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BILATERAL TRADE AND INVESTMENT RELATIONS ANALYSIS: INDONESIA AND SOUTH KOREA

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ABSTRACT

This paper attempts to assess potential opportunities and complementary cooperation of the bilateral economic relations of Indonesia and South Korea. On December 18th, 2020, both countries had officially signed the Indonesia-Korea CEPA. Indonesia has a big population for potential consumption and rich in primary products such as rubber, mineral, and palm oil. South Korea has immense potential in investment, light manufacture, and high-technology products and is classified as the most innovative country in the world for four consecutive years of 2016-2019 (Innovation Index, Bloomberg). This paper has two aims, first is assessing potential trade and long-run investment relations. It applies a combination calculation of RCA (Revealed Comparative Advantage) and CMSA (Constant Market Share Analysis). The second is knowing the potential impacts both short-run and long-run after tariff rate removal using the GTAP (Global Trade Analysis Project) model simulation. This paper found that Indonesia and South Korea can have complementary bilateral economic relations on trade and investment. Indonesia can learn how to avoid the Middle-Income Trap from South Korea experienced with manufacturing development. This paper showed that both countries could have mutual benefits in trade in the short-run and productivity improvement in the long-run.

Keywords: Bilateral country studies; trade policy; CGE GTAP; foreign direct investment analysis, Indonesia, South Korea.

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1. INTRODUCTION

1.1. Background

International economic agreements can cover only trade in goods such as PTA (Preferential Trade Agreement) and FTA (Free Trade Agreement) and both trade in goods and Foreign Direct Investment (FDI) of EPA (Economic Partnership Agreement) and CEPA (Comprehensive Economic Partnership Agreement).

At the regional level, Indonesia, along with other ASEAN (Association of Southeast Asian Nations) founding member states, accelerated ASEAN economic integration process throughout the implementation of open-regionalism frameworks. ASEAN started series of negotiations of the ASEAN+3, ASEAN+1 FTA, ASEAN+6, and others. South Korea has become part of the ASEAN Plus Frameworks at all levels. Indonesia and South Korea are the member states of the ASEAN Free Trade Agreement+1 (ASEAN Korea FTA), ASEAN+3, the Regional Comprehensive Economic Partnership (RCEP), and other multilateral economic cooperation such as Asia-Pacific Economic Cooperation (APEC) and G20 Forum.

Bilateral economic cooperation has been expected to be the building block for multilateral economic cooperation, including regional and regional plus cooperation (Verico, 2017). Indonesia needs more bilateral CEPA as the building block for multilateral economic cooperation and strengthening trade and investment relations for both countries. In the medium to long-run bilateral CEPA is expected to help Indonesia transforming its economy and avoiding it from the middle-income trap. Comprehensive bilateral CEPA between Indonesia and South Korea has the potential to achieve those objectives. This paper does not aim to argue that CEPA is essential for economic transformation purposes of the developing countries, including Indonesia, which needs to enhance its manufacturing sector and books higher economic growth with the stable inflation rate.

The first Comprehensive Economic Partnership Agreement was IJEPA (Indonesia-Japan Economic Partnership Agreement) in 2007. IJEPA was first initiated in 2003 and was first Indonesia's complex bilateral economic cooperation with Japan. The bilateral agreement was finally signed on August 20th, 2007, and was officially implemented on July 1st, 2008. IJEPA is expected to improve Indonesia and Japan's trade relations in investment, service, tariff exemption, and other economic agreements. Based on the impact evaluation of IJEPA, both Indonesia and Japan benefited from the economic partnership. Indonesia's export value to Japan increased by an average of 5.23% annually as a result of the impact of IJEPA, which means 1.58 times increase compared to if Indonesia did not follow the IJEPA (Setiawan, 2012).

The second bilateral agreement was the Preferential Trade Agreement (PTA) of which Indonesia-Pakistan had chosen and officially signed in 2012 (The Pakistan Business Council, 2015). After six rounds of negotiations from 2005, the two countries finally signed the IP-PTA on February 3rd, 2012. The other CEPA in Indonesia is the Indonesia-Chile CEPA that was enforced in 2019. Since the initiatives started in November 2008, Indonesia and Chile established a joint study group of a bilateral trade agreement. The first negotiation was on May 26th, 2014, and resumed on March

16th, 2017, and June 15th-16th, 2017, addressing market access issues, rules of origin, customs procedures, legal issues, and cooperation.

Indonesia-Australia CEPA had entered into force on July 5th, 2020. Negotiations for IA-CEPA began in 2010 after a joint feasibility study conducted in 2007 by Australia and Indonesia. The negotiations were concluded in August 2018, and the treaty was signed in Jakarta on March 4th, 2019. The IA-CEPA also includes a five-year Economic Cooperation Program designed to unlock the vast potential of the bilateral economic relationship between Indonesia and Australia. Verico (2020a), in this study, he found that economic cooperation between Indonesia and Australia is complementarity and meets trade investment relations; thus, CEPA mode matches the two countries' needs despite the different economic levels between the two countries.

Indonesia and South Korea CEPA was started in 2012 and officially signed in 2020. This bilateral economic agreement has completed several economic cooperation frameworks that involve both countries. Indonesia-South Korea CEPA negotiations are based on the agreement between the two countries to start a comprehensive economic partnership through a collaborative study group IK-CEPA. During 2012-2014, IK-CEPA negotiations lasted until the 7th round and then stopped due to a change of government. The discussion has been stalled from 2014 until 2018.

In February 2019, Indonesia and South Korea agreed to reactivate the negotiations through a Joint Ministerial Statement by the two countries' Minister of Trade. The negotiations succeeded in completing the substance in October 2019 with a total of three rounds of negotiations. After eight months of reactivation to finalization, the IK-CEPA became the fastest comprehensive economic partnership agreement that Indonesia has concluded with trading partners. The IK-CEPA negotiation consists of six working groups: Trade in goods, services, investment, provisions of origin of goods, customs procedures and trade facilitation (ROOCPTF), cooperation and capacity development, and legal and institutional issues. On December 18th, 2020, both countries signed the Comprehensive Partnership Agreement.

Why South Korea? There are at least two major reasons. Firstly, this paper refers to the V-CIM results that indicate South Korea is among Indonesia's top bilateral trade and investment partners. In addition to ASEAN and the EU, V-CIM shows seven countries have strong trade and investment relations with Indonesia: The USA with an index of 4.7, South Korea with an index of 3.7, UAE and China with an index of 3.4, India and Japan with an index of 3.1, and Australia with an index of 2.3. V-Composite Index Model (V-CIM) confirmed that South Korea was one of Indonesia's biggest potential trading partners (Verico, 2020a).

Secondly, South Korea is Indonesia's important economic partner and staying under the same open and soft regionalism of the RCEP. Indonesia-South Korea bilateral is expected to be a building block for mega-regionalism of the RCEP. Thirdly, Indonesia and South Korea are not the member states of the CPTPP (Comprehensive and Progressive Agreement for Trans-Pacific Partnership).

Thirdly, similar experiences during the Asian Financial Crises (AFC) of 1998. After experiencing high economic growth in the last 1980s to the early 1990s, both Indonesia and South Korea entered the Asian Financial Crises (AFC) economic crises in 1997-1998. Indonesia applied big series of structural reforms from economic to political that started with the political system transition from

the New Order to Reform Era. Indonesia and South Korea obtained assistance from the IMF to stabilize their local currencies. Both countries were successfully mitigated the AFC's impacts and South Korea remains competitive in global manufacturing sector.

Why manufacturing sector is essential for Indonesian economy? Historically, the combination calculation of openness and net export data, Indonesia logged a tremendous economic policy that successfully created high average economic growth in the manufacturing sector in particular from 1988 to 1992 before it went to the opposite direction from 1993 to 1997 until hit by the crises in 1998 (Verico & Pangestu, 2020). Indonesia's manufacturing sector booked higher economic growth than total economic growth in 1968-1995. In 1984, Indonesia's manufacturing sector started to grow above both the agriculture and service sectors. It took some time for the Indonesian manufacturing sector to have a higher share of GDP over agriculture and services, thus becoming the backbone of Indonesia's economic growth.

Indonesia's manufacturing sector experienced the first Chenery and Syrquin's phenomenon with a higher share over the agriculture sector in 1991 at 20.96 percent and 19.66 percent, respectively. However, since 2001, Indonesia's manufacturing sector growth was below that of the service sector but remained higher than total economic growth until 2004. From 2005 until now, Indonesia's manufacturing growth has been lowered than total economic growth and service sector growth. Indonesia had not experienced the second phenomenon of Chenery and Syrquin as it has not surpassed the service sector's economic share to GDP until now.

As developing country Indonesia needs to have significant role of manufacturing sector in its economic transformation process. As a developing country, Indonesia needs to have a significant role in the manufacturing sector in its economic transformation process[1]. South Korea had achieved developed country with high-income level status which Indonesia could learn from its experiences.

1.2. Research Question

Bilateral economic cooperation can take a role as the building block for Indonesia's multilayer strategy. Indonesia-Korea Comprehensive Economic Partnership Agreement (CEPA) is one of the potential bilateral economic cooperation for the building block of Indonesia's economic cooperation at the multilateral level. Therefore, this paper attempts to answer questions on how Indonesia and South Korea figures in comparative macroeconomic variables which Indonesia can learn from South Korea's experiences, then analyze the potential tradable products (HS4 level) for Indonesia and South Korea's trade relations and investment. Finally, this paper also aims to shed some light on the short- and long-run impacts of Indonesia and South Korea CEPA (trade in goods and long-run investment relations).

[1] The paper of Todaro and Smith (2012) found that Lewis's two-sector model with labor surplus in developing countries had become an absolute development advantage. The Lewis model proved that a developing country with two sectors of the traditional and overpopulated rural sector with zero or negative marginal productivity and the modern sector with skilled worker labor.

1.3. Research Objective

Based on the research questions above, this paper has four main objectives. The first objective is to provide an understanding of Indonesia and South Korea's macroeconomic comparative figures. Second and third, this paper also attempts to gain insights on the potential tradable goods (HS4 level) for trade and investment relations of Indonesia and South Korea. Lastly, this paper intends to figure out the impacts of both short and long-run for Indonesia and South Korea CEPA (trade in goods and long-run investment relations).

1.4. Specific Coverage

At bilateral level, Indonesia had finalized three bilateral economic agreements with Japan (Indonesia-Japan EPA) in 2007, Pakistan (Indonesia-Pakistan PTA) in 2012, Chile (Indonesia-Chile CEPA) in 2019, Australia (Indonesia – Australia CEPA) on July 5th 2020, and South Korea (Indonesia – South Korea) on December 18th 2020. This paper analysis focuses on the most recent Indonesia's CEPA which is with South Korea.

Bilateral CEPA covers both trade and long-run investment. This paper focuses on Indonesia and South Korea's bilateral economic cooperation and observes the potential benefits from both the trade creation and productivity-investment related issues. The data analysis is based on tradable products (HS4 level) for both the short and long-run potential trade in goods and long-run investment relations of both countries.

2. REFERENCES, INDEXES AND GTAP MODEL

2.1. References

Over the last few decades, Bilateral Trade Agreements (BTA) have become a frequently used policy instrument between countries to enhance their trade volume in a mutually beneficial manner. Despite focusing on the trade flows of both countries, trade relations are usually dependent on various factors, ranging from geographical, political, economic to cultural aspects. Even from the economic sphere, numerous characteristics influence the compatibility of trade relations, consequently determining the potential benefits of such an agreement. A study on Indonesia's bilateral trade and investment model showed that macroeconomic variables affected bilateral trade relations (Verico, 2020a).

In the area of trade literature, numerous studies have shown the impact of BTA as the number of trade collaborations between emerging and advanced economies has been increasing. Hannan (2016) evaluated the ex-post impact of past trade agreements at 104 country pairs with trade agreements between 1983 to 1995 by employing the synthetic control methods (SCM) approach. This study found that most countries gained from trade agreements, with 80 countries gained from trade after ten years of agreements, while the other 24 countries did not. The gains from trade shown highest for Emerging Market (EM) export to Advanced Market (AM), followed by AM to AM pairs, and finally AM to EM pairs compare to the other pairs. From 43 country pairs, the

results showed that the imports from the third countries would have been slightly higher if there were no trade agreement indicating there is some suggestive evidence for import diversion.

Similar findings are also found in Maluck et al.'s (2018) study. Utilizing the Trade Interconnectedness (TI) measure, BTA in most countries increases trade interconnections between the involved partners after the first year of agreement is enforced. From their investigation on 107 BTAs with date enforcement between 1995 and 2008, this study proved that most western countries had increased the trade interconnection in export linkages with their BTAs partners. These BTAs had expanded their market to their partner country.

Likewise, in Stern (2018) and Neto et al. (2020) study, BTA brings equal benefit from increasing trade interconnection between partner countries. Based on extended qualitative analysis, Stern (2018) suggests that the US-India trade agreement in the technology industry, such as technology trade, e-commerce, and cybersecurity, would positively impact both countries' economic conditions. The technology and e-commerce sector has multiplied worldwide, particularly in the Indian and the US markets. On one side, India has an enormous growth capacity for e-commerce, in the FMCG sector, specifically in credit card usage and physical and digital infrastructure connectivity.

Moreover, in their qualitative report, Neto et al. (2020) found that the US and Brazil have taken deeper trade engagement in many sectors, including aerospace, infrastructure, tourism, defence and security, and healthcare over the past decades. The US is the essential export destination and the largest FDI investor in Brazil. The US is also benefited from such agreements, where Brazil is the US's number-two destination for goods export.

Nonetheless, the effect of increasing interconnection on trade gains could be asymmetric. Using RCA Index and CMSA analysis, Siddique et al. (2016) found that the significant impact of Thailand Australia (TA)-FTA only shown on Australian exports to Thailand, not vice versa. The negative and positive impact of BTA on input-output linkages, in terms of export and import linkages, between partner countries will also depend on each countries' economic development and other trade agreement between them. Also, Maluck et al. (2018) found that some countries in southern Africa, Uruguay, and the Philippines have increased the trade interconnection in import linkages more than their export linkages.

Beyond the direct trade gains, trade interconnection also brings a non-trade impact on countries' economic conditions. From the investment perspective, Nishiwaki (2016) found that investment cooperation with other industries was the rational option. Analyzing the cement industry in Japan using a theoretical model incorporating each firm along the value chain, this study showed that a merger between the sunrise and sunset industry is needed to solve the sunset industry challenge. This option will reduce the cost from the excess of capital due to the decreasing demand. Sunset industries need to merge with the sunrise industries to reduce excess capital problems due to the decreasing aggregate demand. This option made merger companies have oligopoly power and be able to reduce consumer surplus power. The bilateral economic agreement could facilitate the potential investment cooperation of a sunset firm in a country with a sunrise industry from its partner country.

Moreover, using in-depth historical case study analysis, Kim (2012) found that the South Korea-China bilateral agreement has increased their financial investments, mobility, and commodity trade and FDI relations in less than two decades. Both countries experienced improved economic development and economic interdependence where the commodities traded' technological level has been upgraded by years. The deeper economic relations have formed an essential link to the global production networks and affected other markets globally. Korea's economic dependence on China will increase more than China's interdependence, and the Korea-China relationship has started to shift from complementary to competitive. In the US and Brazil case, the bilateral agreement also improves education-field relation where the number of exchange students between the US and Brazil in the past year (Neto et al., 2020).

BTA might improve both countries' economy, both directly and indirectly. Yet, many factors play a role and influence the outcome of countries who are involved in BTAs. Grishin (2017), using regression analysis, found that in the US and Russia's bilateral trade, the real GDP growth are practically uncorrelated. US-Russia trade in goods is disproportionally low, and the number of US FDI in Russia also decreasing from 2013 to 2016, and the other way around. In general, the variability of impact by BTAs might arise due to the differences in each countries' economic development, socio-economic characteristics, openness degree, and the number of trade agreements (Siddique et al., 2016; Maluck et al., 2018).

With the state of globalization and connectivity across borders in its maturity, it has been shown that trading across borders and involving in trade agreements could serve as an economic engine of growth in an appropriate manner. Regardless, the increase of trade activities of a country with the rest of the world often goes hand-in-hand with industrialization. This mechanism ensures well-sustained economic growth over the long term through industrialization (the manufacturing sector's role); one crucial step must be in the country's development progress.

The study of Kim in 1997 evaluates the success story of South Korea's industrialization strategies for developing countries' lessons learned. Based on qualitative analysis, his study emphasized that South Korea's successful economic development was driven by its export-oriented policies and significantly upgraded human knowledge, such as promoting education, skills, and training. South Korean industries have successfully arranged their capital supplies by adopting and adapting the imported technology while still utilizing the abundant labor supplies.

In another study, Aubert and Suh (2007) provide four lessons from South Korea's Knowledge-Based Economy (KBE) for developing countries lesson learned: (1) coordinate four pillars of KBE framework (economic incentive and institutional regimes, educated and skilled workers, effective innovation system, and accessible information infrastructure), (2) have strong and effective leadership by the government, (3) apply economy-wide reforms, and (4) implement expansion of education and technology mastering.

However, domestic improvement and other countries' growth could also serve as a growth opportunity. The rising of China's economy creates some South Korea impacts as one of its most significant economic partners. Medeiros et al. (2008) studied the political and economic aspect qualitatively and emphasized that in the past, China's rapid economic growth increased South Korean interest in China's economy as the future engine. Many South Korean businesses also

expand their business to the Chinese market as Korea has rigid regulations over the business sector and the oppressive climate in South Korea.

In terms of product competitiveness, Choi et al. (2011) conducted a meta-analysis from the design policy of South Korea and its industrial development. This study highlights the role design policies in South Korea and the United Kingdom also contributed to economic growth and supporting its critical or declining industry to increase the competitiveness of its products. On the other hand, Nugent and Yhee (2002) highlight the SMEs' roles and success story in South Korea using regression method on various SMEs' characteristics such as firm size, age, and industry type. Although Large Enterprises (LEs) have higher capital per capita accumulation, SMEs show higher labor productivity, leading to greater capital productivity.

Yet, Domjahn (2013) argues that it will be challenging for developing countries to imitate the success story of South Korea because of specific informal institutions and favorable historical circumstances in the South Korean development process. The South Korean economy's success has been due to its export orientation policy as export seems to be a necessary, but not a sufficient, condition for the economy to grow.

2.2. Indexes

This paper applies the combination of two tradable goods indexes of Revealed Comparative Advantage (RCA) and Constant Market Share Analysis (CMSA). They are useful to figure out the bilateral economic relations between Indonesia and South Korea. This combination analysis adopts tradable goods of HS4 level. The RCA is a comparative proportion analysis adopted for the comparative advantage of David Ricardo (Wood, 1991), while the CMSA is a comparative growth analysis that is modified from the shift-share analysis (Dinc, 1998). The RCA is utilized to assess the static position of the product, while the CMSA is applied to evaluate its dynamic movement. Both the RCA and CMSA compare the country with the world.

Study of Verico (2020b) showed that the combination analysis of RCA and CMSA can describe Indonesia and South Korea's economic relations, either trade or long-run investment relations. The Harmonized System 4/HS4 data are taken from the Trade Map.
The equation for the RCA is:

$$RCA_{ijt} = \frac{X_{ijt}/\sum_{i=1}^{i=n} X_{jt}}{X_{iwt}/\sum_{i=1}^{i=n} X_{jt}} \quad (1)$$

Where:
i is tradable goods of export (X) from country J in time t
w is world data
n is the latest HS4 tradable goods

The equation for the CMSA is:

$$X_{ijt1} - X_{ijt0} = \sum(X_{iw\Delta t}).X_{ijt0} - X_{ijt0} + (X_{iw\Delta t} - \sum X_{iw\Delta t}).X_{ijt0} + (X_{ijt1} - X_{iw\Delta t}.X_{ijt0}) \quad (2)$$

Where:

$\sum(X_{iw\Delta t}).X_{ijt0} - X_{ijt0}$ is General Factor (CMSA1)
$(m_{iw\Delta t} - \sum m_{iw\Delta t}).X_{ijt0}$ is Composition Factor (CMSA2)
$(X_{ijt1} - m_{iwj\Delta t}.X_{ijt0})$ is Comparative Factor (CMSA3)

The CMSA has three models, and this paper applies the combination of the RCA with the comparative factor entitled the CMSA3. This combination can show the product's classification as the great industry (RCA>1, CMSA3>0), sunrise (RCA<1, CMSA3>0), sunset (RCA>1, CMSA3<0), or suffer (RCA<1, CMSA3<0).

All of these classifications are applied for both countries by HS4 products. If the classification is similar, then the cooperation type is trade, while if different from sunrise/sunset in one country to sunset/sunrise in another country, then the relationship is investment outflows or inflows.

The period of the analysis is from 2015 to 2019. This period is five years before the global pandemic affects the world's economy. The static analysis of RCA adopts the year 2019, while the dynamic analysis of CMSA3 takes 2015 and 2019.

2.3. GTAP Model

This paper uses the Global Trade Analysis Project (GTAP) model to measure bilateral Indonesia's impacts – South Korea CEPA on trade balance and price of supply. In its standard model, the GTAP model is a multi-region, multisector, computable general equilibrium (CGE) model, with perfect competition and constant return to scale calibration. In its latest version, the GTAP database consists of 121 countries and 20 aggregate regions, representing 98 percent of world GDP and 92 percent of the world population. The economy is classified into 65 uniformed sectors for each country and region with the 50 most updated Input-Output (I-O) tables. GTAP model consists of several main economic agents, including firms, households, government, and investors.

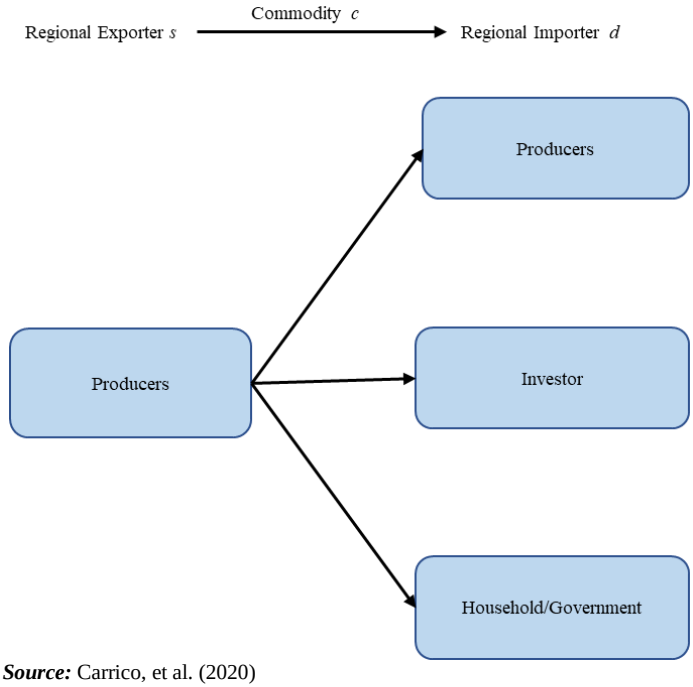
The GTAP is motivated by the fact that collaboration between countries is essential for detailed global economy analysis (Walmsey et al., 2012). Collaboration in the global economy can improve the quality of policy analysis worldwide. The GTAP database records the annual flows of goods and services for the entire world economy in the benchmark year(s).

This paper adopts GTAP10A with Indonesia and South Korea, as the new regions and 143 old regions. As for the sectors, this paper adopts 65 old sectors that have been mapped into ten sectors and eight old factors that have been mapped into five new factors. The simulations were based on the Most Favored Nation (MFN) rate liberalization for HS6 digit of both countries. This paper used the type of shock of the change rate in percent and solved it with Euler's three solutions method.

GTAP10A is also known as GTAP version 10A Multi-Region Input-Output (GTAP-MRIO) Data Base. GTAP-MRIO extends the standard GTAP Data Base by distinguishing bilateral trade and tariff flows by agents (firms, private households, government, and investors). The MRIO framework can be illustrated as shown in **Figure 1**. To construct the GTAP-MRIO, the team first construct 5,204 unique HS codes to 19 BEC (Broad Economic Categories) and, in turn to 3 end-

use categories (capital goods, intermediate goods, and consumption goods). After that, GTAP-HS concordance is applied, which is a one-to-many mapping between the 6-digit HS into 45 GTAP commodity sectors (Carrico et al., 2020).

Figure 1: The MRIO Framework



Source: Carrico, et al. (2020)

3. DESCRIPTIVE ANALYSIS: HISTORICAL APPROACH AND COMPARATIVE MACROECONOMIC ANALYSIS

There is a fundamental difference between Indonesia and South Korea, which started new industrialization in the same era, in the late 1960s. As a result, South Korea has become a high-income country while Indonesia has just entered the upper-middle income level. South Korea focused on automotive, electronics with the intensive supports of research and development and innovative activities. Indonesia focused on leapfrogging technologies while, on the opposite, its human capital and comparative advantage were still lagging.

Preserving the due diligence principle, big private companies (Chaebol) in South Korea sought financing from the bank; therefore, all of the debtors have to comply with the regulations of 5Cs of (cash-flow, collateral, capital, character, and condition). Conversely, the strategic industries in Indonesia can access financing from the state budget subsidies that can have weak supervision, therefore, generate moral hazard since debtors and supervisors are similar.

South Korea's industry has applied 'to sell orientation'; accordingly, there is a pressure to be export-oriented. Meanwhile, in the beginning, Indonesia adopted a strategic industry with production orientation and depended on imported machinery and spare parts, mostly using foreign exchange. However, Indonesia supported its strategic industry because previously, Indonesia was a net oil exporter, and at that time, the world experienced oil price hikes. In Southeast Asia, for instance, Malaysia, in the late 1980s, applied similar strategy to South Korea in manufacturing vision which focus on how to sell, not only how to produce.

Under Park Chung Hee, South Korea collaborated with the US under President Lyndon Johnson to develop the industry in South Korea with the concept of Science Technology Innovation (STI). The STI concept imitates the US's STEM (Science Technology Engineering Mathematics). Industrialization did not start with a leapfrogging but slowly starting from the upstream development of spare parts and components. This strategy helps a country fulfil the middle-hollow problem in the lack of intermediate products, which Indonesia has been facing for at least 20 years.

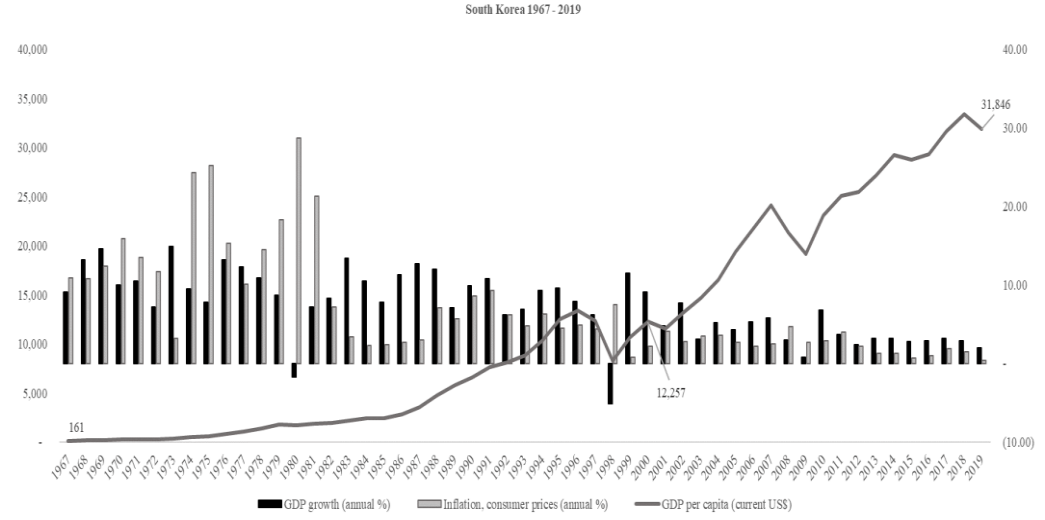
Learning from South Korea's experiences on the productivity of supply-side with the concept of supply-side (STI), a country that focuses on RND and Design was useful. South Korea was not focusing on the demand side, therefore, successfully escaped from the pragmatic import substitution orientation. South Korean data shows when the proportion of RND per GDP increases, its economic growth increases sharply. Currently, South Korea is the country with the highest proportion of RND per GDP in Asia, which is more than three percent. Meanwhile, Indonesia was in the range of 0.08 percent of GDP.

Another important reason to learn from South Korea's manufacturing strategies is that, similar to Indonesia, the nominal exchange rate regime in South Korea is managed-float that significantly essential affecting the success story of the manufacturing development acceleration.

Indonesia and South Korea started the acceleration of economic development in a similar period of the last 1960s. South Korea started the second period of economic development in 1967 where Indonesia experienced a significant political change from the Old Order to the New Order.

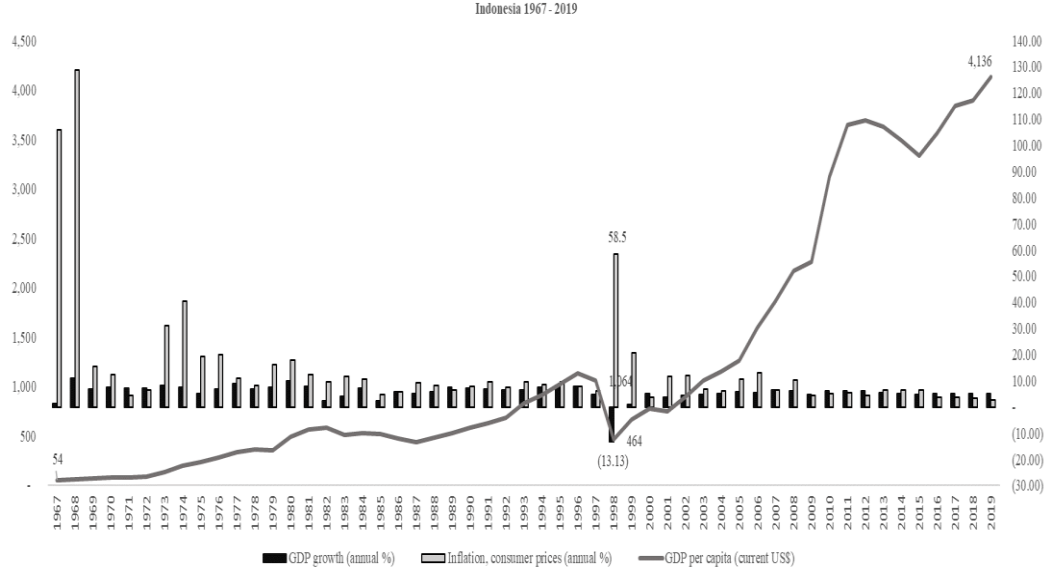
As shown in Figure 2 and Figure 3, Indonesia's GDP per Capita of USD 54 was 34 percent of the GDP per Capital of South Korea of USD 161. South Korea achieved High-Income Country (HIC) with GDP per Capita of USD 8,885 above the standard of HIC at that time of USD 8,625 in less than 27 years. When South Korea achieved the HIC, Indonesia's GDP per Capita to South Korea's GDP per Capita was dropped from 34 percent to only 9 percent. This fact indicated that South Korea recorded much average economic growth compared to that of Indonesia.

Figure 2: Real Economic Growth, Inflation Rate and GDP Per Capita (USD) of South Korea 1967 – 2019



Source: Own illustration based on the WDI dataset, 2021.
Notes: *Left hand side is for GDP per Capita; **Right hand side is for percentage.

Figure 3: Real Economic Growth, Inflation Rate and GDP Per Capita (USD) of Indonesia 1967 – 2019



Source: Own illustration based on the WDI dataset, 2021.
Notes: *Left hand side is for GDP per Capita; **Right hand side is for percentage.

The equation of exchange formula that the increase of money supply equals real economic growth multiply the inflation rate then divided by money velocity. According to the increasing Aggregate Demand (AD) simulation in static Aggregate Supply (AS), the higher real economic growth compared to the inflation rate, the more elastic the AS, the more productive the economy. Therefore, this paper needs to compare the real economic growth to the inflation rate as the proxy of the relationship between the increasing money supply and productivity.

Data showed that South Korea was much more productive in the first five years (1968-1973) than Indonesia as South Korea's economic growth and the inflation rate was 11.74 percent and 11.27 percent, while those of Indonesia was 7.91 percent and 33.09 percent, respectively. South Korea recorded the highest economic growth in 1973 with 14.9 percent, while Indonesia with 9.88 percent in 1980. South Korea also recorded the best economic performance in 1986-1988 with real economic growth and the inflation rate of 12 percent and 4.3 percent, respectively, while Indonesia recorded economic growth of 5.53 percent and a higher inflation rate of 7.72 percent.

From 1967-1997, before the AFC, South Korea achieved average economic growth of 9.6 percent, while Indonesia recorded 6.6 percent. Indonesia has also been facing a higher inflation rate with an average of 18.78 percent, while South Korea much lower at 10.3 percent. South Korea achieved 14 years out of 27 years from 1967-1997 with double-digit economic growth while Indonesia only booked one in the year 1968 with 10.92 percent because of the overshooting situation after the biggest economic contraction from 1962-1967 with the average real economic growth of one percent and the lowest was -2.24 percent in 1963.

In 2019, Indonesia's GDP per Capita was USD 4,136, or around 13 percent of South Korea's GDP per Capita with USD 31,846. his proportion increased from 10 percent in 1993 when South Korea achieved HIC, which indicated Indonesia could increase its economic growth and GDP per Capita. Indonesia needs to increase double of growth for its manufacturing sector to support its real economic growth by around seven percent as required to avoid the MIT before 2040. The latter is the end of Indonesia's demographic bonus. Given this, Indonesia needs to learn from South Korea's experiences on avoiding the Middle-Income Trap (MIT) and reached the HIC. The main objective is how to increase Indonesia's economic growth while keeping the inflation rate lower than the economic growth. This effort is all about improving productivity and the Indonesia-Korea CEPA, which is expected to generate mutual benefit and empower Indonesia's effort to transform its manufacturing development.

During the global pandemic, Indonesia experiences negative economic growth and increasing unemployment. This economic contraction deteriorates Indonesia's output gap and development scenario to avoid the MIT (Verico, 2021). Usually, after the economic contraction and only if Indonesia can contain the pandemic, Indonesia will experience overshooting in economic growth. In its second five-year development plan economy, South Korea showed an average double-digit of real economic growth at almost 12 percent[2]. Under what circumstances can South Korea achieve this skyrocketing economic growth? Indonesia needs to learn from it.
In terms of sectoral productivity, the latest data before the pandemic shows that both countries are not productive in the agriculture sector, reflected in less than one productivity level. Indonesia is

[2] This analysis refers to Verico (2021).

more productive than South Korea, with 0.42 and 0.33, respectively, in terms of the proportion of value-added proportion and labor absorption proportion. The annual growth data also confirms that Indonesia's economic growth is higher than that of South Korea, with 3.91 percent and 2.34 percent, respectively. However, in terms of annual value added per worker, the agriculture sector in South Korea is much higher than in Indonesia, with USD 19,640 and USD 3,730, respectively.

A similar figure with the agriculture sector is also found in the service sector that Indonesia is more productive with a higher rate in real economic growth. Still, in terms of annual value-added per worker, South Korea is much higher than Indonesia, with USD 43,814 and USD 8,334. In terms of value-added in Balance of Payment (BoP), South Korea is also record more nominal than Indonesia with USD 107.6 billion and USD 28 billion.

In the manufacturing sector, South Korea remains higher in terms of its proportion to the GDP compared to that of Indonesia with 25.32 percent and 19.86 percent. Manufacture sector productivity of South Korea is higher than that of Indonesia. The annual value-added per worker in constant 2010 price is much higher than that of Indonesia with USD 70.14 K and USD 16.45. In manufacturing, South Korea is much advanced than Indonesia. Three indicators had confirmed this: one the proportion of manufacture exports to merchandise exports, two the medium & high-tech exports to the total manufactured exports, and three, the high-tech exports share to total manufactured exports. In all of these indicators, South Korea showed a much better proportion than Indonesia (see Table 1). In terms of trade liberalization, South Korea confirmed more open than Indonesia as its MFN tariff rate is lower than that of Indonesia.

Table 1: Comparative Macroeconomic Indicators of Indonesia and South Korea (2019)

No	Macroeconomics Indicators	South Korea	Indonesia
1	Agriculture, forestry, and fishing, value added (% of GDP)	1.62	12.81
2	Employment in agriculture (% of total employment) (modelled ILO estimate)	4.88	30.26
3	Agriculture Productivity	0.33	0.42
4	Agriculture, forestry, and fishing, value added (annual % growth)	2.34	3.91
5	Agriculture, forestry, and fishing, value added per worker (constant 2010 US$)	19,640	3,730
6	Services, value added (% of GDP)	57.08	43.41
7	Employment in services (% of total employment) (modelled ILO estimate)	69.99	47.76
8	Service Sector Productivity	0.82	0.91
9	Services, value added (annual % growth)	2.92	5.83
10	Services, value added per worker (constant 2010 US$)	43,814	8,334.87
11	Trade in services (% of GDP)	14.47	6.05
12	Service exports (BoP, current US$)	107,631,100,000	28,002,536,921
13	Manufacturing, value added (% of GDP)	25.32	19.86
14	Employment in industry (% of total employment) (modelled ILO estimate)	25.13	21.98
15	Manufactures Productivity	1.01	0.90

16	Manufacturing, value added (annual % growth)	1.26	4.27
17	Industry (including construction), value added per worker (constant 2010 US$)	70,135	16,446
18	Manufactures exports (% of merchandise exports)	87.40	44.72
19	Medium and high-tech exports (% manufactured exports)	74.22	28.09
20	High-technology exports (% of manufactured exports)	32.41	8.02
21	Tariff rate, most favoured nation, simple mean, manufactured products (%)	7.49	8.29

Source: World Development Indicator (WDI), World Bank, 2021.
Note: Productivity is own calculation.

4. QUANTITATIVE ANALYSIS: RCA-CMSA3 AND GTAP SIMULATION

This paper applies a combination calculation of static RCA index and dynamic CMSA3 index to assessing bilateral trade creation between Indonesia and South Korea under the great-great and suffer-suffer conditions and bilateral investment creation under sunrise to sunset relations. Long-run investment flows from sunrise to sunset industry (Nishiwaki, 2016).

This paper also applies the GTAP simulation of trade creation for the short-run impact analysis and GTAP simulation on gains from trade of the productivity improvement as a proxy for the long-run impact analysis.

The combination indexes of RCA and CMSA3 are applied on harmonized system digit four (HS4) for both countries. This combination calculation can define manufacturing product by HS4 either in the position of great, sunrise, sunset, or suffer. This paper observes 1,257 HS4 products and classified each of them by country. This paper proposes that a similar manufacturing classification will be appropriate for bilateral trade relations. Bilateral investment relations are more relevant from sunrise manufacture in one country to sunset manufacture in another country. This paper described great-great and suffer-suffer manufacturing for bilateral trade relations between Indonesia and South Korea (see Table 2.1 and Table 2.2).

Table 2.1: Indonesia and South Korea Potential Bilateral Trade Cooperation 2015-2019 (Classification of Great – Great)

	TOTAL	RI	Korea	Bilateral
'1212	Locust beans, seaweeds and other algae, sugar beet and sugar cane, fresh, chilled, frozen or ...	Great	Great	Trade
'1902	Pasta, whether or not cooked or stuffed with meat or other substances or otherwise prepared, ...	Great	Great	Trade
'2817	Zinc oxide; zinc peroxide	Great	Great	Trade
'2847	Hydrogen peroxide, whether or not solidified with urea	Great	Great	Trade
'2903	Halogenated derivatives of hydrocarbons	Great	Great	Trade
'3817	Mixed alkylbenzenes and mixed alkylnaphthalenes produced by the alkylation of benzene and naphthalene ...	Great	Great	Trade
'5006	Silk yarn and yarn spun from silk waste, put up for retail sale; silkworm gut	Great	Great	Trade
'5203	Cotton, carded or combed	Great	Great	Trade

'5803	Gauze (excluding narrow woven fabrics of heading 5806)	Great	Great	Trade
'7202	Ferro-alloys	Great	Great	Trade
'7806	Articles of lead, n.e.s.	Great	Great	Trade
'8003	Tin bars, rods, profiles and wire, n.e.s.	Great	Great	Trade
'8110	Antimony and articles thereof, n.e.s.; antimony waste and scrap (excluding ash and residues ...	Great	Great	Trade
'9612	Typewriter or similar ribbons, inked or otherwise prepared for giving impressions, whether ...	Great	Great	Trade

Source: Own calculation based on Trade Map, 2021.

Table 2.2: Indonesia and South Korea Potential Bilateral Trade Cooperation 2015-2019 (Classification of Suffer – Suffer)

	TOTAL	**RI**	**Korea**	**Bilateral**
'0102	Live bovine animals	Suffer	Suffer	Trade
'0203	Meat of swine, fresh, chilled or frozen	Suffer	Suffer	Trade
'0204	Meat of sheep or goats, fresh, chilled or frozen	Suffer	Suffer	Trade
'0205	Meat of horses, asses, mules or hinnies, fresh, chilled or frozen	Suffer	Suffer	Trade
'0302	Fish, fresh or chilled (excluding fish fillets and other fish meat of heading 0304)	Suffer	Suffer	Trade
'0401	Milk and cream, not concentrated nor containing added sugar or other sweetening matter	Suffer	Suffer	Trade
'0502	Pigs', hogs' or boars' bristles and hair; badger hair and other brush making hair; waste of ...	Suffer	Suffer	Trade
'0503	Horsehair and horsehair waste, whether or not put up as a layer, with or without supporting ...	Suffer	Suffer	Trade
'0504	Guts, bladders and stomachs of animals (other than fish), whole and pieces thereof, fresh, ...	Suffer	Suffer	Trade
'0506	Bones and horn-cores and their powder and waste, unworked, defatted, simply prepared, treated ...	Suffer	Suffer	Trade
'0509	Natural sponges of animal origin	Suffer	Suffer	Trade
'0603	Cut flowers and flower buds of a kind suitable for bouquets or for ornamental purposes, fresh, ...	Suffer	Suffer	Trade
'0711	Vegetables provisionally preserved, e.g. by sulphur dioxide gas, in brine, in sulphur water ...	Suffer	Suffer	Trade
'0713	Dried leguminous vegetables, shelled, whether or not skinned or split	Suffer	Suffer	Trade
'0803	Bananas, incl. plantains, fresh or dried	Suffer	Suffer	Trade
'0810	Fresh strawberries, raspberries, blackberries, back, white or red currants, gooseberries and ...	Suffer	Suffer	Trade
'0812	Fruit and nuts, provisionally preserved, e.g. by sulphur dioxide gas, in brine, in sulphur ...	Suffer	Suffer	Trade
'0903	Mate	Suffer	Suffer	Trade
'1002	Rye	Suffer	Suffer	Trade
'1103	Cereal groats, meal and pellets	Suffer	Suffer	Trade
'1104	Cereal grains otherwise worked, e.g. hulled, rolled, flaked, pearled, sliced or kibbled; germ ...	Suffer	Suffer	Trade
'1107	Malt, whether or not roasted	Suffer	Suffer	Trade

'1202	Groundnuts, whether or not shelled or broken (excluding roasted or otherwise cooked)	Suffer	Suffer	Trade
'1204	Linseed, whether or not broken	Suffer	Suffer	Trade
'1207	Other oil seeds and oleaginous fruits, whether or not broken (excluding edible nuts, olives, ...	Suffer	Suffer	Trade
'1210	Hop cones, fresh or dried, whether or not ground, powdered or in the form of pellets; lupulin	Suffer	Suffer	Trade
'1213	Cereal straw and husks, unprepared, whether or not chopped, ground, pressed or in the form ...	Suffer	Suffer	Trade
'1402	Vegetable materials of a kind used primarily as stuffing or as padding, e.g. kapok, vegetable ...	Suffer	Suffer	Trade
'1403	Vegetable materials, such as broom-corn, piassava, couch-grass and istle, of a kind used primarily ...	Suffer	Suffer	Trade
'1502	Fats of bovine animals, sheep or goats (excluding oil and oleostearin)	Suffer	Suffer	Trade
'1503	Lard stearin, lard oil, oleostearin, oleo-oil and tallow oil (excluding emulsified, mixed or ...	Suffer	Suffer	Trade
'1504	Fats and oils and their fractions of fish or marine mammals, whether or not refined (excluding ...	Suffer	Suffer	Trade
'1508	Groundnut oil and its fractions, whether or not refined, but not chemically modified	Suffer	Suffer	Trade
'1509	Olive oil and its fractions obtained from the fruit of the olive tree solely by mechanical ...	Suffer	Suffer	Trade
'1510	Other oils and their fractions, obtained solely from olives, whether or not refined, but not ...	Suffer	Suffer	Trade
'1802	Cocoa shells, husks, skins and other cocoa waste	Suffer	Suffer	Trade
'1901	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...	Suffer	Suffer	Trade
'2002	Tomatoes, prepared or preserved otherwise than by vinegar or acetic acid	Suffer	Suffer	Trade
'2003	Mushrooms and truffles, prepared or preserved otherwise than by vinegar or acetic acid	Suffer	Suffer	Trade
'2106	Food preparations, n.e.s.	Suffer	Suffer	Trade
'2204	Wine of fresh grapes, incl. fortified wines; grape must, partly fermented and of an actual ...	Suffer	Suffer	Trade
'2205	Vermouth and other wine of fresh grapes, flavoured with plants or aromatic substances	Suffer	Suffer	Trade
'2207	Undenatured ethyl alcohol of an alcoholic strength of >= 80%; ethyl alcohol and other spirits, ...	Suffer	Suffer	Trade
'2307	Wine lees; argol	Suffer	Suffer	Trade
'2501	Salts, incl. table salt and denatured salt, and pure sodium chloride, whether or not in aqueous ...	Suffer	Suffer	Trade
'2502	Unroasted iron pyrites	Suffer	Suffer	Trade
'2504	Natural graphite	Suffer	Suffer	Trade
'2505	Natural sands of all kinds, whether or not coloured (excluding gold- and platinum-bearing sands, ...	Suffer	Suffer	Trade
'2520	Gypsum; anhydrite; plasters consisting of calcined gypsum or calcium sulphate, whether or not ...	Suffer	Suffer	Trade
'2524	Asbestos (excluding products made from asbestos)	Suffer	Suffer	Trade
'2527	Natural cryolite and natural chiolite	Suffer	Suffer	Trade
'2529	Feldspar; leucite, nepheline and nepheline syenite; fluorspar	Suffer	Suffer	Trade

'2605	Cobalt ores and concentrates	Suffer	Suffer	Trade
'2609	Tin ores and concentrates	Suffer	Suffer	Trade
'2610	Chromium ores and concentrates	Suffer	Suffer	Trade
'2613	Molybdenum ores and concentrates	Suffer	Suffer	Trade
'2617	Ores and concentrates (excluding iron, manganese, copper, nickel, cobalt, aluminium, lead, ...	Suffer	Suffer	Trade
'2805	Alkali or alkaline-earth metals; rare-earth metals, scandium and yttrium, whether or not intermixed ...	Suffer	Suffer	Trade
'2806	Hydrogen chloride "hydrochloric acid"; chlorosulphuric acid	Suffer	Suffer	Trade
'2809	Diphosphorus pentaoxide; phosphoric acid; polyphosphoric acids, whether or not chemically defined	Suffer	Suffer	Trade
'2810	Oxides of boron; boric acids	Suffer	Suffer	Trade
'2819	Chromium oxides and hydroxides	Suffer	Suffer	Trade
'2825	Hydrazine and hydroxylamine and their inorganic salts; inorganic bases, metal oxides, hydroxides ...	Suffer	Suffer	Trade
'2827	Chlorides, chloride oxides and chloride hydroxides; bromides and bromide oxides; iodides and ...	Suffer	Suffer	Trade
'2829	Chlorates and perchlorates; bromates and perbromates; iodates and periodates	Suffer	Suffer	Trade
'2832	Sulphites; thiosulphates	Suffer	Suffer	Trade
'2836	Carbonates; peroxocarbonates "percarbonates"; commercial ammonium carbonate containing ammonium ...	Suffer	Suffer	Trade
'2838	Fulminates, cyanates and thiocyanates	Suffer	Suffer	Trade
'2848	Phosphides, whether or not chemically defined (excluding ferrophosphorus, and inorganic or ...	Suffer	Suffer	Trade
'2849	Carbides, whether or not chemically defined	Suffer	Suffer	Trade
'2851	Inorganic compounds, incl. distilled or conductivity water and water of similar purity, n.e.s.; ...	Suffer	Suffer	Trade
'2852	Compounds, inorganic or organic, of mercury, whether or not chemically defined (excluding amalgams)	Suffer	Suffer	Trade
'2904	Sulphonated, nitrated or nitrosated derivatives of hydrocarbons, whether or not halogenated	Suffer	Suffer	Trade
'2913	Halogenated, sulphonated, nitrated or nitrosated derivatives of cyclic polymers of aldehydes ...	Suffer	Suffer	Trade
'2934	Nucleic acids and their salts, whether or not chemically defined; heterocyclic compounds (excluding ...	Suffer	Suffer	Trade
'2936	Provitamins and vitamins, natural or reproduced by synthesis, incl. natural concentrates, derivatives ...	Suffer	Suffer	Trade
'2941	Antibiotics	Suffer	Suffer	Trade
'3101	Animal or vegetable fertilisers, whether or not mixed together or chemically treated; fertilisers ...	Suffer	Suffer	Trade
'3104	Mineral or chemical potassic fertilisers (excluding those in tablets or similar forms, or in ...	Suffer	Suffer	Trade
'3205	Colour lakes (other than Chinese or Japanese lacquer and paints); preparations based on colour ...	Suffer	Suffer	Trade
'3402	Organic surface-active agents (excluding soap); surface-active preparations, washing preparations, ...	Suffer	Suffer	Trade
'3502	Albumins, incl. concentrates of two or more whey proteins containing by weight > 80% whey proteins, ...	Suffer	Suffer	Trade

'3503	Gelatin, whether or not in square or rectangular sheets, whether or not surface-worked or coloured, ...	Suffer	Suffer	Trade
'3601	Propellent powders	Suffer	Suffer	Trade
'3604	Fireworks, signalling flares, rain rockets, fog signals and other pyrotechnic articles (excluding ...	Suffer	Suffer	Trade
'3606	Ferro-cerium and other pyrophoric alloys in all forms; metaldehyde, hexamethylenetetramine ...	Suffer	Suffer	Trade
'3703	Photographic paper, paperboard and textiles, sensitised, unexposed	Suffer	Suffer	Trade
'3706	Cinematographic film, exposed and developed, whether or not incorporating soundtrack or consisting ...	Suffer	Suffer	Trade
'3804	Residual lyes from the manufacture of wood pulp, whether or not concentrated, desugared or ...	Suffer	Suffer	Trade
'3807	Wood tar; wood tar oils; wood creosote; wood naphtha; vegetable pitch; brewer's pitch and similar ...	Suffer	Suffer	Trade
'3822	Diagnostic or laboratory reagents on a backing, prepared diagnostic or laboratory reagents ...	Suffer	Suffer	Trade
'3922	Baths, shower-baths, sinks, washbasins, bidets, lavatory pans, seats and covers, flushing cisterns ...	Suffer	Suffer	Trade
'3925	Builders' ware of plastics, n.e.s.	Suffer	Suffer	Trade
'4007	Vulcanised rubber thread and cord (excluding ungimped single thread with a diameter of > 5 ...	Suffer	Suffer	Trade
'4008	Plates, sheets, strip, rods and profile shapes, of vulcanised rubber (excluding hard rubber)	Suffer	Suffer	Trade
'4012	Retreaded or used pneumatic tyres of rubber; solid or cushion tyres, tyre treads and tyre flaps, ...	Suffer	Suffer	Trade
'4101	Raw hides and skins of bovine "incl. buffalo" or equine animals, fresh, or salted, dried, limed, ...	Suffer	Suffer	Trade
'4108	Chamois leather, incl. combination chamois leather(excluding glace-tanned leather subsequently ...	Suffer	Suffer	Trade
'4109	Patent leather and patent laminated leather; metallized leather (excluding lacquered or metallized ...	Suffer	Suffer	Trade
'4110	Parings and other waste of leather, parchment-dressed leather or composition leather, not suitable ...	Suffer	Suffer	Trade
'4111	Composition leather based on leather or leather fibre, in slabs, sheets or strip, whether or ...	Suffer	Suffer	Trade
'4204	Articles for technical use, of leather or composition leather	Suffer	Suffer	Trade
'4303	Articles of apparel, clothing accessories and other furskin articles (excluding gloves made ...	Suffer	Suffer	Trade
'4304	Artificial fur and articles thereof (excluding gloves made of leather and artificial fur, footware ...	Suffer	Suffer	Trade
'4401	Fuel wood, in logs, billets, twigs, faggots or similar forms; wood in chips or particles; sawdust ...	Suffer	Suffer	Trade
'4415	Packing cases, boxes, crates, drums and similar packings, of wood; cable-drums of wood; pallets, ...	Suffer	Suffer	Trade
'4705	Wood pulp obtained by a combination of mechanical and chemical pulping processes	Suffer	Suffer	Trade
'4801	Newsprint as specified in Note 4 to chapter 48, in rolls of a width > 36 cm or in square or ...	Suffer	Suffer	Trade
'4806	Vegetable parchment, greaseproof papers, tracing papers and glassine and other glazed transparent ...	Suffer	Suffer	Trade

'4815	Floor coverings on a base of paper or paperboard, whether or not cut to size (excluding similar ...	Suffer	Suffer	Trade
'4821	Paper or paperboard labels of all kinds, whether or not printed	Suffer	Suffer	Trade
'4911	Printed matter, incl. printed pictures and photographs, n.e.s.	Suffer	Suffer	Trade
'5001	Silkworm cocoons suitable for reeling	Suffer	Suffer	Trade
'5004	Silk yarn (excluding that spun from silk waste and that put up for retail sale)	Suffer	Suffer	Trade
'5101	Wool, neither carded nor combed	Suffer	Suffer	Trade
'5103	Waste of wool or of fine or coarse animal hair, incl. yarn waste (excluding garnetted stock, ...	Suffer	Suffer	Trade
'5104	Garnetted stock of wool or of fine or coarse animal hair, neither carded nor combed	Suffer	Suffer	Trade
'5107	Yarn of combed wool (excluding that put up for retail sale)	Suffer	Suffer	Trade
'5109	Yarn of wool or fine animal hair, put up for retail sale	Suffer	Suffer	Trade
'5111	Woven fabrics of carded wool or of carded fine animal hair (excluding fabrics for technical ...	Suffer	Suffer	Trade
'5113	Woven fabrics of coarse animal hair or of horsehair (excluding fabrics for technical uses of ...	Suffer	Suffer	Trade
'5204	Cotton sewing thread, whether or not put up for retail sale	Suffer	Suffer	Trade
'5208	Woven fabrics of cotton, containing >= 85% cotton by weight and weighing <= 200 g/m²	Suffer	Suffer	Trade
'5209	Woven fabrics of cotton, containing >= 85% cotton by weight and weighing > 200 g/m²	Suffer	Suffer	Trade
'5211	Woven fabrics of cotton, containing predominantly, but < 85% cotton by weight, mixed principally ...	Suffer	Suffer	Trade
'5302	True hemp "Cannabis sativa L.", raw or processed, but not spun; tow and waste of true hemp, ...	Suffer	Suffer	Trade
'5304	Sisal and other textile fibres of the genus Agave, raw or processed, but not spun; tow and ...	Suffer	Suffer	Trade
'5309	Woven fabrics of flax	Suffer	Suffer	Trade
'5403	Artificial filament yarn, incl. artificial monofilament of < 67 decitex (excluding sewing thread ...	Suffer	Suffer	Trade
'5406	Man-made filament yarn, put up for retail sale (excluding sewing thread)	Suffer	Suffer	Trade
'5516	Woven fabrics of artificial staple fibres	Suffer	Suffer	Trade
'5603	Nonwovens, whether or not impregnated, coated, covered or laminated, n.e.s.	Suffer	Suffer	Trade
'5608	Knotted netting of twine, cordage or rope, by the piece or metre; made-up fishing nets and ...	Suffer	Suffer	Trade
'5609	Articles of yarn, strip or the like of heading 5404 or 5405, or of twine, cordage, ropes or ...	Suffer	Suffer	Trade
'5702	Carpets and other textile floor coverings, woven, not tufted or flocked, whether or not made ...	Suffer	Suffer	Trade
'5703	Carpets and other textile floor coverings, tufted "needle punched", whether or not made up	Suffer	Suffer	Trade
'5704	Carpets and other floor coverings, of felt, not tufted or flocked, whether or not made up	Suffer	Suffer	Trade
'5804	Tulles and other net fabrics (excluding woven, knitted or crocheted fabrics); lace in the piece, ...	Suffer	Suffer	Trade

'5805	Hand-woven tapestries of the type Gobelin, Flanders, Aubusson, Beauvais and the like, and needle-worked ...	Suffer	Suffer	Trade
'5810	Embroidery on a textile fabric ground, in the piece, in strips or in motifs	Suffer	Suffer	Trade
'5904	Linoleum, whether or not cut to shape; floor coverings consisting of a coating or covering ...	Suffer	Suffer	Trade
'6002	Knitted or crocheted fabrics, of a width <= 30 cm, containing by weight >= 5% of elastomeric ...	Suffer	Suffer	Trade
'6003	Knitted or crocheted fabrics, of a width <= 30 cm (excluding those containing by weight >= ...	Suffer	Suffer	Trade
'6114	Special garments for professional, sporting or other purposes, n.e.s., knitted or crocheted	Suffer	Suffer	Trade
'6117	Made-up clothing accessories, knitted or crocheted; knitted or crocheted parts of garments ...	Suffer	Suffer	Trade
'6214	Shawls, scarves, mufflers, mantillas, veils and similar articles (excluding knitted or crocheted)	Suffer	Suffer	Trade
'6301	Blankets and travelling rugs of all types of textile materials (excluding table covers, bedspreads ...	Suffer	Suffer	Trade
'6304	Articles for interior furnishing, of all types of textile materials (excluding blankets and ...	Suffer	Suffer	Trade
'6307	Made-up articles of textile materials, incl. dress patterns, n.e.s.	Suffer	Suffer	Trade
'6310	Used or new rags, scrap twine, cordage, rope and cables and worn-out articles thereof, of textile ...	Suffer	Suffer	Trade
'6405	Footwear with outer soles of rubber or plastics, with uppers other than rubber, plastics, leather ...	Suffer	Suffer	Trade
'6502	Hat-shapes, plaited or made by assembling strips of any material (excluding blocked to shape, ...	Suffer	Suffer	Trade
'6503	Felt hats and other felt headgear, made from the hat bodies, hoods or plateaux of heading 6501, ...	Suffer	Suffer	Trade
'6504	Hats and other headgear, plaited or made by assembling strips of any material, whether or not ...	Suffer	Suffer	Trade
'6602	Walking sticks, seat-sticks, whips, riding-crops and the like (excluding measure walking sticks, ...	Suffer	Suffer	Trade
'6702	Artificial flowers, foliage and fruit and parts thereof, and articles made of artificial flowers, ...	Suffer	Suffer	Trade
'6801	Setts, curbstones and flagstones, of natural stone (excluding slate)	Suffer	Suffer	Trade
'6809	Articles of plaster or of compositions based on plaster (excluding plaster bandages for straightening ...	Suffer	Suffer	Trade
'6812	Fabricated asbestos fibres; mixtures with a basis of asbestos or with a basis of asbestos and ...	Suffer	Suffer	Trade
'6903	Retorts, crucibles, mufflers, nozzles, plugs, supports, cupels, tubes, pipes, sheaths, rods ...	Suffer	Suffer	Trade
'6905	Roofing tiles, chimney pots, cowls, chimney liners, architectural ornaments and other ceramic ...	Suffer	Suffer	Trade
'6906	Ceramic pipes, conduits, guttering and pipe fittings (excluding of siliceous fossil meals or ...	Suffer	Suffer	Trade
'6908	Glazed ceramic flags and paving, hearth or wall tiles; glazed ceramic mosaic cubes and the ...	Suffer	Suffer	Trade
'6910	Ceramic sinks, washbasins, washbasin pedestals, baths, bidets, water closet pans, flushing ...	Suffer	Suffer	Trade

'7001	Cullet and other waste and scrap of glass; glass in the mass (excluding glass in the form of ...	Suffer	Suffer	Trade
'7002	Glass in balls, rods or tubes, unworked (excluding glass microspheres <= 1 mm in diameter, ...	Suffer	Suffer	Trade
'7007	Safety glass, toughened "tempered", laminated safety glass (excluding multiple-walled insulating ...	Suffer	Suffer	Trade
'7008	Multiple-walled insulating units of glass	Suffer	Suffer	Trade
'7012	Glass inners for vacuum flasks or for other vacuum vessels	Suffer	Suffer	Trade
'7015	Clock or watch glasses and similar glasses, glasses for non-corrective or corrective spectacles, ...	Suffer	Suffer	Trade
'7018	Glass beads, imitation pearls, imitation precious or semi-precious stones and similar glass ...	Suffer	Suffer	Trade
'7103	Precious stones and semi-precious stones, whether or not worked or graded, but not strung, ...	Suffer	Suffer	Trade
'7104	Precious and semi-precious stones, synthetic or reconstructed, whether or not worked or graded ...	Suffer	Suffer	Trade
'7111	Base metals, silver or gold, clad with platinum, not further worked than semi-manufactured	Suffer	Suffer	Trade
'7203	Ferrous products obtained by direct reduction of iron ore and other spongy ferrous products, ...	Suffer	Suffer	Trade
'7204	Ferrous waste and scrap; remelting scrap ingots of iron or steel (excluding slag, scale and ...	Suffer	Suffer	Trade
'7215	Bars and rods, of iron or non-alloy steel, cold-formed or cold-finished, whether or not further ...	Suffer	Suffer	Trade
'7314	Cloth, incl. endless bands, grill, netting and fencing, of iron or steel wire, expanded metal ...	Suffer	Suffer	Trade
'7315	Chain and parts thereof, or iron or steel (excluding watch chains, necklace chains and the ...	Suffer	Suffer	Trade
'7316	Anchors, grapnels and parts thereof, of iron or steel	Suffer	Suffer	Trade
'7318	Screws, bolts, nuts, coach screws, screw hooks, rivets, cotters, cotter pins, washers, incl. ...	Suffer	Suffer	Trade
'7323	Table, kitchen or other household articles, and parts thereof, of iron or steel; iron or steel ...	Suffer	Suffer	Trade
'7324	Sanitary ware, and parts thereof, of iron or steel (excluding cans, boxes and similar containers ...	Suffer	Suffer	Trade
'7402	Copper, unrefined; copper anodes for electrolytic refining	Suffer	Suffer	Trade
'7414	Cloth "incl. endless bands", grill and netting, of copper wire, and expanded metal, of copper ...	Suffer	Suffer	Trade
'7416	Copper springs (excluding clock and watch springs, spring washers and other lock washers)	Suffer	Suffer	Trade
'7417	Cooking or heating apparatus of a kind used for domestic purposes, non-electric, and parts ...	Suffer	Suffer	Trade
'7502	Unwrought nickel	Suffer	Suffer	Trade
'7603	Powder and flakes, of aluminium (excluding pellets of aluminium, and spangles)	Suffer	Suffer	Trade
'7608	Aluminium tubes and pipes (excluding hollow profiles)	Suffer	Suffer	Trade
'7609	Aluminium tube or pipe fittings "e.g., couplings, elbows, sleeves"	Suffer	Suffer	Trade
'7612	Casks, drums, cans, boxes and similar containers, incl. rigid or collapsible tubular containers, ...	Suffer	Suffer	Trade

'7614	Stranded wire, cables, plaited bands and the like, of aluminium (excluding such products electrically ...	Suffer	Suffer	Trade
'7615	Table, kitchen or other household articles, sanitary ware, and parts thereof, of aluminium, ...	Suffer	Suffer	Trade
'7803	Lead bars, rods, profiles and wire, n.e.s.	Suffer	Suffer	Trade
'7804	Lead plates, sheets, strip and foil; lead powders and flakes (excluding grains of lead, and ...	Suffer	Suffer	Trade
'7805	Lead tubes, pipes and tube or pipe fittings "e.g., couplings, elbows, sleeves"	Suffer	Suffer	Trade
'7906	Zinc tubes, pipes and tube or pipe fittings "e.g., couplings, elbows, sleeves"	Suffer	Suffer	Trade
'8004	Tin plates, sheets and strip, of a thickness of > 0,2 mm	Suffer	Suffer	Trade
'8005	Tin foil of a thickness "without any backing" <= 0,2 mm, whether or not printed or backed with ...	Suffer	Suffer	Trade
'8006	Tin tubes, pipes and tube or pipe fittings "e.g., couplings, elbows, sleeves"	Suffer	Suffer	Trade
'8007	Articles of tin, n.e.s.	Suffer	Suffer	Trade
'8103	Tantalum and articles thereof, n.e.s.; tantalum waste and scrap (excluding ash and residues ...	Suffer	Suffer	Trade
'8105	Cobalt mattes and other intermediate products of cobalt metallurgy; cobalt and articles thereof, ...	Suffer	Suffer	Trade
'8203	Files, rasps, pliers, incl. cutting pliers, pincers and tweezers for non-medical use, metal-cutting ...	Suffer	Suffer	Trade
'8204	Hand-operated spanners and wrenches, incl. torque meter wrenches (excluding tap wrenches), ...	Suffer	Suffer	Trade
'8205	Hand tools, incl. glaziers' diamonds, of base metal, n.e.s.; blowlamps and the like; vices, ...	Suffer	Suffer	Trade
'8212	Non-electric razors and razor blades of base metal, incl. razor blade blanks in strips	Suffer	Suffer	Trade
'8213	Scissors, tailors' shears and similar shears, and blades therefor, of base metal (excluding ...	Suffer	Suffer	Trade
'8214	Articles of cutlery, n.e.s., e.g. hair clippers, butchers' or kitchen cleavers, choppers and ...	Suffer	Suffer	Trade
'8215	Spoons, forks, ladles, skimmers, cake-servers, fish-knives, butter-knives, sugar tongs and ...	Suffer	Suffer	Trade
'8301	Padlocks and locks "key, combination or electrically operated", of base metal; clasps and frames ...	Suffer	Suffer	Trade
'8304	Filing cabinets, card-index cabinets, paper trays, paper rests, pen trays, office-stamp stands ...	Suffer	Suffer	Trade
'8308	Clasps, frames with clasps, buckles, buckle-clasps, hooks, eyes, eyelets and the like, of base ...	Suffer	Suffer	Trade
'8310	Sign-plates, nameplates, address-plates and similar plates, numbers, letters and other symbols, ...	Suffer	Suffer	Trade
'8403	Central heating boilers, non-electric; parts thereof (excluding vapour generating boilers and ...	Suffer	Suffer	Trade
'8405	Producer gas or water gas generators, with or without their purifiers; acetylene gas generators ...	Suffer	Suffer	Trade
'8406	Steam turbines and other vapour turbines; parts thereof	Suffer	Suffer	Trade
'8408	Compression-ignition internal combustion piston engine "diesel or semi-diesel engine"	Suffer	Suffer	Trade
'8410	Hydraulic turbines, water wheels, and regulators therefor (excluding hydraulic power engines ...	Suffer	Suffer	Trade

'8411	Turbojets, turbopropellers and other gas turbines	Suffer	Suffer	Trade
'8413	Pumps for liquids, whether or not fitted with a measuring device (excluding ceramic pumps and ...	Suffer	Suffer	Trade
'8423	Weighing machinery, incl. weight-operated counting or checking machines (excluding balances ...	Suffer	Suffer	Trade
'8424	Mechanical appliances, whether or not hand-operated, for projecting, dispersing or spraying ...	Suffer	Suffer	Trade
'8432	Agricultural, horticultural or forestry machinery for soil preparation or cultivation (excluding ...	Suffer	Suffer	Trade
'8433	Harvesting or threshing machinery, incl. straw or fodder balers; grass or hay mowers; machines ...	Suffer	Suffer	Trade
'8434	Milking machines and dairy machinery (excluding refrigerating or heat treatment equipment, ...	Suffer	Suffer	Trade
'8439	Machinery for making pulp of fibrous cellulosic material or for making or finishing paper or ...	Suffer	Suffer	Trade
'8445	Machines for preparing textile fibres; spinning, doubling or twisting machines and other machinery ...	Suffer	Suffer	Trade
'8454	Converters, ladles, ingot moulds and casting machines of a kind used in metallurgy or in metal ...	Suffer	Suffer	Trade
'8465	Machine tools, incl. machines for nailing, stapling, glueing or otherwise assembling, for working ...	Suffer	Suffer	Trade
'8467	Tools for working in the hand, pneumatic, hydraulic or with self-contained electric or non-electric ...	Suffer	Suffer	Trade
'8469	Typewriters and word-processing machines (excluding automatic data-processing machines and ...	Suffer	Suffer	Trade
'8470	Calculating machines and pocket-size "dimensions <= 170 mm x 100 mm x 45 mm" data recording, ...	Suffer	Suffer	Trade
'8471	Automatic data-processing machines and units thereof; magnetic or optical readers, machines ...	Suffer	Suffer	Trade
'8477	Machinery for working rubber or plastics or for the manufacture of products from these materials, ...	Suffer	Suffer	Trade
'8481	Taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like, ...	Suffer	Suffer	Trade
'8483	Transmission shafts, incl. camshafts and crankshafts, and cranks; bearing housings and plain ...	Suffer	Suffer	Trade
'8485	Machinery parts not specified or included elsewhere in this chapter (excluding parts containing ...	Suffer	Suffer	Trade
'8487	Machinery parts, n.e.s. in chapter 84 (excluding parts containing electrical connectors, insulators, ...	Suffer	Suffer	Trade
'8501	Electric motors and generators (excluding generating sets)	Suffer	Suffer	Trade
'8502	Electric generating sets and rotary converters	Suffer	Suffer	Trade
'8503	Parts suitable for use solely or principally with electric motors and generators, electric ...	Suffer	Suffer	Trade
'8504	Electrical transformers, static converters, e.g. rectifiers, and inductors; parts thereof	Suffer	Suffer	Trade
'8513	Portable electric lamps designed to function by their own source of energy, e.g. dry batteries, ...	Suffer	Suffer	Trade
'8516	Electric instantaneous or storage water heaters and immersion heaters; electric space-heating ...	Suffer	Suffer	Trade

'8518	Microphones and stands therefor (excluding cordless microphones with built-in transmitter); ...	Suffer	Suffer	Trade
'8520	Magnetic tape recorders and other sound recording apparatus whether or not incorporating a ...	Suffer	Suffer	Trade
'8524	Records, tapes and other recorded media for sound or other similarly recorded phenomena, incl. ...	Suffer	Suffer	Trade
'8525	Transmission apparatus for radio-broadcasting or television, whether or not incorporating reception ...	Suffer	Suffer	Trade
'8526	Radar apparatus, radio navigational aid apparatus and radio remote control apparatus	Suffer	Suffer	Trade
'8539	Electric filament or discharge lamps, incl. sealed beam lamp units and ultraviolet or infra-red ...	Suffer	Suffer	Trade
'8540	Thermionic, cold cathode or photo-cathode valves and tubes, e.g. vacuum or vapour or gas filled ...	Suffer	Suffer	Trade
'8545	Carbon electrodes, carbon brushes, lamp carbons, battery carbons and other articles of graphite ...	Suffer	Suffer	Trade
'8602	Rail locomotives (excluding those powered from an external source of electricity or by accumulators); ...	Suffer	Suffer	Trade
'8608	Railway or tramway track fixtures and fittings (excluding sleepers of wood, concrete or steel, ...	Suffer	Suffer	Trade
'8704	Motor vehicles for the transport of goods, incl. chassis with engine and cab	Suffer	Suffer	Trade
'8705	Special purpose motor vehicles (other than those principally designed for the transport of ...	Suffer	Suffer	Trade
'8903	Yachts and other vessels for pleasure or sports; rowing boats and canoes	Suffer	Suffer	Trade
'8907	Rafts, tanks, coffer-dams, landing stages, buoys, beacons and other floating structures (excluding ...	Suffer	Suffer	Trade
'9003	Frames and mountings for spectacles, goggles or the like, and parts thereof, n.e.s.	Suffer	Suffer	Trade
'9004	Spectacles, goggles and the like, corrective, protective or other (excluding spectacles for ...	Suffer	Suffer	Trade
'9007	Cinematographic cameras and projectors, whether or not incorporating sound recording or reproducing ...	Suffer	Suffer	Trade
'9009	Photocopying apparatus incorporating an optical system or of the contact type and thermo-copying ...	Suffer	Suffer	Trade
'9014	Direction finding compasses; other navigational instruments and appliances (excluding radio ...	Suffer	Suffer	Trade
'9025	Hydrometers, areometers and similar floating instruments, thermometers, pyrometers, barometers, ...	Suffer	Suffer	Trade
'9103	Clocks with watch movements (excluding wrist-watches, pocket-watches and other watches of heading ...	Suffer	Suffer	Trade
'9105	Clocks (excluding wrist-watches, pocket-watches and other watches of heading 9101 or 9102, ...	Suffer	Suffer	Trade
'9107	Time switches with clock or watch movement or with synchronous motor	Suffer	Suffer	Trade
'9108	Watch movements, complete and assembled	Suffer	Suffer	Trade
'9114	Clock or watch parts, n.e.s.	Suffer	Suffer	Trade
'9203	Keyboard pipe organs; harmoniums and similar keyboard instruments with free metal reeds (excluding ...	Suffer	Suffer	Trade
'9204	Accordions and similar instruments; mouth organs	Suffer	Suffer	Trade

'9303	Firearms and similar devices which operate by the firing of an explosive charge, e.g. sporting ...	Suffer	Suffer	Trade
'9306	Bombs, grenades, torpedos, mines, missiles, cartridges and other ammunition and projectiles ...	Suffer	Suffer	Trade
'9401	Seats, whether or not convertible into beds, and parts thereof, n.e.s. (excluding medical, ...	Suffer	Suffer	Trade
'9501	Wheeled toys designed to be ridden by children, e.g. tricycles, scooters, pedal cars (excluding ...	Suffer	Suffer	Trade
'9502	Dolls representing only human beings	Suffer	Suffer	Trade
'9503	Tricycles, scooters, pedal cars and similar wheeled toys; dolls' carriages; dolls; other toys; ...	Suffer	Suffer	Trade
'9504	Video game consoles and machines, articles for funfair, table or parlour games, incl. pintables, ...	Suffer	Suffer	Trade
'9508	Roundabouts, swings, shooting galleries and other fairground amusements; travelling circuses ...	Suffer	Suffer	Trade
'9606	Buttons, press-fasteners, snap-fasteners and press studs, button moulds and other parts of ...	Suffer	Suffer	Trade
'9608	Ball-point pens; felt tipped and other porous-tipped pens and markers; fountain pens, stylograph ...	Suffer	Suffer	Trade
'9611	Hand-operated date, sealing or numbering stamps, and the like; hand-operated composing sticks ...	Suffer	Suffer	Trade
'9613	Cigarette lighters and other lighters, whether or not mechanical or electrical and parts thereof, ...	Suffer	Suffer	Trade
'9615	Combs, hair-slides and the like; hairpins; curling pins, curling grips, hair-curlers and the ...	Suffer	Suffer	Trade
'9620	Monopods, bipods, tripods and similar articles	Suffer	Suffer	Trade
'9701	Paintings, e.g. oil paintings, watercolours and pastels, and drawings executed entirely by ...	Suffer	Suffer	Trade
'9702	Original engravings, prints and lithographs	Suffer	Suffer	Trade
'9704	Postage or revenue stamps, stamp-postmarks, first-day covers, postal stationery, stamped paper ...	Suffer	Suffer	Trade

Source: Own calculation based on Trade Map, 2021.

It also shows that Indonesia has more suffer and sunset manufacture. In contrast, South Korea has more sunrise manufacturing and has the same number of products classified as great manufacture (see Table 3).

Table 3: Combination Analysis of RCA and CMSA3 on Indonesia and South Korea

Combination RCA CMSA3		**South Korea**				
		Suffer	**Sunset**	**Sunrise**	**Great**	**Total**
Indonesia	**Suffer**	290	45	201	73	**609**
	Sunset	50	9	**41**	11	**111**
	Sunrise	161	**36**	138	52	**387**
	Great	77	12	47	14	**150**
	Total	**578**	**102**	**427**	**150**	**1,257**

Source: Own calculation based on Trade Map, 2021.

This fact indicates that South Korea is more potential to invest in Indonesia compare to the opposite. This finding confirms the results in comparative macroeconomic variables that South Korea's economy is more advanced than Indonesia. South Korea has 41 products in Indonesia that potentially become its investment aims. They are including HS 7501 of Nickel Matters and HS 8506 of Primary Cells and Batteries (see Table 4).

Table 4: Potential FDI Inflows from South Korea into Indonesia

	TOTAL	RI	Korea	Bilateral
'0208	Meat and edible offal of rabbits, hares, pigeons and other animals, fresh, chilled or frozen ...	Sunset	Sunrise	FDIIn
'0306	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine, ...	Sunset	Sunrise	FDIIn
'0902	Tea, whether or not flavoured	Sunset	Sunrise	FDIIn
'0904	Pepper of the genus Piper; dried or crushed or ground fruits of the genus Capsicum or of the ...	Sunset	Sunrise	FDIIn
'0906	Cinnamon and cinnamon-tree flowers	Sunset	Sunrise	FDIIn
'1301	Lac; natural gums, resins, gum-resins, balsams and other natural oleoresins	Sunset	Sunrise	FDIIn
'1513	Coconut "copra", palm kernel or babassu oil and fractions thereof, whether or not refined, ...	Sunset	Sunrise	FDIIn
'1803	Cocoa paste, whether or not defatted	Sunset	Sunrise	FDIIn
'1805	Cocoa powder, not containing added sugar or other sweetening matter	Sunset	Sunrise	FDIIn
'1903	Tapioca and substitutes therefor prepared from starch, in the form of flakes, grains, pearls, ...	Sunset	Sunrise	FDIIn
'2008	Fruits, nuts and other edible parts of plants, prepared or preserved, whether or not containing ...	Sunset	Sunrise	FDIIn
'2302	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, ...	Sunset	Sunrise	FDIIn
'2603	Copper ores and concentrates	Sunset	Sunrise	FDIIn
'2711	Petroleum gas and other gaseous hydrocarbons	Sunset	Sunrise	FDIIn
'2813	Sulphides of non-metals; commercial phosphorus trisulphide	Sunset	Sunrise	FDIIn
'2915	Saturated acyclic monocarboxylic acids and their anhydrides, halides, peroxides and peroxyacids; ...	Sunset	Sunrise	FDIIn
'2922	Oxygen-function amino-compounds	Sunset	Sunrise	FDIIn
'3401	Soap; organic surface-active products and preparations for use as soap, in the form of bars, ...	Sunset	Sunrise	FDIIn
'3605	Matches (excluding pyrotechnic articles of heading 3604)	Sunset	Sunrise	FDIIn
'4001	Natural rubber, balata, gutta-percha, guayule, chicle and similar natural gums, in primary ...	Sunset	Sunrise	FDIIn
'4414	Wooden frames for paintings, photographs, mirrors or similar objects	Sunset	Sunrise	FDIIn
'4417	Tools, tool bodies, tool handles, broom or brush bodies and handles, of wood; boot or shoe ...	Sunset	Sunrise	FDIIn
'4820	Registers, account books, notebooks, order books, receipt books, letter pads, memorandum pads, ...	Sunset	Sunrise	FDIIn
'4822	Bobbins, spools, cops and similar supports of paper pulp, paper or paperboard, whether or not ...	Sunset	Sunrise	FDIIn

'5514	Woven fabrics containing predominantly, but < 85% synthetic staple fibres by weight, mixed ...	Sunset	Sunrise	FDIIn
'5515	Woven fabrics containing predominantly, but < 85% synthetic staple fibres by weight, other ...	Sunset	Sunrise	FDIIn
'5705	Carpets and other textile floor coverings, whether or not made up (excluding knotted, woven ...	Sunset	Sunrise	FDIIn
'5906	Rubberised textile fabrics (excluding tyre cord fabric of high-tenacity yarn of nylon or other ...	Sunset	Sunrise	FDIIn
'6101	Men's or boys' overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets, windcheaters, ...	Sunset	Sunrise	FDIIn
'6112	Track-suits, ski-suits and swimwear, knitted or crocheted	Sunset	Sunrise	FDIIn
'6305	Sacks and bags, of a kind used for the packing of goods, of all types of textile materials	Sunset	Sunrise	FDIIn
'6402	Footwear with outer soles and uppers of rubber or plastics (excluding waterproof footwear of ...	Sunset	Sunrise	FDIIn
'6403	Footwear with outer soles of rubber, plastics, leather or composition leather and uppers of ...	Sunset	Sunrise	FDIIn
'6404	Footwear with outer soles of rubber, plastics, leather or composition leather and uppers of ...	Sunset	Sunrise	FDIIn
'7201	Pig iron and spiegeleisen, in pigs, blocks or other primary forms	Sunset	Sunrise	FDIIn
'7320	Springs and leaves for springs, of iron or steel (excluding clock and watch springs, springs ...	Sunset	Sunrise	FDIIn
'7501	Nickel mattes, nickel oxide sinters and other intermediate products of nickel metallurgy :	Sunset	Sunrise	FDIIn
'8506	Primary cells and primary batteries, electrical; parts thereof (excluding spent)	Sunset	Sunrise	FDIIn
'8510	Electric shavers, hair clippers and hair-removing appliances, with self-contained electric ...	Sunset	Sunrise	FDIIn
'8533	Electrical resistors, incl. rheostats and potentiometers (excluding heating resistors); parts ...	Sunset	Sunrise	FDIIn
'9201	Pianos, incl. automatic; harpsichords and other keyboard stringed instruments	Sunset	Sunrise	FDIIn

Source: Own calculation based on Trade Map, 2021.

On the other hand, Indonesia has 36 products as its potential investment in South Korea. They are including HS 5903 of Textile Fabrics Impregnated and HS 6309 of Worn Clothing and Clothing Accessories (see Table 5).

Table 5: Potential FDI Outflows from Indonesia into South Korea

	TOTAL	**RI**	**Korea**	**Bilateral**
'2706	Tar distilled from coal, from lignite or from peat, and other mineral tars, whether or not ...	Sunrise	Sunset	FDIOut
'2804	Hydrogen, rare gases and other non-metals	Sunrise	Sunset	FDIOut
'2815	Sodium hydroxide "caustic soda", potassium hydroxide "caustic potash"; peroxides of sodium ...	Sunrise	Sunset	FDIOut
'2850	Hydrides, nitrides, azides, silicides and borides, whether or not chemically defined (excluding ...	Sunrise	Sunset	FDIOut

'3207	Prepared pigments, prepared opacifiers and prepared colours, vitrifiable enamels and glazes, ...	Sunrise	Sunset	FDIOut
'3208	Paints and varnishes, incl. enamels and lacquers, based on synthetic polymers or chemically ...	Sunrise	Sunset	FDIOut
'3705	Photographic plates and film, exposed and developed (excluding products made of paper, paperboard ...	Sunrise	Sunset	FDIOut
'3901	Polymers of ethylene, in primary forms	Sunrise	Sunset	FDIOut
'3902	Polymers of propylene or of other olefins, in primary forms	Sunrise	Sunset	FDIOut
'3908	Polyamides, in primary forms	Sunrise	Sunset	FDIOut
'4114	Chamois leather, incl. combination chamois leather (excluding glacé-tanned leather subsequently ...	Sunrise	Sunset	FDIOut
'5408	Woven fabrics of artificial filament yarn, incl. monofilament of >= 67 decitex and a maximum ...	Sunrise	Sunset	FDIOut
'5607	Twine, cordage, ropes and cables, whether or not plaited or braided and whether or not impregnated, ...	Sunrise	Sunset	FDIOut
'5903	Textile fabrics impregnated, coated, covered or laminated with plastics (excluding tyre cord ...	Sunrise	Sunset	FDIOut
'6004	Knitted or crocheted fabrics, of a width > 30 cm, containing by weight >= 5% of elastomeric ...	Sunrise	Sunset	FDIOut
'6005	Warp knit fabrics "incl. those made on galloon knitting machines", of a width of > 30 cm (excluding ...	Sunrise	Sunset	FDIOut
'6309	Worn clothing and clothing accessories, blankets and travelling rugs, household linen and articles ...	Sunrise	Sunset	FDIOut
'6507	Headbands, linings, covers, hat foundations, hat frames, peaks and chinstraps, for headgear ...	Sunrise	Sunset	FDIOut
'7212	Flat-rolled products of iron or non-alloy steel, of a width of < 600 mm, hot-rolled or cold-rolled ...	Sunrise	Sunset	FDIOut
'7213	Bars and rods of iron or non-alloy steel, hot-rolled, in irregularly wound coils	Sunrise	Sunset	FDIOut
'7216	Angles, shapes and sections of iron or non-alloy steel, n.e.s.	Sunrise	Sunset	FDIOut
'7306	Tubes, pipes and hollow profiles "e.g., open seam or welded, riveted or similarly closed", ...	Sunrise	Sunset	FDIOut
'7311	Containers of iron or steel, for compressed or liquefied gas (excluding containers specifically ...	Sunrise	Sunset	FDIOut
'7903	Zinc dust, powders and flakes (excluding grains of zinc, and spangles of heading 8308)	Sunrise	Sunset	FDIOut
'8102	Molybdenum and articles thereof, n.e.s.; molybdenum waste and scrap (excluding ash and residues ...	Sunrise	Sunset	FDIOut
'8113	Cermets and articles thereof, n.e.s.; waste and scrap of cermets (excluding ash and residues ...	Sunrise	Sunset	FDIOut
'8207	Tools, interchangeable, for hand tools, whether or not power-operated, or for machine tools ...	Sunrise	Sunset	FDIOut
'8404	Auxiliary plant for use with boilers of heading 8402 or 8403, e.g. economizers, superheaters, ...	Sunrise	Sunset	FDIOut
'8462	Machine tools, incl. presses, for working metal by forging, hammering or die-stamping; machine ...	Sunrise	Sunset	FDIOut
'8464	Machine tools for working stone, ceramics, concrete, asbestos-cement or like mineral materials ...	Sunrise	Sunset	FDIOut
'8512	Electrical lighting or signalling equipment (excluding lamps of heading 8539), windscreen wipers, ...	Sunrise	Sunset	FDIOut

'8517	Telephone sets, incl. telephones for cellular networks or for other wireless networks; other ...	Sunrise	Sunset	FDIOut
'8603	Self-propelled railway or tramway coaches, vans and trucks (excluding those of heading 8604)	Sunrise	Sunset	FDIOut
'8703	Motor cars and other motor vehicles principally designed for the transport of persons, incl. ...	Sunrise	Sunset	FDIOut
'8905	Light-vessels, fire-floats, dredgers, floating cranes, and other vessels the navigability of ...	Sunrise	Sunset	FDIOut
'9301	Military weapons, incl. sub-machine guns (excluding revolvers and pistols of heading 9302 and ...	Sunrise	Sunset	FDIOut

Source: Own calculation based on Trade Map, 2021.

This paper confirms that bilateral trade relations of manufacturing products between Indonesia and South Korea are more than their investment relations. Indonesia and South Korea have complementary links that support both countries to obtain mutual benefits from their bilateral CEPA. The GTAP model was adopted and applied to describe trade creation (the net trade balance) and investment creation (gains from trade) between Indonesia and South Korea. The trade balance is a proxy for the short-run impact of CEPA, while the price of supply is a proxy for the long-run impact of CEPA.

GTAP simulation covers both the impact of trade balance from Indonesia's Most Favored Nation (MFN). Data shows that Indonesia applies 8.29 percent (see Table 6) and South Korea applies 7.49 percent (see Table 7).

Table 6: Trade Balance Million US$ (DTBALi) with Shocks of MFN Indonesia from South Korea (-8.29 percent)

DTBALi	RI	ROK	Oce	EA	SEA	SA
GrainsCrops	-0.18	0.5	-0.02	-0.15	-0.22	-0.01
MeatLstk	-0.07	0.36	-0.11	-0.1	-0.13	0.01
Extraction	-2.02	1.83	0.12	-0.2	-1.23	-0.22
ProcFood	0.54	-3.86	0.42	0.18	0.22	0.16
TextWapp	-1.37	0.09	-0.03	0.8	-0.27	0.13
LightMnfc	0.24	7.88	-0.43	-0.87	-0.29	-0.26
HeavyMnfc	10.87	-10.23	-0.26	-1.41	4.32	0.24
Util_Cons	-0.12	1.55	-0.02	-0.34	-0.11	-0.02
TransComm	-0.9	4.08	-0.21	-1.63	-1.82	-0.16
OthServices	-0.34	5.92	-0.25	-0.96	-1.94	-0.28

DTBALi	NA	LA	EU	MENA	SSA	RoW
GrainsCrops	0.11	-0.02	0.09	-0.1	0.04	0.01
MeatLstk	0	-0.02	0.09	-0.04	0	0
Extraction	0.51	0.42	-0.2	0.1	0.37	0.81
ProcFood	0.62	1.02	0.84	-0.01	0.07	0.09
TextWapp	0.36	0.02	0.48	-0.09	0	0
LightMnfc	-1.92	-0.66	-1.97	-0.97	-0.18	-0.2
HeavyMnfc	-1.8	-1.27	0.12	1.51	-0.38	-0.43
Util_Cons	-0.1	-0.03	-0.48	-0.12	-0.05	-0.17
TransComm	-0.2	-0.23	-0.57	-0.5	-0.04	-0.23

OthServices	-0.53	-0.26	-0.59	-0.5	-0.08	-0.18

Source: Own calculation based on GTAP10A, 2021.
Notes: RI: Indonesia; ROK:South Korea; Oce:Oceania;EA: East Asia; SEA:Southeast Asia; SA:South Asia; NA:North America, LA: Latin America;EU:European Union 28 Members; MENA:Middle East and North Africa; SSA:Sub-Saharan Africa;ROW:Rest of the World.

Table 7: Trade Balance Million US$ (DTBALi) with Shocks of MFN South Korea from Indonesia (-7.49 percent)

DTBALi	RI	ROK	Oce	EA	SEA	SA
GrainsCrops	-1.849	2.053	-0.026	-0.024	-0.004	-0.072
MeatLstk	0.195	-0.145	0.003	-0.053	0.004	0.01
Extraction	1.473	0.461	-0.134	-0.243	-0.005	-0.061
ProcFood	0.655	0.439	-0.023	0.012	-0.062	-0.113
TextWapp	-1.433	0.267	0.004	0.807	0.301	0.102
LightMnfc	-0.814	0.806	0.031	-0.425	-0.114	-0.012
HeavyMnfc	0.763	-0.793	0.093	-0.405	-0.172	0.025
Util_Cons	0.128	-0.019	0.001	-0.041	0	-0.001
TransComm	1.055	-0.221	0.013	-0.459	-0.075	-0.037
OthServices	0.691	-0.058	0.025	-0.209	-0.014	-0.042

DTBALi	NA	LA	EU	MENA	SSA	RoW
GrainsCrops	0.202	0.145	-0.057	-0.001	-0.045	0.067
MeatLstk	0.002	0.001	0.01	0.003	0.004	-0.003
Extraction	-0.24	-0.189	-0.089	-0.546	-0.124	-0.402
ProcFood	-0.097	-0.201	-0.383	-0.098	-0.062	-0.05
TextWapp	-0.098	-0.013	0.067	0.039	0.014	-0.002
LightMnfc	-0.158	0.053	0.629	0.056	0.028	0.026
HeavyMnfc	-0.368	0.114	0.016	0.372	0.137	0.369
Util_Cons	-0.02	-0.001	-0.053	0.007	0.003	-0.003
TransComm	-0.244	-0.035	-0.588	0	0.005	-0.068
OthServices	-0.248	-0.007	-0.19	0.032	0.017	0.003

Source: Own calculation based on GTAP10A, 2021.

This paper adopts trade barriers from tariff simulation as non-tariff measurements are beyond this paper's coverage. GTAP simulation shock from Indonesia's MFN tariff shocks shows that South Korea will obtain surplus in trade balance on food related products (grain corps, meat, extraction), textile, light manufacturing, and the services sector. Indonesia will obtain a surplus in trade balance from processed food, light manufacturing, and heavy manufacturing.

GTAP simulation shock from South Korea's MFN shows that South Korea will get a net trade balance: trade creation in the Indonesian market from grain crops, extraction, processed food, textile, and light manufacturing. Indonesia will have trade creation in meat, extraction, processed food, heavy manufacturing, and services. Both GTAP simulations on trade balance confirm that Indonesia and South Korea will obtain trade creation in service sectors.

The GTAP simulation of the combination indexes of RCA and CMSA3 shows that South Korea will generate trade creation in primary manufactures such as food-related products and textile. At the same time, Indonesia will gain trade creation in the manufacturing sector, both light, and heavy manufactures (see Table 8). GTAP simulation confirms that Indonesia and South Korea have

complementary economic relations that support both ways of Indonesia's manufacture and South Korea's manufacturing value-chains supported by both the primary and service sectors.

Table 8: Trade Creation Potential of Indonesia – South Korea CEPA

	Indonesia	South Korea	Trade Creation
GrainsCrops	-/-	+/+	South Korea
MeatLstk	-/+	+/-	Neutral
Extraction	-/+	+/+	South Korea
ProcFood	+/+	-/+	South Korea
TextWapp	-/-	+/+	South Korea
LightMnfc	+/-	+/+	Indonesia
HeavyMnfc	+/+	-/-	Indonesia
Util_Cons	-/+	+/-	Neutral
TransComm	-/+	+/-	Neutral
OthServices	-/+	+/-	Neutral

Source: Own calculation based on GTAP10A, 2021.

As for the long-run impacts, both the GTAP simulation on supply price proves that when Indonesia liberalized its market to South Korea, South Korea's productivity increases. This result is indicated in the decreasing of supply price, which stimulated by the trade creation. This finding applies both ways for both countries (see Table 9 and Table 10).

Table 9: Supply Price percent of change (PS) with Shocks of MFN Indonesia from South Korea (-8.29 percent)

ps	RI	ROK	Oce	EA	SEA	SA
Land	0.001	0	0	0	0	0
UnSkLab	0.001	-0.004	0	0	0.001	0
SkLab	0.001	-0.004	0	0	0	0
Capital	0.001	-0.004	0	0	0.001	0
NatRes	-0.002	0.01	0	0	-0.001	0
GrainsCrops	0.001	-0.002	0	0	0	0
MeatLstk	0.001	-0.002	0	0	0	0
Extraction	0	-0.001	0	0	0	0
ProcFood	0.002	-0.002	0	0	0	0
TextWapp	0.003	-0.002	0	0	0	0
LightMnfc	0.002	-0.003	0	0	0	0
HeavyMnfc	0.002	-0.002	0	0	0	0
Util_Cons	0.002	-0.003	0	0	0	0
TransComm	0.002	-0.003	0	0	0	0
OthServices	0.001	-0.003	0	0	0	0
CGDS	0.003	-0.002	0	0	0	0

ps	NA	LA	EU	MENA	SSA	RoW
Land	0	0	0	0	0	0
UnSkLab	0	0	0	0	0	0
SkLab	0	0	0	0	0	0
Capital	0	0	0	0	0	0
NatRes	0	0	0	0	0	0

GrainsCrops	0	0	0	0	0	0
MeatLstk	0	0	0	0	0	0
Extraction	0	0	0	0	0	0
ProcFood	0	0	0	0	0	0
TextWapp	0	0	0	0	0	0
LightMnfc	0	0	0	0	0	0
HeavyMnfc	0	0	0	0	0	0
Util_Cons	0	0	0	0	0	0
TransComm	0	0	0	0	0	0
OthServices	0	0	0	0	0	0
CGDS	0	0	0	0	0	0

Source: Own calculation based on GTAP10A, 2021.

Table 10: Supply Price percent of change (PS) with Shocks of MFN South Korea from Indonesia (-7.49 percent)

ps	RI	ROK	Oce	EA	SEA	SA
Land	-0.012	0.006	0	0	0	0
UnSkLab	-0.002	0	0	0	0	0
SkLab	-0.002	0	0	0	0	0
Capital	-0.002	0	0	0	0	0
NatRes	0.006	-0.002	0	0	0	0
GrainsCrops	-0.007	0.003	0	0	0	0
MeatLstk	-0.003	0.001	0	0	0	0
Extraction	0	0	0	0	0	0
ProcFood	-0.003	0.002	0	0	0	0
TextWapp	-0.001	0.001	0	0	0	0
LightMnfc	-0.002	0	0	0	0	0
HeavyMnfc	-0.001	0	0	0	0	0
Util_Cons	-0.002	0	0	0	0	0
TransComm	-0.002	0	0	0	0	0
OthServices	-0.002	0	0	0	0	0
CGDS	-0.001	0	0	0	0	0

ps	NA	LA	EU	MENA	SSA	RoW
Land	0	0	0	0	0	0
UnSkLab	0	0	0	0	0	0
SkLab	0	0	0	0	0	0
Capital	0	0	0	0	0	0
NatRes	0	0	0	0	0	0
GrainsCrops	0	0	0	0	0	0
MeatLstk	0	0	0	0	0	0
Extraction	0	0	0	0	0	0
ProcFood	0	0	0	0	0	0
TextWapp	0	0	0	0	0	0
LightMnfc	0	0	0	0	0	0
HeavyMnfc	0	0	0	0	0	0
Util_Cons	0	0	0	0	0	0
TransComm	0	0	0	0	0	0
OthServices	0	0	0	0	0	0
CGDS	0	0	0	0	0	0

Source: Own calculation based on GTAP10A, 2020.

5. CONCLUSION

There are several findings from this paper as follows:

1. Indonesia, as a developing country and South Korea as a developed country, has complementary relations. South Korea and Indonesia started accelerating their economic growth in the late 1960s. In 1967, Indonesia's GDP per Capita per South Korea GDP per Capita was 34 percent, then dropped to 9 percent when South Korea achieved a high- income country (HIC) level. This fact showed that South Korea booked much higher economic growth than Indonesia, of which 9.6 percent and 6.6 percent, respectively. South Korea recorded 14 out of 27 years with a double-digit economic growth range between 11 percent to almost 15 percent during that period. These tremendous experiences were something that Indonesia could learn from to overcome the middle-income trap and become a high-income country

2. The latest data before the pandemic of 2019 showed that Indonesia's GDP per Capita per South Korea's GDP per Capita has increased from 9 percent to 13 percent. This fact proved that Indonesia's economic growth in 1993 after South Korea achieved the HIC until 2019 has been increased while South Korea's economic growth showed the opposite. This fact indicated that South Korea's domestic economy had achieved its maturity level and needs a counterpart to enhance its economic network. Indonesia and South Korea CEPA is an option that will potentially generate bilateral mutual benefit for both. Indonesia can learn from how South Korea accelerate its economic growth to almost 12 percent in the first five years and nearly 10 percent in 27 years and achieving the HIC level. This lesson learned is related to the manufacturing sector role.

3. This paper applies the combination indexes of RCA and CMSA3 on the tradable product in harmonized system digit 4 (HS4) to classify manufacture competitiveness for both countries. There are four categories: great, sunrise, sunset, and suffer. This paper argues that if both countries have a similar category, trade relations are more dominant. If both countries have different categories of sunrise to sunset classification, then investment relations are more prevalent. Textile related products such as silk yarn (HS 5006), cotton (HS 5203), and food-related products such as olive oil (HS 1509) and cocoa (HS 1802) are some of the products that fit for trade relation. In total, 94 percent out of 1,257 HS4 products are more on trade relations.

4. This paper found six percent out of 1,257 HS4 products are having potential investment relations. Indonesia has 41 HS4 products that can receive long-run investment from South Korea, including nickel (HS 7501) and primary cells and batteries (HS 8506). In comparison, South Korea has 36 products of HS4, including Textile Fabrics Impregnated (HS 5903) and Worn Clothing and Clothing Accessories (HS 6309).

5. For the short-run impact of trade creation, the GTAP model simulation in this paper confirmed the results of combination indexes calculation above that South Korea could benefit from textile and food related products. At the same time, Indonesia can gain from light and heavy manufacturing products.

6. As for the long-run impact of productivity with supply price proxy, this paper found that both countries can experience increased productivity in almost all sectors. This finding is important for Indonesia to learn how South Korea accelerates its manufacturing development and boosts its economic growth with the manufacturing sector as its economic backbone.

7. Global pandemic creates global economic contraction. During this pandemic situation, every country, including Indonesia, needs to preserve structural reform and enhance its economic networks, including the bilateral CEPA. The bilateral economic agreement can become the building block of the multilateral economic cooperation strengthening both trade and investment relations. In particular, with South Korea, the bilateral CEPA can be a platform to learn about how to enhance manufacturing sector development as the essential game-changer to increase economic growth and avoid the middle-income trap. The latter is necessary as Indonesia experiences economic contraction due to the global pandemic, which reduces its average economic growth.

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