCFTA commenced its operation in December 2015, bilateral trade dynamics have been subject to a multitude of influencing factors. These include not only the structural shifts occurring within the trade relationship itself but also significant external events such as the bilateral conflict and subsequent economic retaliations following the 2016 THAAD deployment, as well as the broader US-China trade war.

To accurately gauge the Agreement's true effect, this study controlled for these various confounding factors to isolate the specific impact of the KCFTA on bilateral trade. We employed a multifaceted methodological approach, incorporating techniques such as Two-Way Fixed Effects (TWFE), the Staggered Difference-in-Differences (Staggered DiD) framework, and event study analysis. Furthermore, the scope of the

investigation was delineated by analyzing both aggregate trade flows and trade disaggregated by commodity nature. The FTA's positive effect on China's imports from Korea was principally observed among preferentially treated items, with measurable impacts detected across primary products, capital goods, and consumer goods. For Korea's imports from China, the trade volume increased across both preferential and non-preferential categories, with the strongest effects concentrated in intermediate goods and preferentially treated consumer goods.

Ultimately, the findings confirm that even when juxtaposed against underlying structural changes in both economies and the prevailing uncertainty in the global trade landscape, the KCFTA successfully acted as a stimulant for bilateral commerce.

In this context, the expansion of the range of preferentially treated goods, in a manner aligned with each country's development strategy, together with continued efforts to reduce non-tariff barriers, could contribute to further facilitating bilateral trade. Concurrently, the potential exists for the enhancement of cooperation within established industrial chains through the expansion of trade channels for high-quality agricultural and functional food products. This can be achieved by means of initiatives pertaining to smart agriculture and food processing. Concurrently, specific manufacturing sectors such as textiles, electronics, and automotive components may experience benefits from incremental adjustments towards digitalization and green upgrading, encompassing collaborative efforts in domains such as joint R&D, co-branding, and smart manufacturing.

Furthermore, the findings indicate that further deliberations on a second-phase upgrade of the KCFTA are warranted, particularly with respect to expanding the scope of liberalization in services and investment and addressing emerging trade-related issues. Relatedly, exploring a dedicated chapter on supply chain resilience could facilitate regular information-sharing and crisis-response coordination mechanisms, thereby supporting stability and predictability in bilateral industrial chains. In conclusion, as the Korea-China economic relationship increasingly exhibits both competitive and complementary characteristics, selective cooperation in high-technology fields and digital trade-related activities, as well as in environmental and low-carbon areas, could provide additional opportunities for mutually beneficial engagement over the longer term.

To maximize mutually reciprocal benefits, expanding the range of goods granted preferential status in alignment with respective economic development strategies is essential. Concurrently, prioritizing the reduction of non-tariff barriers (NTBs) and

other trade impediments is necessary to catalyze bilateral trade. Efforts should be directed toward upgrading cooperation within traditional competitive industrial chains. This includes expanding trade channels for high-quality agricultural and functional food products while supporting projects in smart agriculture and food processing.

Furthermore, policymakers are encouraged to guide traditional sectors, such as textiles and home consumer goods, toward digital and green transformations. In mature industries like electronics and automotive components, the focus should shift from traditional collaboration toward new modalities, including joint R&D, co-branding, and smart manufacturing.

To evolve the bilateral relationship beyond its historical focus on merchandise trade, advancing the second-phase upgrade of the KCFTA is a critical priority. This involves enhancing openness in goods trade while achieving breakthroughs in services, investment access, digital trade, and government procurement.

Given the current economic climate, designating critical components, raw materials, and cross-border logistics security as priority negotiation topics is advisable. Exploring a dedicated chapter on supply chain resilience within the FTA framework could facilitate the creation of regular information-sharing and crisis-response mechanisms, thereby enhancing the stability and predictability of bilateral industrial chains.

As bilateral trade transitions into a complex relationship of competition and complementarity, deepening collaborative innovation in high-tech industries—such as semiconductors, biopharmaceuticals, and intelligent manufacturing—becomes imperative. Establishing joint R&D centers and technology scaling platforms will be instrumental in accelerating the commercialization of research outcomes.

Additionally, addressing emerging trade issues through a new ecosystem for digital cooperation is required. This encompasses the joint development of cross-border e-commerce infrastructure and the promotion of collaboration in digital content, such as esports and immersive cultural tourism products.

Finally, deepening cooperation in green and low-carbon sectors is essential for future-oriented growth. Jointly establishing green supply chain systems and promoting the mutual recognition of carbon footprint accounting and green finance will help enterprises from both nations enhance their competitiveness. Developing interoperable standards for carbon labeling and green procurement will further ensure that Chinese and Korean firms maintain market recognition within global green supply chains.

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APPENDIX

Table A1. Status of FTAs Signed by Korea

FTA	Date of Entry into Force
Korea-Chile	01-Apr-2004
Korea-Singapore	02-Mar-2006
Korea-EFTA	01-Sep-2006
Korea-ASEAN	01-Jan-2010 (Goods) / 14-Oct-2010 (Services) · 01-Jul-2007: Singapore, Indonesia, Myanmar, Malaysia, Vietnam · 01-Jan-2008: Philippines · 01-Jul-2008: Brunei · 01-Oct-2008: Laos · 01-Nov-2008: Cambodia · 01-Jan-2010: Thailand
Korea-India	01-Jan-2010
Korea-EU	01-Jul-2011
Korea-Peru	01-Aug-2011
Korea-US	15-Mar-2012
Korea-Turkey	01-May-2013 (Goods)
Korea-Australia	12-Dec-2014
Korea-Canada	01-Jan-2015
Korea-New Zealand	20-Dec-2015
Korea-Vietnam	20-Dec-2015
Korea-China	20-Dec-2015
Korea-Colombia	15-Jul-2016
Korea-UK	01-Jan-2021
RCEP	01-Feb-2022
Korea-Cambodia	01-Dec-2022
Korea-Indonesia	01-Jan-2023

Source: <http://www.fta.go.kr> and *Evaluation Report on the Implementation Status of the Korea China FTA*.

Table A2. Status of FTAs Signed by China

FTA	Date of Entry into Force
China-Hong Kong	29-Jun-2003
China-Macau	17-Oct-2003
China-ASEAN	01-Jan-2005 (Goods) / 01-Jul-2007 (Services)
China-Chile	01-Oct-2006 (Goods) / 01-Aug-2010 (Services)
China-Pakistan	01-Jul-2007 (Goods) / 10-Oct-2009 (Services)
China-New Zealand	01-Oct-2008
China-Singapore	01-Jan-2009
China-Peru	01-Mar-2010
China-Costa Rica	01-Aug-2011
China-Iceland	01-Jul-2014
China-Switzerland	01-Jul-2014
China-Korea	20-Dec-2015
China-Australia	20-Dec-2015
China-Georgia	01-Jan-2018
China-Mauritius	01-Jan-2021
RCEP	01-Jan-2022
China-Cambodia	01-Jan-2022

Notes: China has also signed FTAs with Ecuador and Nicaragua, but their entry into force is in 2024, which is beyond the scope of this analysis, which covers up to 2023.

Source: <http://www.fta.go.kr> and *Evaluation Report on the Implementation Status of the Korea China FTA*.