

INTERNATIONAL MONETARY FUND

Korea in a Changing Global Trade Landscape

Korea

Hua Chai and Hyeryoun Kim

SIP/2025/014

IMF Selected Issues Papers are prepared by IMF staff as background documentation for periodic consultations with member countries. It is based on the information available at the time it was completed on January 21, 2025. This paper is also published separately as IMF Country Report No 25/042.

2025
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SELECTED ISSUES PAPER

IMF Selected Issues Paper
Asia and Pacific Department

Korea in a Changing Global Trade Landscape
Prepared by Hua Chai and Hyeryoun Kim*

Authorized for distribution by Rahul Anand
March 2025

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ABSTRACT: The global trade landscape is being reshaped by geoeconomic fragmentation and the rise of industrial policies. This paper studies the impact of these trends on the export-oriented Korean economy. It documents both positive and negative effects of U.S.-China trade tensions, technology and supply chain restrictions, and industrial policies of major economies on Korea's trade and FDI, particularly that of its strategic sectors. To navigate the changing global trade landscape, Korea needs to focus on promoting innovation to maintain competitiveness, diversifying export destinations and supply chains, and expanding exports of services.

RECOMMENDED CITATION: H. Chai and H. Kim, 2025, "Korea in a Changing Global Trade Landscape", Selected Issues Paper SIP/25/14, International Monetary Fund. Washington DC.

JEL Classification Numbers:	F13, F51, O4
Keywords:	trade policy, industrial policy, geoeconomic fragmentation, innovation
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Prepared by Hua Chai and Hyeryoun Kim¹

¹ The authors would like to thank Thomas Helbling, Rahul Anand, Cindy Xu, Zexi Sun, Diaa Noureldin and Korean authorities for helpful discussion and feedback.



REPUBLIC OF KOREA

SELECTED ISSUES

January 21, 2025

Approved By
Asian and Pacific
Department

Prepared by Hua Chai and Hyeryoun Kim

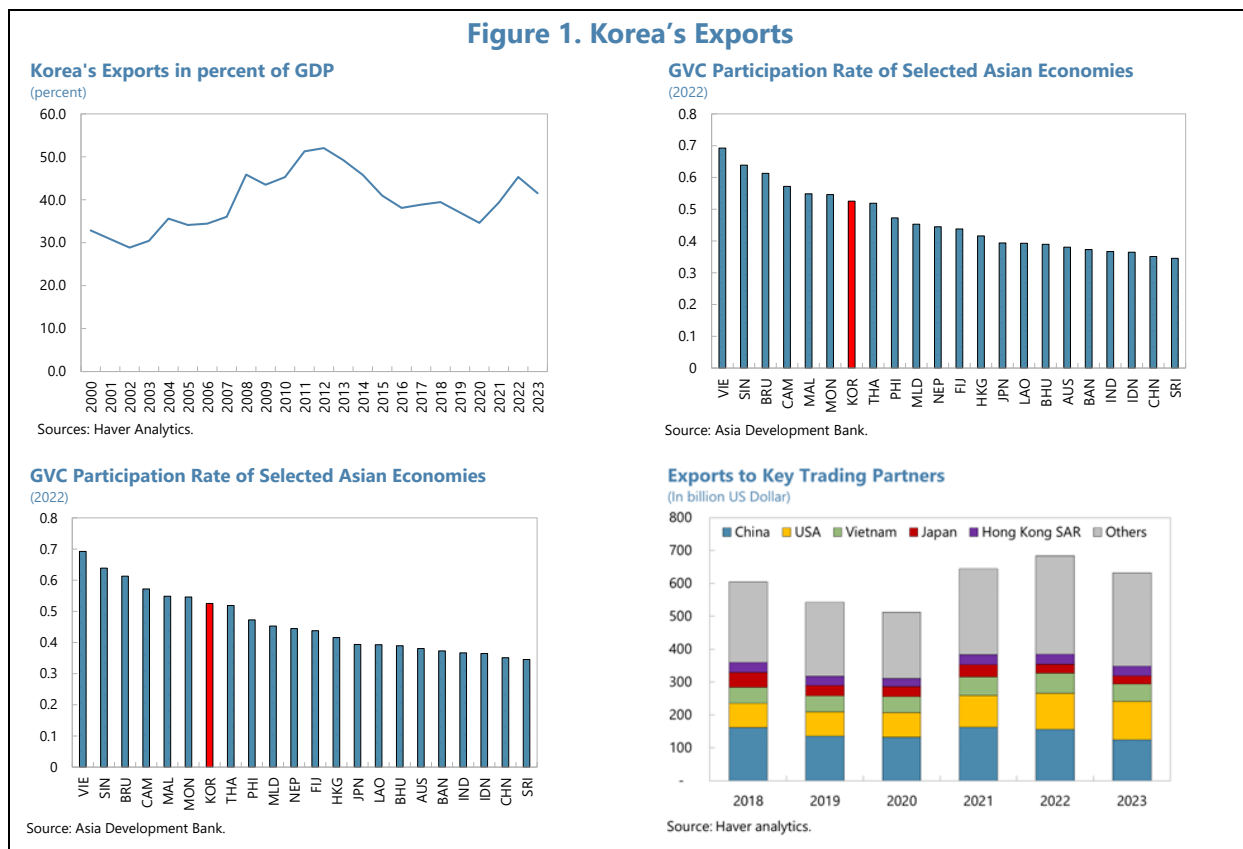
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KOREA IN A CHANGING GLOBAL TRADE LANDSCAPE¹

A. Introduction

1. As an open economy and an export powerhouse, Korea has benefitted greatly from international trade. Korea is the world’s 8th largest exporter in 2023, with exports accounting for around 40 percent of GDP. The Korean economy is highly integrated with the global value chain (GVC), with a relatively high GVC participation rate amongst Asian economies. Semiconductors and automobiles, including auto parts, are the two most important export items, accounting for almost 20 and 12 percent of Korea’s total exports respectively. Other top exports items include petrochemical products, vessels and parts, consumer electronics, and flat products of iron or steel. Korea’s top exporting destinations are the United States (U.S.) and China (Figure 1). There is a high degree of value chain integration between Korea and China, and a considerable share of Korean exports to China consists of semiconductors as inputs to consumer electronic products. China is also the largest country of origin for Korean imports. Korea has actively contributed to global and regional trade cooperations and has 21 Free Trade Agreements (FTAs) in effect with 59 countries as of 2024, covering 85 percent of the global GDP.



¹ Prepared by Hua Chai and Hyeryoun Kim.

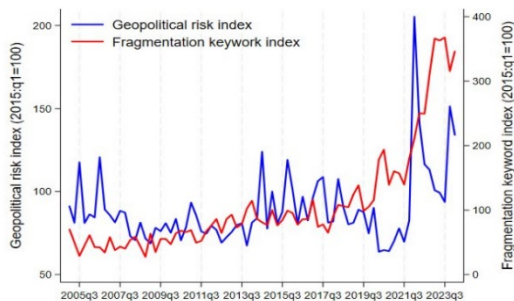
2. The global trade landscape is being reshaped by Geoeconomic Fragmentation (GEF) and the rise of industrial policies (IP). Rising geopolitical tensions and the uneven distribution of past gains from globalization have led to increasing skepticism toward multilateralism and the growing appeal of inward-looking policies. Brexit, the trade tension between the U.S. and China, and Russia’s invasion of Ukraine are challenging international relations and could lead to policy-driven reversal of global economic integration, a process referred to as geoeconomic fragmentation. Driven by both economic and non-economic considerations, industrial policies have resurged in recent years. The rising global challenges related to climate change, demographics, and digital transitions as well as increased geopolitical rivalry have prompted directed structural transformation and revived policymakers’ interest in IP. The use of restrictive trade measures surged in 2017 and 2018 and especially after the onset of the COVID-19 pandemic. The latest IP wave has been motivated by competitiveness, climate mitigation, supply chain resilience, and national security considerations. In 2023, sectors that have seen the most IP activity have been military-civilian dual use products and advanced technology products, including semiconductors and low-carbon technologies, as well as their upstream inputs, such as critical minerals.²

3. The slowdown in globalization poses significant challenges to Korea’s export growth. The slowdown in globalization—often referred to as “slowbalization”—dates to the aftermath of the global financial crisis (GFC) (Antras 2021; Baldwin 2022). World trade has stagnated thereafter relative to world GDP while global FDI has declined sharply from its peak (Figure 2). While a range of factors could have contributed to this protracted phase of slowbalization, the fragmentation of trade and capital flows along geopolitical fault lines and the global resurgence of protectionist IPs have been important underlying drivers in recent years (Figure 3). The rest of the paper reviews how GEF and IP have been changing the international trade landscape in the Korean context and discusses policies to address these challenges. To this end, this paper focuses on key developments most relevant for Korea, including the growing U.S.-China trade tensions and the use of IPs globally in some of Korea’s key export sectors.

² For a more detailed discussion of GEF, see “Geoeconomic Fragmentation and the Future of Multilateralism”, IMF Staff Discussion Note, 2023.

Figure 2. Goeconomic Fragmentation

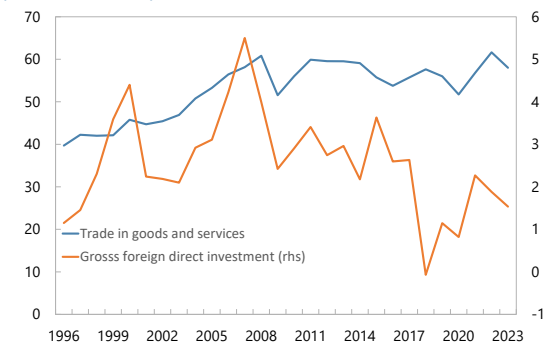
Measures of Geopolitical Risk and Fragmentation



Source: Gopinath et al (2024).

Slowbalization

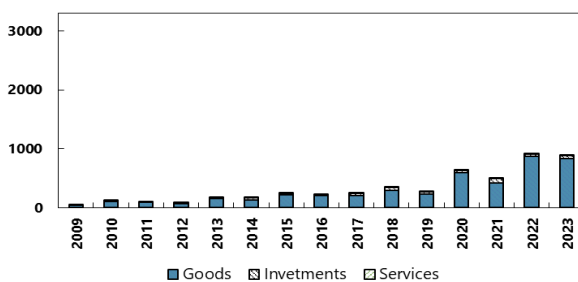
(Percent of GDP)



Source: WEO and IMF staff's calculation.

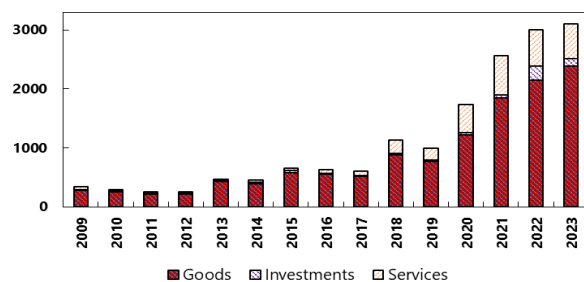
Figure 3. World Trade Policy Measures

Trade Liberalizing



Source: Global Trade Alert.
Note: Data accessed March 6, 2024; includes adjustment for reporting lags.

Trade Restrictive



Source: Global Trade Alert.
Note: Data accessed March 6, 2024; includes adjustment for reporting lags.

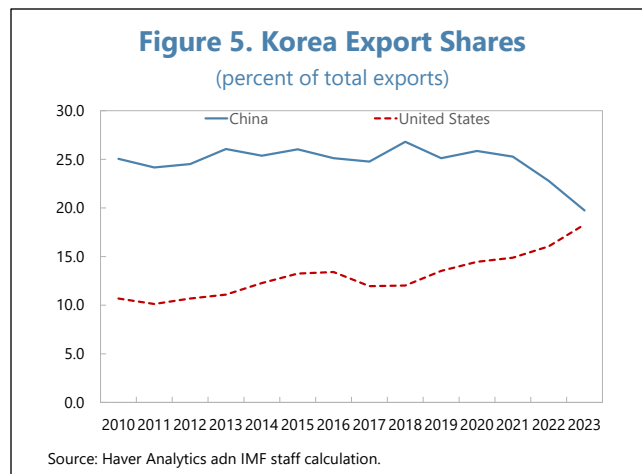
B. Evolving U.S.-China Trade Relations

4. Korean exports to the U.S. market have been increasing, with U.S.-China trade tensions contributing to this upward trend in recent years. Trade tensions between the U.S. and China since 2018 have substantially reduced direct trade between the two countries and triggered a reshaping of supply. Empirical studies show that while the U.S. and China taxed each other, the average “bystander” country increased its global exports in products targeted by U.S.-China tariffs relative to untargeted products (Fajgelbaum et al 2023, Dang et al, 2023). Korea’s exports of goods targeted by U.S.-China tariffs have seen strong growth relative to non-targeted goods (Figure), with Korean firms gaining market share in product categories where Korean and Chinese firms compete head-to-head. However, the overall gain in market share in the U.S. of aggregate Korean exports due to the tariffs has been modest. Lovely, Xu, and Zhang (2021) estimate that Korea’s share of overall U.S. manufacturing imports rose by 0.9 percent and its share of U.S. manufacturing imports subject to new trade tariffs on China rose by 1 percent by end-2019. The medium-to-long-term

impact of trade disruptions are likely to outweigh these short-term gains. Exports to the U.S. as share of total exports of Korea has risen in the 2010s, reflecting factors unrelated to the trade tensions between the U.S. and China. However, though modest, the trade tensions have contributed to this rise since 2019. By 2023, the share of exports to the U.S. has reached a record high of 18 percent, almost at par with China (Figure 4).



5. Korean exports to China have declined. Prior to the onset of the trade tensions, the Chinese market accounted for about 25 percent of Korean exports, more than double that of the U.S. However, that share has been declining in recent years (Figure 5), reflecting intensifying competition for market share in China between Chinese and Korean firms, as well as the effect of higher U.S. tariffs on imports from China. China is an important market for Korean exports in many of the same sectors that dominate its trade flows to the U.S. About 80 percent of Korean exports to China consist of intermediate goods used in production by Chinese firms. A significant portion of their products are eventually shipped to the U.S. as Chinese exports. Therefore, U.S. tariffs resulting in falling Chinese exports to the U.S. also lowered demand for Korea's intermediate goods exports to China.



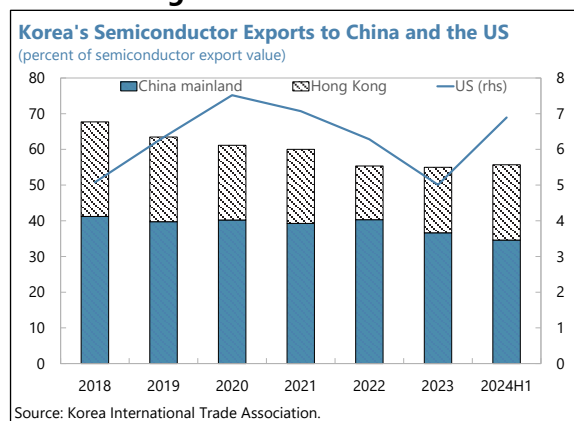
The Bank of Korea (BoK) estimates that that the 2018 U.S. tariff hikes on China reduced Korea's exports to China and export-related production by approximately 3 percent.³ Moreover, higher

³ See Chung et al (2024).

tariffs have compelled Chinese firms to look for alternative markets, possibly increasing competition between Korean and Chinese exporters in non-U.S. markets. However, this competition is mitigated by the fact that export expansion in non-U.S. markets by Chinese producers is likely to result in their increased demand for Korean intermediate inputs.

6. Recent restrictions on technology exports have helped maintain near-term competitive advantage, but also created long-term challenges to Korea's semiconductor sector.

These restrictions are expected to severely affect the operations of Korean chipmakers' production facilities in China, where over 40 percent of their chips are manufactured. As Korean firms would not be able to upgrade their facilities to produce more advanced chips, these facilities are therefore gradually becoming obsolete and losing competitiveness.⁴ The restriction of sales of the most advanced memory chips to



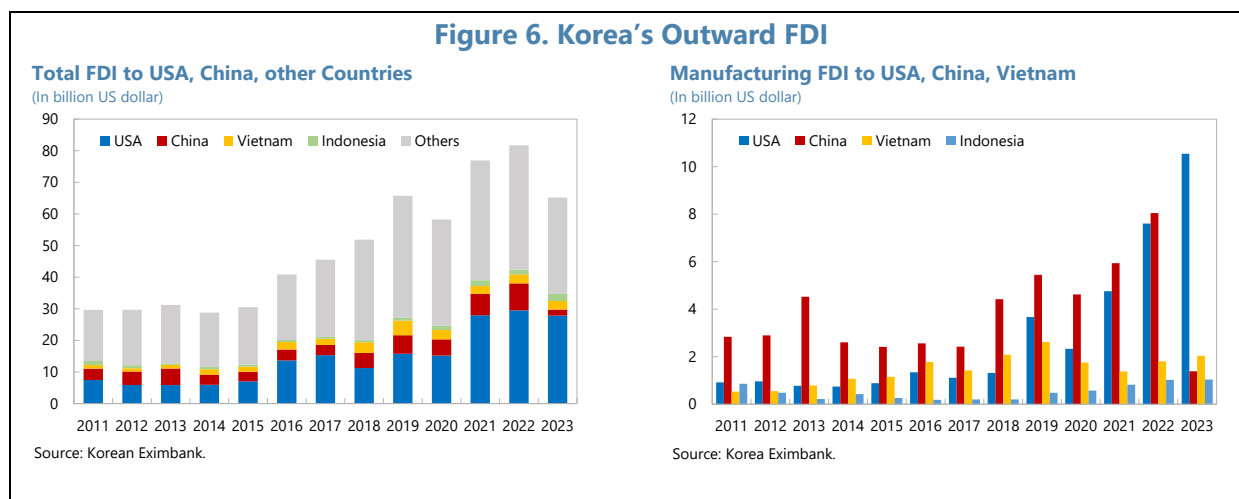
China - although constituting a small share of total sales - has contributed to the decline in Korea's semiconductor exports to China. But technology restrictions have also shielded Korean firms from growing competition with Chinese chipmakers. Export restrictions imposed by China in 2023 of some critical minerals used in the production of semiconductors in response to the U.S.' export controls have further disrupted the semiconductor supply chain.

7. Increasing restrictions on the sourcing of minerals have presented challenges to the Korean Electric Vehicle (EV) industry but may increase supply chain resilience in the long run.

Korean carmakers and battery producers, relying on Chinese suppliers for over 80 percent of key materials, had to search for alternative sources of minerals, resulting in higher costs. As another potential effect, these sourcing restrictions are expected to accelerate investment in mineral processing facilities within the U.S. and countries with a Free Trade Agreement (FTA) with the U.S., potentially facilitating Korean companies' diversification of supply chains in the long run.

8. Trade tensions are also visible in the shift of Korea's outward FDI patterns. Total FDI to the U.S. has far surpassed levels prior to the beginning of trade tensions, particularly in the manufacturing sector. FDI flows to China has seen much slower growth in the past five years and experienced a sharp contraction in 2023. Korea's FDI in ASEAN countries has grown steadily in recent years, potentially reflecting relocation of production facilities from China to Southeast Asia (Figure 6).

⁴ See Chorzempa (2023).



C. Industrial Policies and Korea's Strategic Sectors

9. Recent industrial policy initiatives by major economies have significantly focused on strategic sectors, including semiconductors and EVs – Korea's key exporting sectors. Some of the key initiatives are listed below:

	Initiatives	Key measures
U.S.	CHIPS and Science Act (2022)	To direct some \$278 billion toward scientific R&D and semiconductor production over 10 years. Specifically for semiconductor production in the United States, To provide \$52.7 billion for American semiconductor research, development, manufacturing, and workforce development. To provide a 25 percent investment tax credit for capital expenses for manufacturing of semiconductors and related equipment. To come with strong guardrails, ensuring that recipients do not build certain facilities in China and other countries of concern, and preventing companies from using taxpayer funds for stock buybacks and shareholder dividends.
	Inflation Reduction Act (2022)	From \$739 billion tax revenue raised by tax reform, to invest \$369 billion in Energy Security and Climate Change programs, \$64 billion in Affordable Care Act subsidy extension, \$300+ billion in Deficit Reduction over 10 years. Specifically for qualified clean energy vehicle purchases, To provide the maximum \$7,500 of tax credit for clean energy vehicle with final assembly in North America To receive the \$3,750 critical minerals portion of the credit, the vehicle's battery must contain a threshold percentage (in value) of critical minerals that were extracted or processed in a country with which the U.S. has a free trade agreement or recycled in North America. The

Table 1. Korea: Major Industrial Policies Related to Semiconductors and EVs by Trading Partners (concluded)

	Initiatives	Key Measures
		threshold percentage is 40% up to 2023, 50% in 2024, 60% in 2025, 70% in 2026, and 80% after 2026. To receive the \$3,750 battery components portion of the credit, the percentage of the battery's components manufactured or assembled in North America would have to meet threshold amounts. The threshold percentage is 50% in 2023, 60% in 2024 and 2025, 70% in 2026, 80% in 2027, 90% in 2028, and 100% after 2029.
EU	European Chips Act (2023)	To invest more than €43 billion in existing programs and actions in research & innovation in semiconductors to increase Europe's global market share of cutting-edge semiconductors from 10 percent to 20 percent.
Japan	The Strategy for Semiconductors and the Digital Industry (2021)	To invest \$25.7 billion between 2022 to 2025 in the semiconductor industry To establish a government funded chip venture manufacturing next-generation semiconductors, Rapidus, with the support of eight major Japanese private companies
China	Made in China 2025 (2015)	To increase the Chinese-domestic content of core materials to 40 percent by 2020 and 70 percent by 2025
China	National integrated Circuit Industry Fund	To raise fund to invest in domestic semiconductor industry; \$21.8 billion in Phase 1 (2014-2019); \$29.1 billion in Phase 2 (2019-2024); \$47.5 billion in Phase 3 (2024-2039).

10. These IPs have led to a surge in investment and investment-related exports from Korea to the U.S. and may allow Korean firms to access cutting edge technologies. Taking advantage of subsidies and tax credits and driven by the growing need to move closer to ultimate customers, Korean semiconductor and EV manufacturers have responded to U.S.' IPs with announcements of major investment plans (Table 2). Construction and expansion of manufacturing facilities in the U.S. by Korean firms have boosted demand for Korean capital goods, such as construction machinery, contributing to robust export growth even during recent global manufacturing slowdown. Deepening cooperation in supply chain, workforce development, and R&D in key industries between Korea and the U.S., would help Korea firms maintain their competitiveness in advanced technologies.⁵ On the other hand, CHIPS Act beneficiaries, including Korean companies, are limited through so-called "guardrails" from expanding their production capacity in China. This limitation is a major concern for Korean businesses that have large operations in China and could offset some benefits from CHIPS Act funding to build facilities in the U.S.

⁵ Joint Readout: The US and Korea Supply Chain and Commercial Dialogue Ministerial [Meeting](#) (June, 2024).

Table 2. Korea: Corporates' Foreign Direct Investment Announcement Since 2022

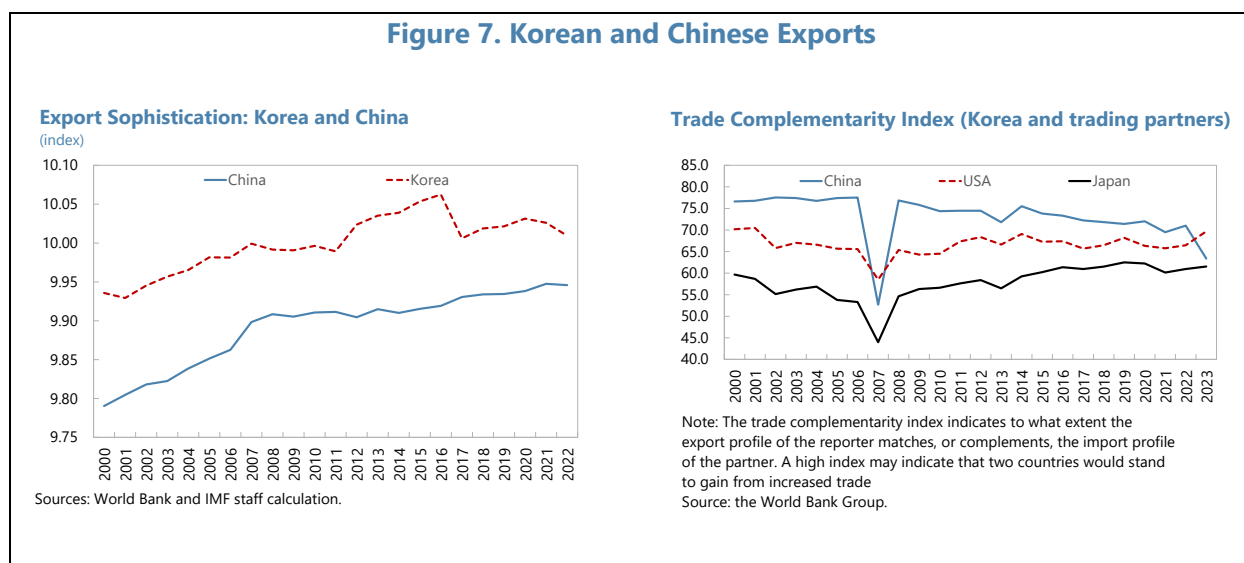
Industry	Major investment plan
Semiconductor	<ul style="list-style-type: none"> • Samsung Electronics is expected to invest more than \$40 billion in Texas, U.S. and to receive up to \$6.4 billion in direct funding under the CHIPS and Science Act. (As of April 2024) • SK Hynix is expected to invest an estimated \$3.87 billion in Indiana, U.S. and to receive up to \$450 million in direct funding under the CHIPS and Science Act. (As of August 2024)
Electronic Vehicle and Battery	<ul style="list-style-type: none"> • Hyundai Motor Group is expected to invest more than \$10 billion in the U.S. by 2025 including a \$5.54 billion new EV & battery manufacturing facilities. (As of May 2022) • LG Energy Solution is expected to invest \$5.5 billion in Arizona, U.S. to Step Up EV and ESS Battery Production in North America (As of March 2023) • SK on and Samsung SDI are implementing joint ventures with several automobile manufacturers in the U.S.

Source: [Hyundai Motor Group](#), [Samsung](#), [SK Hynix](#), [LG Energy Solution](#)

11. Global IPs on chips also pose long-term risks to Korea's semiconductor exports. As Korean semiconductor manufacturers increase their investments in the U.S., their U.S. competitors have also secured significant funding from the U.S. government and ramped up investment to expand production in the U.S. As a result, the share of semiconductor production in the U.S. is projected to increase significantly from a mere 10 percent before the CHIPS Act as new capacities come online. This is likely to reduce the demand for non-U.S. manufactured chips in the U.S., thereby reducing exports of semiconductors manufactured outside of the U.S., including in Korea. In addition, expansion of semiconductor fabrication capacities worldwide, including in China by Chinese chipmakers for legacy chips, can put downward pressures on semiconductor prices if demand fails to expand at the same pace, decreasing the export value of Korea's semiconductors. Potential shift of some production from Korea to the U.S. while boosting primary income from increasing investments abroad, could also reduce quality employment opportunities in Korea and worsen income inequality.

12. IPs of major economies are intensifying competition in the global market. As IPs spur more capacity building and incentivize innovation, including in Korea's key export sectors, retaining market share is likely to become more challenging for Korean producers due to intensified competition along both the quality and quantity dimensions. For example, China's subsidies, concentrated in priority sectors including automobiles, semiconductors, and green technology, are found to have promoted Chinese exports and reduced its imports (Rotunno and Ruta, 2024). Moreover, as the gap in export sophistication between Korea and China shrinks, Korean and Chinese industries have become more competitive and less complementary (Figure 7). Korean exports to

China are thus likely to continue to decline while exports to much of the rest of the world will face more intense competition.



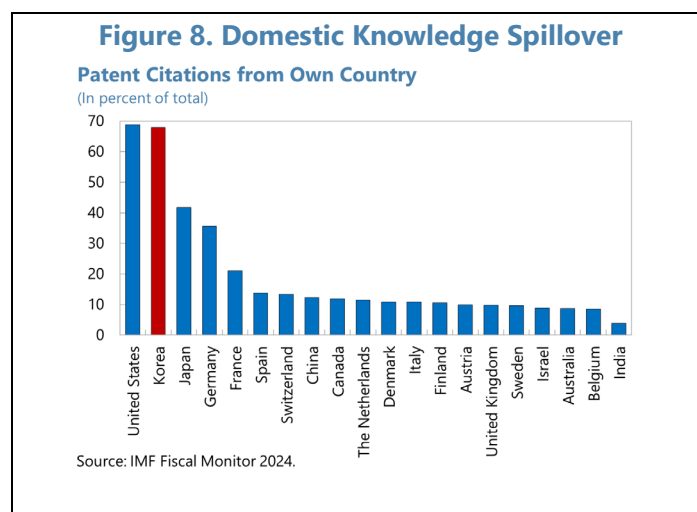
13. Korea increased support to its strategic sectors including semiconductors with its own K-Chips Act. In 2022 and 2023, the Korean government introduced a 15 percent tax credit (25 percent for small and medium enterprises) for investment by domestic and foreign firms to expand facilities in a set of “National Strategic Industries” including semiconductors. Since the K-Chips Act, the Korean government has continued to expand public support for the semiconductor sector. In May 2024, the government announced another \$19 billion incentive package, in addition to a project to form a cluster of semiconductor production in the Gyeonggi province, with around \$470 billion in private investment over the next two decades. Support to Korea’s semiconductor sector has been increased to maintain its competitiveness in response to policies of major economies and hence can be viewed as a second-best solution to challenges brought about by the global rise of IPs.

D. Policies

14. Industrial policies should remain confined to specific objectives where externalities or market failures prevent effective market solutions and, even then, they should minimize trade and investment distortions, be consistent with international obligations, and avoid discriminating between domestic and overseas producers. Instead of industry-specific interventions, the authorities could focus on horizontal (sector-neutral) policies to maintain competitiveness across the economy, which would enhance economic efficiency while avoiding resource waste. The authorities have engaged successfully with some major trading partners to mitigate some of the disruptive effects from IPs and should continue these efforts.

15. Promoting innovation to maintain competitiveness in Korea’s key export sectors is crucial to navigate the changing international trade landscape. Maintaining Korea’s technological advantage is of paramount importance to retain global market share amid intensifying

global competition, as investments in some of Korea's key export sectors are increasing worldwide. Innovation is particularly important in Korea given its high domestic knowledge spillover (Figure 8). Innovation policies should combine different instruments that account for economic efficiency, fiscal costs, policy objectives, and design features. Overall, public research, R&D tax incentives, and research grants are consistently found to be the most cost-effective tools. Grants can be more useful for start-ups whereas tax incentives for established firms can be cheaper to administer. Scaling up public research, which is relatively low in Korea compared to some of the world leaders, could help advance fundamental research with strong spillovers to private R&D. Empirical studies show that increasing spending on a mix of these policies by 0.5 percentage points of GDP could raise GDP by up to 2 percent.⁶



16. More flexible product and labor markets and a lower regulatory burden would help Korean firms remain competitive. While overall product market regulation stringency has improved and is close to the OECD average, there is still room to reduce barriers to trade and investment, state involvement in business operations, and barrier to entry in services. Productivity of firms could be boosted by reducing regulatory burden, accelerating the take up of new technology, and increasing their participation in international trade. Tackling labor market duality, promoting performance-based pay, and improving job mobility would boost labor productivity.

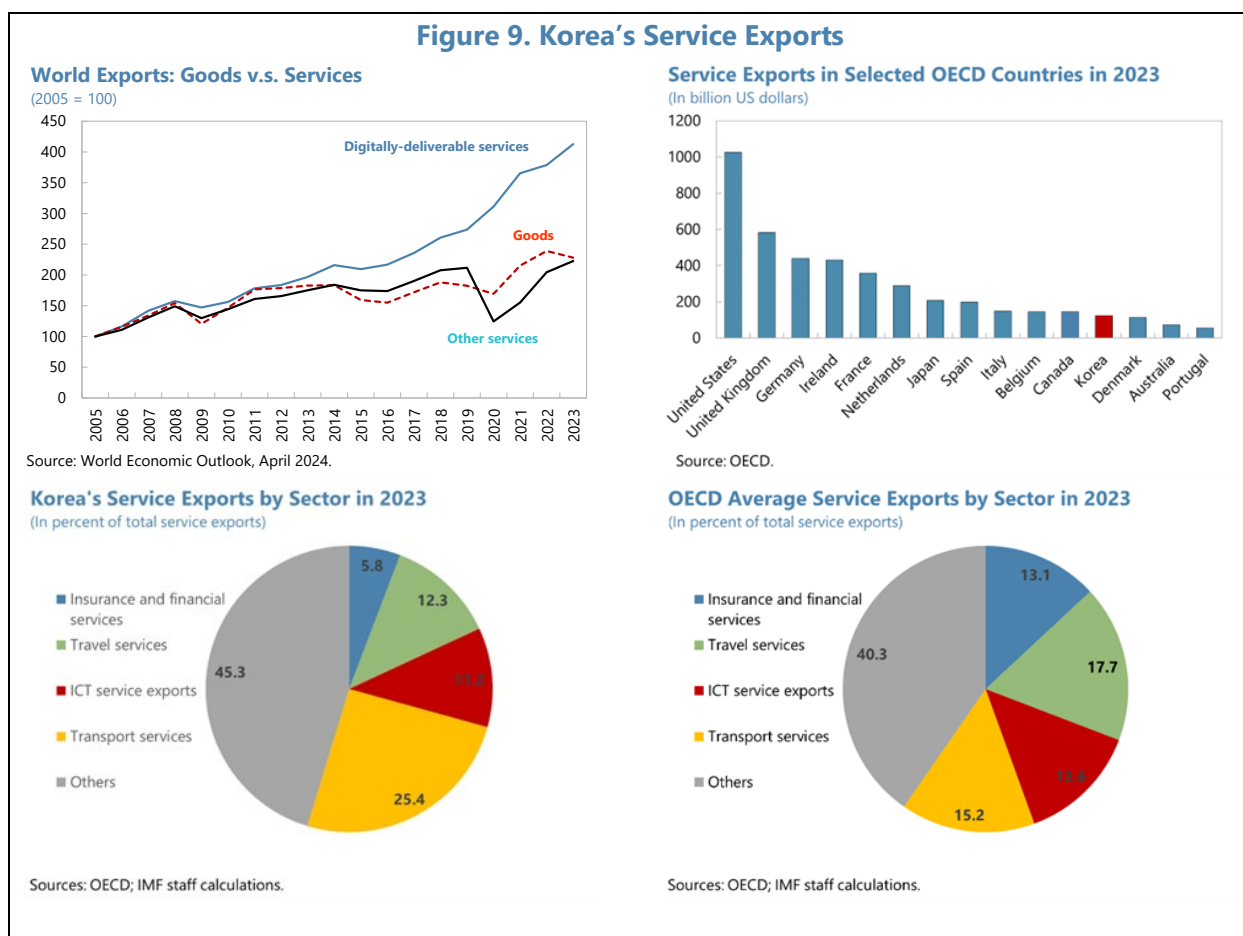
17. Boosting new export items, including services, will help maintain exports as the main engine of economic growth. While the global goods trade has slowed down, service trade (particularly digital services) has been expanding at a faster pace. Unlike the manufacturing sector, Korea's service exports account for much smaller share of GDP compared to advanced economies. ICT, travel, and insurance services account for lower shares of service exports than OECD peers (Figure 9). Promoting services that have growing external demand, such as cultural content, manufacturing-related services, and information and communications, as key export items would enable the service sector to become a new growth engine. To enhance productivity of service sectors, easing longstanding bottlenecks of the sector is necessary by lowering legal barriers to

⁶ See Fiscal Monitor April 2024.

entry and startup costs and simplifying complex licensing and permit requirements. The defense industry, which has emerged as a global competitor, along with the food and beverage, where exports are rising alongside cultural influences, would become further key export items.

18. Diversification of destinations and supply chains would reduce risks arising from GEF.

Diversifying trading partners by expanding trade relationships with a wider range of countries can help to maintain a more resilient trade network. Upgrading existing trade agreements and signing new trade agreements would increase the space for the private sector to diversify supply chains and make them more resilient and minimize potential disruptions. In this context, the Trade Policy Roadmap, the authorities’ efforts to expand their FTAs, strengthen economic partnerships with key regions such as Asia and Africa, and focus supply chain cooperations on strategically important items (such as minerals) through WTO-consistent deep and broad-based FTAs and enhanced multilateral agreements, is welcome.



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