

ERIA Discussion Paper Series

**Globalisation and Trade Liberalisation in
Supporting GVCs Upgrade:
The Case of the Republic of Korea**

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September 2017

Abstract: *The Republic of Korea (henceforth Korea) has managed to achieve sustained economic growth by moving up the value chains. It took Korea only 15 years to transform from an upper middle-income into a high-income country. This paper uses Korea as a case study on how a country can build up core competitiveness in hi-tech industry and develop into a globally competitive and innovative economy by moving up the value chains. It shows the effectiveness of globalisation and trade liberalisation in supporting the country's domestic development strategy.*

Keywords: global value chains (GVCs), Republic of Korea, Asian regionalism

JEL Classification: F15, F53, F68

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1. Introduction

The literature says that global value chains (GVCs) provide developing countries opportunities to get involved in global production-sharing. Countries can move gradually on the ladder of industrialisation and develop from low-income to high-income countries. As globalisation unbundled national production processes and dispersed them to low-cost locations, developing or less-developed countries will benefit from this new global division of labour and gain more opportunities for growth. A typical routine of economic industrialisation is characterised by successive waves of upgrades from lower value-added to higher value-added stages.

In reality, many countries have successfully gotten rid of poverty by participating in international production-sharing, but only a few have managed to move further and eventually upgrade to an advanced economy. The economy of the Republic of Korea (henceforth Korea) went from a per capita income level of about US\$2,000 in 1960 to a gross national income (GNI) per capita of more than US\$20,000 from 2007 onwards. It took Korea 15 years to develop from an upper middle-income into a high-income country. It became the first nation to transform from an aid recipient into an aid donor in the last half century. For that reason, Foxley and Sossdorf (2011) rated the achievement of Korea as one that could be ‘catalogued as economies with overall successful trajectories’. The development of Korean economy illustrates how a country can build up domestic core competitiveness in hi-tech industry and move from a less-developed to a globally competitive and innovative economy.

This paper tries to provide answers to two questions. First, how did Korea manage to achieve economic growth by moving up the value chains? Second, what are the governmental efforts on globalisation and trade liberalisation that have contributed to this success? At a time when anti-globalisation is on the rise, it would be useful to get insights from Korea’s experience and learn further the importance of globalisation and regional integration for economic development.

The rest of the paper is organised as follows: Section 2 provides some background on the links between GVCs and economic growth. Section 3 shows the path of rising Korean economy by moving up the value chains. Section 4 analyses the governmental efforts in promoting the upgrade of GVCs and explains the role of globalisation and trade liberalisation. Section 5 concludes.

2. Linking economic growth with GVCs

The 21st century international trade is characterised by the expansion and deepening of GVCs. Globally, vertical fragmentation¹ has been breaking down the integrated process into separate stages of production and has opened new possibilities for exploiting gains from specialisation. Not only the original integrated production functions have been divided into separate production blocks, but also sub-stage production and the creation of service links have been dispersed (Jones and Kierzkowski, 2001). This leads to a finer division of labour and the birth of a worldwide production system in which each block contributes to a part of the final goods, either visible or invisible. The exchange of intermediate goods in vertical fragmentation is maintained by various service links. Fragmentation can take place either within the same firm or among different firms. Accordingly, countries, just like firms, become specialised in specific functions instead of the whole production process.

The application of fragmented technology generates more space for goods producers and service providers to improve their productivity. With technological progress and service sector liberalisation, this has been breaking through the boundaries of nations. In particular, innovation in the information and communications technology industry since the late 1970s has further facilitated the production fragmentation globally. To some extent, global production-sharing may act like technological progress and therefore increase welfare in the context of free trade. Meanwhile, regional production-sharing tends to reduce the extent of trade diversion and even convert it into trade creation by generating comparative advantages in sub-stage production (Arndt, 1998, 2004).

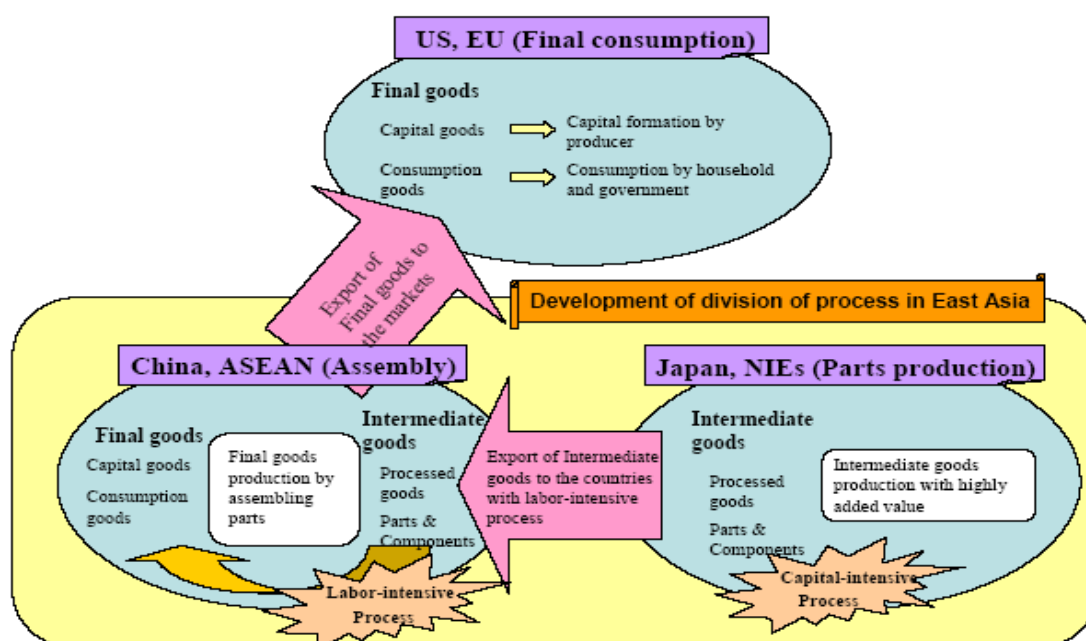
For Asia, the development of an intensive regional production-sharing network has been regarded as one of the core characteristics of the ‘Asian way’ of growth and

¹ In comparison, horizontal fragmentation refers to the strategy in which multinationals distribute their production bases around the world to supply different markets. Generally, this applies to a situation where the demand (or the potential demand) from the target market is big enough for the company’s long-run growth, but trade barriers between the two countries are too high to open bilateral trade. Typically, a multinational has to outflow part of its capital abroad to set up a factory in a third-party country, or in the target nation directly, to deliver more easily its products to target markets.

integration. In contrast to the centuries it took for some of the world's most advanced economies, some Asian economies spent only a few decades to achieve the same level of industrialisation. Based on the de facto cross-border linkages among individual economies, the region has emerged as an integrated platform of global production, the so-called 'Factory Asia'.

The countries' positions in the value chains within Factory Asia follow a particular pattern: Japan and the newly industrialised economies (NIEs) are in the high value-added stage and China in the low value-added stage (Figure 1); the Association of Southeast Asian Nations (ASEAN) countries generally occupy a middle position. Such pattern is mirrored in the direction of international trade flows: Japan and NIEs export capital goods and complex intermediate goods to less-advanced economies, such as the ASEAN countries and China, for processing operations. Consequently, China, due to its location at the very low end of value chains, has become a main regional hub for exports, while Japan, the NIEs, and the ASEAN countries hide their exports of parts and components behind Chinese exports in the global market.

Figure 1. Factory Asia and the Triangular Trading System



ASEAN = Association of Southeast Asian Nations, EU = European Union, METI = Ministry of Economy, Trade and Industry, NIE = newly industrialised economy, US = United States.
 Source: METI (2005), Figure 2-3-10, with author's revision.

On development, Korea's experience illustrates a path of economic growth in global value chains. Countries need to take the following three critical steps to reach the top of the GVC pyramid:

Step 1. Participate in global production-sharing by initially taking relatively low value-added activities. This will allow countries to accumulate capital, technology, human capital, and other factors endorsing the increase of productivity.

Step 2. Sharpen competitiveness, which is associated with market reconstruction and industrial agglomeration.

Step 3. Move from Tier 1a to Tier 1b for the country to turn into an advanced economy.

ERIA (2015) proposed a 'Three Policy' of development for the ASEAN countries (Figure 2):

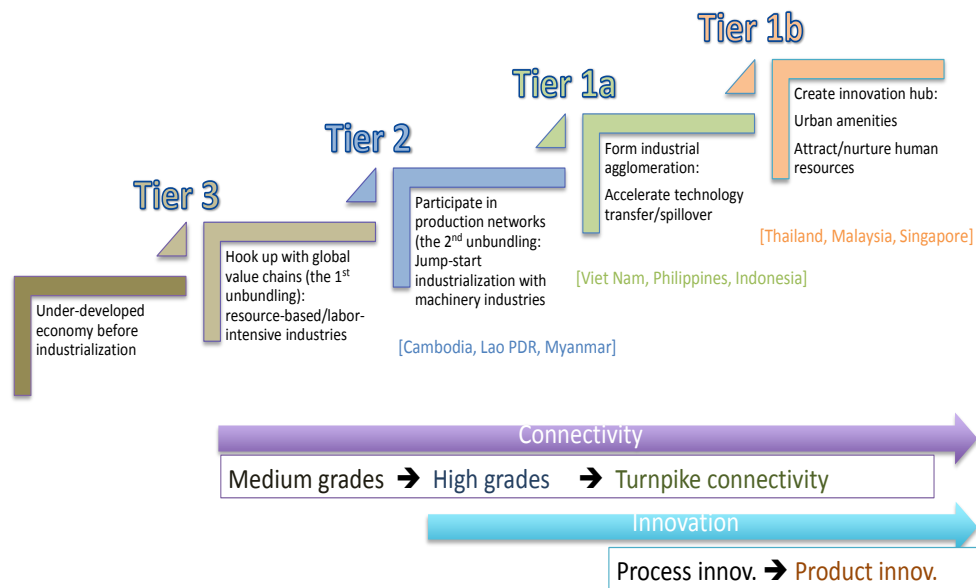
(1) From Tier 3 to Tier 2, the government should emphasise on how to help domestic business hook up with GVCs.

(2) From Tier 2 to Tier 1a, effective policies are needed in accelerating technology transfer and facilitating knowledge spillover.

(3) Strategies and policies are necessary to build up national innovation capacity.

In principle, market mechanism takes a lead in driving through the whole process. However, government's policy intervention proves to be critical as well, although its emphasis and effect may vary according to the different stages of development and the country's uniqueness.

Figure 2. ‘Three Policy’ of Development



Source: ERIA (2015), p. 4, Figure 1.1.

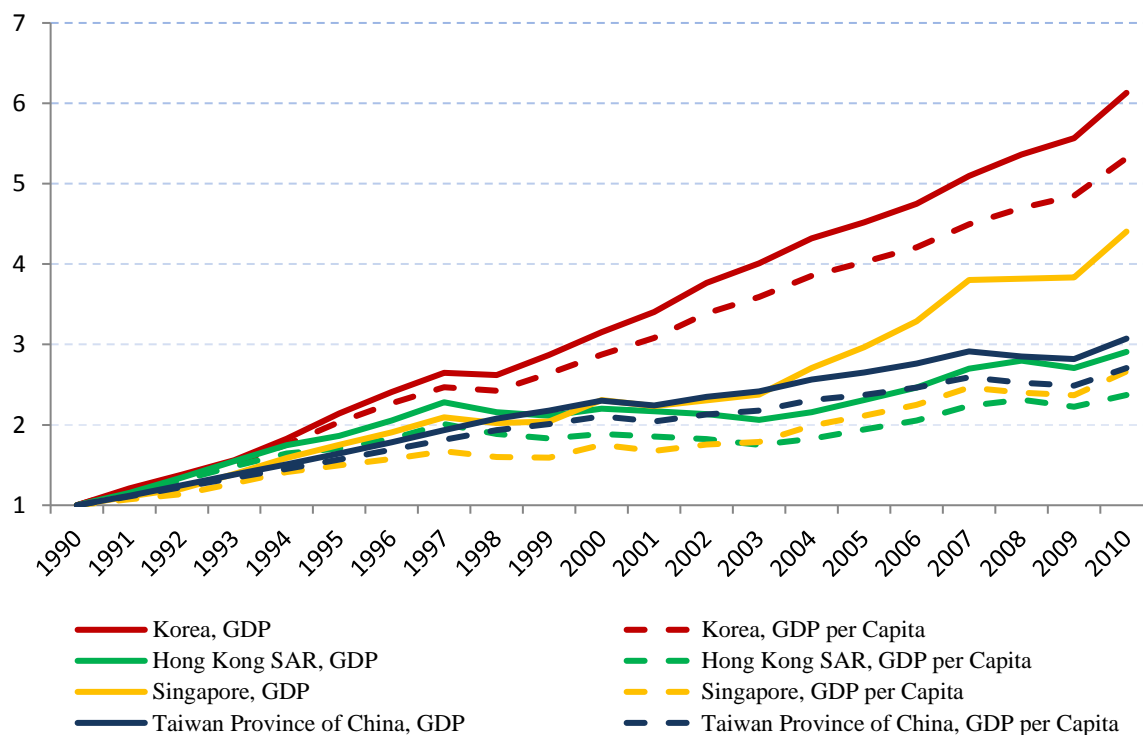
3. Korea moving up the value chains

In the 1960s and 1970s, Korea was one of the second-tiered ‘wild geese’ next to Japan. It started by exporting labour-intensive goods, such as textiles and simple electronic parts, and later capital-intensive products, such as steel, petrochemicals, and ships. In the 1980s, foreign direct investment (FDI) became the main channel of technology transfer.² At the time when the World Bank Report (1993) highlighted the East Asian miracle of rapid growth, Korea was still in group with three other NIEs – Taiwan, Hong Kong, and Singapore. It had the largest gross domestic product (GDP) but the lowest GDP per capita among NIEs in the early 1990s.³ From 1990 to 2010, the GDP and GDP per capita of Korea increased five times and over four times, respectively. By 2010, the size of the country’s economy was already larger than that of the combined economy of the other three countries, and its average income level was higher than that of Taiwan (Figure 3). Korea’s GNI per capita has been above US\$20,000 since 2007, placing the region in the group of high-income developed countries.

² This is different from what happened in Singapore where foreign direct investment (FDI) was at the onset the main channel of technology transfer.

³ Korea’s average growth rates of gross national income (GNI) per capita in 1980–1997 and 1999–2008 were 12% and 10%, respectively.

Figure 3. The Growth of GDP and GDP per Capita in NIEs, 1990–2010



Notes: The country's/region's GDP and GDP per Capita in 1990 are normalized to 1. The values of sequent years are relative to that of 1990.
Source: IMF (2012).

The two 'big jumps' in the development trajectory of the Korean economy are (i) the transition from labour-intensive manufacturing to a technology and capital-intensive economy in the 1980s and 1990s; and (ii) the transition towards a knowledge economy since 2000. These two phases of value-added upgrade came along with the rapid rise in average income levels. The average growth rates of GNI per capita in 1980–1997 and 1999–2008 in Korea were 12% and 10%, respectively.

In the 1980s, Korea was no longer a poor country after more than 20 years of high-speed growth. Productivity started to rise because of technology transfer associated with foreign investment and the government's attempts to promote domestic research and development (R&D).⁴ Research and development expenditure as percentage of GDP increased from 2.2 in 1996 to 4.3 in 2014. A small number of large Korean firms

⁴ For instance, the establishment in the mid-1970s of 10 industry-oriented government research institutes (GRIs) in such areas as machinery, electronics, chemistry, and shipbuilding.

even became potential competitors in the international market (Organisation for Economic Co-operation and Development [OECD], 2009). The largest challenges came from increasing labour cost and reliance on imported technologies. The government gradually liberalised the domestic market to motivate Korean firms to improve their technological capabilities by (i) accelerating technology transfer from abroad, (ii) investing in their R&D, and (iii) seeking access to more advanced technology through FDI (OECD, 2009). Some supplementary industrial policies were applied to protect and subsidise domestic producers for an extended period to improve their competitiveness in the international market. But this was done within the context of market discipline (Foxley and Sossdorf, 2011). In the 1990s, the country strongly promoted local high-technology innovation and continued pursuing high value-added manufacturing.

Years since the 1990s witnessed Korea's miracle of rapid transition towards an advanced knowledge-based economy. From 1990 to 2010, the GDP and GDP per capita increased five times and over four times, respectively. The country had already built up its technological capability in such areas as information technology, car industry, liquid crystal displays (LCDs), and semiconductors.⁵ Many Korean firms had started to exploit a few emerging technologies, such as nanotechnology and biotechnology.

The growth process of Samsung group can be a representative of that of the Korean economy. More than half a century ago, it was just a trading company engaged in food processing, textiles, and retail. It entered the electronics industry by establishing Samsung Electronics in 1969. Within 30 years, Samsung Electronics grew to be the flagship subsidiary of the group, and electronics became its most important source of revenue. It has been the world's largest mobile phone maker, the world's largest vendor of smartphones, the world's largest television manufacturer, and the world's largest LCD-panels maker. The company has also established a prominent position in the market of tablets, computers, and memory chips. It has highlighted innovation as part of its core strategies and has aggressively invested therein; and has established more than 20 R&D centres around the world.

⁵ For instance, the Samsung-made Galaxy tablet has been the key competitor to the Apple-made iPad; Hyundai has become a world brand in the automobile industry; and LG is now a global market leader in LCD products.

Today's Samsung is the largest Korean chaebol with over US\$200 billion in market capitalisation, almost twice the value of combined shares listed in Ireland. This is just one of many success stories of Korean companies. In 2012, 68 Korean companies appeared on the list of the world's 2000 biggest public companies, 'Forbes Top 2000', with a combined market value of US\$735 billion compared with 47 Korean companies with a total market value of US\$462 billion in the 2010 list (Forbes.com 2012).

4. The governmental efforts on moving up GVCs

Upgrading along GVCs remains at the core of Korea's development strategy. Domestically, it focuses on improving national productivity by adopting the 'catch up with leadership' strategy and 'adoption to innovation' policies. This goes jointly with its foreign policies that aim for a 'development-friendly' external circumstance by accelerating the country's pace in economic globalisation and trade liberalisation.

Focusing on human capital and infrastructure investments, the government works on facilitating domestic firms' access to the latest technologies in the global market and encourages these firms to join the internationally fragmented production of hi-tech products.⁶ About 80% of total working-age population are with advanced education. According to World Bank (2017) data, during the period between 1996 and 2014, the number of per million people research and technicians in R&D has triple and double respectively. Historically, many Korean firms started with participating in non-core sub-stage productions. But being part of the common industrial value chains allows them to have a better chance to learn new technologies faster, and to move from low value-added towards high value-added ends. During this process, they 'catch up' with market leaders by adopting the technology and experience of management and marketing. Endorsed by domestic R&D activities, Korean firms produce various products containing new hardware or software components generated by their innovation. In this way, the 'learning-by-doing' process is a competitiveness building

⁶ The main instrument to achieve this is to create public and private institutions to foster greater-capacity technology adoption and innovation.

and makes it possible for Korean firms to enter sunrise industries when the market is in boom. Supported by domestic innovation, Korea can benefit from last-mover or second-mover advantage without sacrificing much time before the market entry.⁷ A booming market will provide enough space for Korean firms to compete with the new entrants to be the market leader.

Typically, Korean firms not only focus on developing leading-edge high technology but also attempt to benefit from the exploitation of existing technologies. Many Korean firms have been catching up with advanced firms in industrially advanced economies on deepening and broadening their technological capabilities, as well as enhancing their connections with customers in the advanced markets (OECD, 2009). Thus, many leading Korean firms are still producing large volumes of products under subcontract and licensing agreements although they have reached the innovation frontier in various export products.

For instance, Samsung Electronics and Apple are the two biggest smartphone makers in the world. The former's Galaxy and the latter's iPhone are tit-for-tat products. However, these two companies are also close business partners. Apple outsources the production of key iPhone components, such as flash memories, chips, and displays, to Samsung Electronics. It is said that Samsung and LG are the next biggest beneficiaries after Apple in the iPhone supply chains.⁸ The gross profits gained by Korean suppliers accounted for almost 5% of the sale price of iPhone 4, which was nine times the combined profits gained by Japanese suppliers (Kraemer, Linden, and Dedrick, 2011). Despite the recent copyright dispute, the business ties between the two companies are still tight: As Samsung's biggest client, Apple accounts for almost 9% of Samsung's revenue, while Samsung is still the sole provider of Apple's A chips.

Simply put, this is the 'catch up with leadership' strategy and 'adoption to innovation' policies. With effective policy supports, the leading Korean firms can access new knowledge and use their R&D capacity and human capital to quickly adopt these technologies. The innovation of Korean firms normally focuses on the need for

⁷ This distinguishes Korea from many other last movers who have to wait until the market turns into its sunset stage.

⁸ After the patent war with Samsung, Apple started to reduce its reliance on Samsung's supply. However, this does not alter the business alliance with Korea since Apple is mainly diverting production to other Korean firms. For instance, it chose LG and Hynix (another Korean company) products to replace the Samsung-produced LCD and memory chips.

some specific products or components to avoid challenging directly their subcontracting partners, especially the global market leaders. As long as foreign partners can benefit from these innovative achievements by obtaining components or services with higher quality but at a lower cost, they continue to enter into subcontracts with Korean suppliers. Thus, in many cases there exists a ‘dual relationship’ – competitor and outsourcer–contractor – between Korean producers and their foreign partners. Korea’s payment on charges for the use of intellectual property increased substantially in the past 3 decades. In 2014, the country paid charges of more than US\$10 billion,⁹ which is about 1.5% of its annual export revenue.

Whereas the role of domestic industrial policies adopted by the government is vital, external support for a ‘development-friendly’ global and regional circumstance is equally important. The following are efforts from three aspects: (i) strengthening the economic ties with main powers, (ii) expanding the free-trade agreement (FTA) network, and (iii) integration into Factory Asia.

Partnership with the United States (US) has contributed to the Korean economic success miracle. A strong Korea–US relation is critical in securing the market for Korean exports and a stable external environment for growth. Technology transfer from the US is crucial to Korea’s success. America has been Korea’s most important trade partner and main source of foreign investment.¹⁰ For Korea, an alliance with the US should be extended to facilitating access to American trade, investment, and technology. Consolidating the economic ties between US and Korea is significant not only for the bilateral relation and stability in the Korean peninsula but also for the American foreign policy in Asia.

In the late 1980s – when Japan was already a de facto regional economic power and Japanese competitors made many American firms feel threatened – US shifted to strengthen its alliance with Korea and to develop the latter as a main channel for introducing American interests into the region.¹¹ Part of its strategic actions was to

⁹ This is measured by balance of payments at current American dollar (World Development Indicators [WDI], 2016).

¹⁰ Currently, US is Korea’s second largest trade partner; and Korea is the seventh largest trade partner of the US.

¹¹ This does not mean that US will strengthen its ties with Korea at the cost of the US–Japan alliance. The basic idea is to enhance the Korea–US partnership, which seems less strong than the US–Japan alliance.

assist Korea's structural upgrading and build a stronger Korean economy. In addition to the traditional US–Japan–the rest of Asia chain of technology transfer, the direct technology chain with American multinational companies opened another door for Korean firms to gain access to the latest hi-tech knowledge. FDI was one of the main vectors of this technology transfer. The scale of cumulative FDI flows from US to Korea between 1994 and 2011 reached US\$34 billion, accounting for over one-third of Korea's total FDI inflows during the period (UNCTAD, 2012). Access to advanced technologies allowed the country to shorten its innovation cycle and quickly build up its productivity in high-end production. A group of Korean firms caught up with advanced firms in industrially advanced economies on deepening and broadening technology (OECD, 2009).

The Korea–US FTA¹² further strengthens the strategic alliance by adding an economic pillar to the already-strong bilateral relationship. As Bark (2012) summarises, the commercial significance of the FTA is straightforward: For Korea, the FTA will (i) give its small- and medium-sized companies better access to the American market and expand the variety of exportable products; (ii) enhance the price competitiveness of its products; (iii) increase its firms' competitiveness in the business service sector; and (iv) stimulate investment from American firms and increase its companies' demand for parts and components from the US. On the other hand, the FTA tends to (i) facilitate entry of American companies into the Asian market, (ii) compete with European Union (EU) companies, and (iii) encourage partnerships between Korean and American firms. The bottom line is that the FTA will effectively (i) strengthen the Korea–US economic clout, (ii) provide safeguards for the country's economic growth, and (iii) influence the country's relationship with the other two main powers, China and the EU.

China is a rising global power trying to increase its worldwide influence. It has been one of Korea's largest trading partners and a main destination of Korean foreign investment since about 25% of the country's exports and 20% of its outward FDI go to China (UNCTAD, 2015). Thus, Korea regards its relation with China as equally important as that with the US. When Korea was requested by the US to negotiate for

¹² A high-quality FTA for its comprehensive scope and detailed rights and obligations since it has covered substantially all trade in goods, services, and agriculture, as well as obligations on regulatory transparency, investment policies, intellectual property, and service liberalisation.

the Trans-Pacific Partnership (TPP), it did not join the negotiation even after Japan's participation. Korea should have joined the negotiation since it had already FTAs with many TPP initial members at the time. This decision was made taking into consideration the position of China, which was strongly against the TPP. Korea chose to put more efforts on promoting large trading blocs in East Asia. In addition to the Korea–China FTA, which took effect on 20 December 2015, the country has also been active in the negotiations for the China–Japan–Korea FTA and the Regional Comprehensive Economic Partnership (RCEP) both of which favour more China.

The Korea–EU economic ties have also been strengthened especially after the two parties signed an FTA in 2011. However, this seems to have been influenced to a great extent by the Korea–US relationship. The EU turned down the country's request to negotiate for a bilateral trade agreement in 2005 despite the latter's diplomatic efforts to undertake and complete the official joint study. However, just a few months later, after observing the progress in the Korea–US dimension, the EU took the initial move and approached Korea to launch the negotiations for a similar agreement.

As the country's general competitiveness in high-end products has been strengthened, Korea becomes more proactive in exploring markets abroad through multilateral or bilateral trade liberalisation. It envisioned its national FTA road map in September 2003, and has been promoting as many FTAs as possible with major trading partners to become an FTA hub in East Asia.¹³ The country has become the first to implement bilateral FTAs with the US, EU, India, and the ASEAN. Its FTA network has covered countries and regions representing more than 70% of the global economy. By September 2017, 15 FTAs had been implemented with 10 FTAs undergoing negotiations (Table 1). Once these FTAs in the pipeline have been concluded and implemented, FTAs will cover over 90% of the country's trade. This will not only facilitate international trade but also support the expansion of value chains globally. Korea has also launched joint studies for FTAs with other countries, including Russia and the Southern Common Market (Mercosur).

¹³ Korea seemed more of an FTA follower, and the decision of its FTA partners was not mainly for the country but also for partner countries before the start of the FTA negotiation with the US in 2006.

Table 1. Republic of Korea's FTA Network

Treaty	Status	Since
ROK–Chile	Signed and in effect	2004
ROK–Singapore	Signed and in effect	2006
ROK–EFTA	Signed and in effect	2006
ROK–ASEAN	Signed and in effect	2007
ROK–India	Signed and in effect	2010
ROK–EU	Signed and in effect	2011
ROK–Peru	Signed and in effect	2011
ROK–US	Signed and in effect	2012
ROK–Turkey	Signed and in effect	2013
ROK–Australia	Signed and in effect	2014
ROK–New Zealand	Signed and in effect	2015
ROK–Canada	Signed and in effect	2015
ROK–China	Signed and In Effect	2015
ROK–Viet Nam	Signed and in effect	2015
ROK–Colombia	Signed and in effect	2016
ROK–Ecuador	Under negotiation	1993
ROK–Japan	Under negotiation	2003
ROK–Mexico	Under negotiation	2006
ROK–Gulf Cooperation Council	Under negotiation	2009
ROK–Israel	Under negotiation	2009
ROK–Indonesia	Under negotiation	2012
China–Japan–ROK	Under negotiation	2013
RCEP	Under negotiation	2013
ROK–Central America	Under negotiation	2015
ROK-EAEU	Under negotiation	2017

ASEAN = Association of Southeast Asian Nations, EAEU = the Eurasian Economic Union EFTA = European Free Trade Association, EU = European Union, RCEP = Regional Comprehensive Economic Partnership, ROK = Republic of Korea, US = United States.

Source: Asian Development Bank (ADB) Asia Regional Integration Center.

Fundamentally, the country's economic success is inseparable from the support of Factory Asia. Such support comes from both the demand and the supply side. To Korea, Asia is more than a market for Korean exports and investment, but a platform of manufacturing. With other labour-abundant Asian countries taking on lower value-added activities, the country can (i) focus more on higher value-added activities; (ii) allocate more resources to R&D; and (iii) progress faster in building domestic

innovative capacity. In this way, regional integration and cooperation will strengthen the country's competitiveness in the global market.

The value of the index of hub-ness measure (HM index) is calculated and used as a measure of the relative economic dependence of Korea on Factory Asia. It is evident that the country's dependence on Factory Asia increased over time, whether it is measured under the ASEAN + 3 or the ASEAN + 6 framework (Table 2). The country's links with other Asian countries have also been strengthened except that with Japan.

Table 2. Republic of Korea's Dependence on Factory Asia

	ASEAN + 6	ASEAN + 3	ASEAN	China	Japan	Australia	New Zealand	India
2003	40.1	36.9	9.9	16.1	8.5	1.6	0.2	1.4
2014	48.9	44.8	13.8	22.7	5.4	1.7	0.3	2.2

Note: The index was first introduced by Baldwin (2004). The formula used is: $HM_{AB} = X_{AB} \cdot (1 - M_{BA}) \cdot 100$, where HM_{AB} denotes the relative dependence of country A 's economic dependence on market B from the aspect of international trade. X_{AB} denotes the exports from A to B as a share of country A 's total exports; M_{BA} denotes country B 's imports from A as a share of its total imports. The value of HM ranges from 0 to 100, of which the closer the value to 100, the deeper the dependence of country A 's economy on country B 's market.

Source: Author.

5. Conclusion

Korea is an example of a country pursuing sustained economic growth through economic globalisation and by moving up the value chains. Its success is a result of domestic development strategies and policies combined with its efforts to create a 'development-friendly' global and regional circumstance by (i) strengthening the economic ties with main powers, (ii) expanding the FTAs network, and (iii) deepening integration into Factory Asia.

The country will benefit from a more consolidated regional network to sustain its growth by moving up the value chains. One bottleneck in Asian regional integration is the rivalry between Japan and China. If Korea acts as coordinator between the two countries by helping them build trust and reach a consensus on building a regional institution, its effect on Asian regional integration will be formative. Korea can even

increase its influence by joining in collaborative leadership with Japan and China (Urata, 2012).

It is of Korea's interest to push for the progress of regional integration because the country still needs a 'development-friendly' external circumstance to support GVCs upgrade and sustain its growth, in addition to its domestic efforts.

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