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KDI FOCUS | Analysis on critical pending issues of the Korean economy to enhance public understanding of the economy and provide useful policy alternatives.

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Mounting Uncertainties in the Global Trade Order and Korea's Policy Response

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"The US-China trade war is propagating uncertainties within the global trade order, weakening global value chains and the WTO system. These uncertainties pose a considerable threat to the Korean economy which is heavily dependent on foreign trade. To tackle this, the Korean government needs to positively consider joining the CPTPP and make efforts to improve the effectiveness and efficiency of policies for the materials and components industries as well as export support."

I. Issues

The US-China trade conflict is generating uncertainty over the global trade order and economic prospects.

The US and China officially signed the 'phase one' trade deal on January 15, closing the chapter on an 18-month battle. Nonetheless, uncertainties still linger across the global economy as the two largest economies have yet to reach an agreement on sensitive issues such as China's state-owned companies and subsidies, which have been pushed back until 'phase two.' Serving as the catalyst for the conflict were the Trump administration's tariffs on China's steel and aluminum in March 2018 due to national security and the ensuing 25% tariff on 34 billion dollars of Chinese goods in July in response to the latter's alleged unfair trade practices. By August 2019, 250 billion dollars of China's exports were subject to a 25% tariff, and in September 2019, a 15% tariff was imposed on an additional 120 billion dollars of goods from the 300 billion dollars that the US had threatened a month earlier. The Chinese government countered by revising up the 5% and 10% tariffs (2018) on 110 billion dollars of US exports to 20% and 25% in June 2019. Later in August 2019, China further announced 5% and 10% tariffs on 75 billion dollars of US goods, which were applied to certain items in September 2019.

China's unfair trade practices, including the theft of valuable technology, infringement of intellectual property rights and subsidies, have long been a source of criticism. And while the world's major countries are unanimous in their denouncement of such practices, the US' way of bypassing the World Trade Organization (WTO) and addressing the challenges directly has been cause for grave concern. Founded in 1995, the WTO has contributed significantly to establishing a predictable world trade order by not using force but abiding by international laws to fairly resolve trade disputes. The WTO system also developed and stabilized global supply chains (GVC) which have spurred the growth of the world economy since the 1980s. Indeed, the expansion of trade, the most important growth engine for the Korean economy, is largely attributable to the stable global trade order set in place by the WTO.

However, the disregard and forceful actions of President Trump to tackle China have put this stable order, and subsequently the growth of global trade, in jeopardy. The current administration's unilateral, US-centric approach has spawned great uncertainty about the future of the WTO. If big powers such as the US and China ignore WTO rules and act only in self-interest, the negative impact for the global economy, especially for the highly dependent Korean economy, could be severe. The US-China trade conflict has already cast a grey cloud over the global economy, with many deeming it the primary driver of the fall in GDP and exports in 2019, e.g. in Korea and Germany.

This study compares and analyzes the impact of the US-China trade war on major manufacturing countries and presents the policy countermeasures for Korea.

Accordingly, this study analyzes the impact of the US-China trade conflict on the exports and GDP of major manufacturing exporting countries like the US, China, Germany, Japan and Korea. To this end, the tariff measures imposed during the conflict were divided into two scenarios; agreed measures in phase one and potential additional measures that could be implemented later.[1] The economic impact from each tariff is analyzed using the World Input-Output Tables (WIOT). And based on the results, the uncertainty and changes in the global trade order caused by the US-China trade conflict are assessed, and future countermeasures for Korea discussed.

II. Economic Fallout from the US-China Trade Conflict

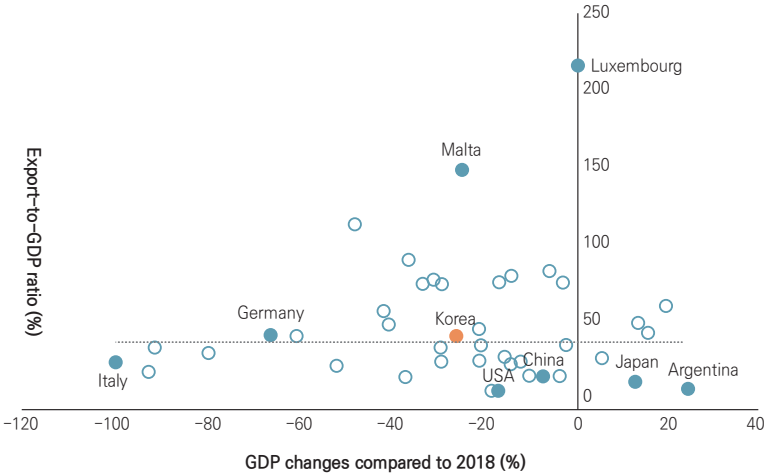
The trade dispute between the US and China has already taken a toll on the global economy. The IMF (2019b) adjusted down its projection for the global economic growth rate in 2019 by 0.5%p to 3.0% from January's 3.5%, reflecting October's US-China trade war and the slowdown in the global manufacturing industry.

The trade war between the US and China is already having a tangible impact, particularly on major exporting countries such as Germany and Korea, weighing down on their GDP growth.

[Figure 1] shows the changes in the IMF's (2019a) GDP growth projections for the EU and G20 countries in 2019 relative to their 2018 real GDP growth rates. The majority of G20 countries are located in the second quadrant, implying that there is a drop in GDP growth. Moreover, the IMF (2019a) anticipates that this downtrend as a result of the trade conflict will affect not only the US and China, but also the majority of G20 members, including the EU and Korea.

1) Additional potential measures considered in this study are those announced by the two countries before the trade agreement on 13 December 2019. The phase one deal contains the provision that China will import at least 32.9 billion dollars and 12.5 billion dollars (based on 2017 import baseline) of US industrial and agricultural products, respectively, in 2020 and an additional 44.8 billion dollars and 19.5 billion dollars in 2021. This study only considers the effects from the tariffs, and not those from additional imports from China.

[Figure 1] Changes in the 2019 GDP Growth Rate and Share of Exports to GDP in the EU and G20 Countries



Note: 1) The 2018 GDP growth rates and 2019 estimates are based on IMF statistics.
2) 2014-2018 export statistics are based on data from the World Bank.
3) The US and Japan data are the averages for 2014-2017 due to the lack of export statistics in 2018.
Source: IMF (https://www.imf.org/external/datamapper, last access: Dec. 2, 2019) World Bank (https://data.worldbank.org, last access: Dec. 2, 2019).

Countries with high export shares are expected to suffer a particularly strong blow from the US-China trade conflict. However, for 2019, [Figure 1] reveals that there is no clear correlation between the export-to-GDP ratios of G20 countries for the past five years and the downturn in GDP growth. This is because the export-to-GDP ratio in this figure includes both manufacturing and service exports. The IMF (2019b) points out that while manufacturing and trade have exhibited a visible decline in 2019, service trade has not. In fact, even Luxemburg, whose export share-to-GDP ratio is high and service exports exceeds that of manufacturing, is not expected to experience a fall in GDP growth.

In terms of manufacturing, there was a marked global decline in production and exports in 2019, as indicated by the IMF (2019b). The economic damage incurred by the US-China trade tensions will be harsher for countries that are heavily dependent on manufacturing exports, and the negative impact will vary depending on whether they are a major trading partner and what they are exporting. For Korea, a major manufacturing country, GDP growth is expected to fall 26% in 2019 (2.7% → 2%) relative to the 2018 real GDP growth while Germany, whose export as a share of GDP for the past five years is similar to Korea at 46%, is expected to experience a steeper drop of 67% (1.5% → 0.5%). Contrarily, Japan, whose export-to-GDP averages 17%, is projected to grow by 13%, from 0.8% to 0.9%.

1. Characteristics of Korea's Export Structure

Mounting uncertainties in the global trade environment and growing trade protectionism pose a great threat to Korea as its economy is heavily dependent on manufacturing exports.

Although the reverberations of the intensifying turmoil in the global trade environment and growing trade protectionism will be felt across the globe, they will deal an especially hard blow to countries highly dependent on manufacturing exports such as Korea, Germany and Japan. <Table 1> compares the manufacturing production and exports of the three countries for the first half of 2019 and reveals that there is a noticeable decline.

Compared to Germany and Japan, Korea is likely to experience more negative effects from the trade war due to its export structure.

As shown in the comparison, Korea suffered from larger export losses in 2019 than its counterparts, and appears to be more vulnerable to the uncertainties of the US-China trade war. This is due to Korea's high export-to-GDP ratio and sizable export share to China. It also ranks high in terms of the concentration of export products and destinations. <Table 2> shows that Korea's export-to-GDP ratio is much higher than Japan's while its export share to the top five countries and China is higher than Germany's. Moreover, Korea stands higher than both in the UNCTAD export product concentration index, which measures the concentration level of goods exported by a country. Indeed, these structural characteristics could place Korea in a weaker position in the trade war between the US and China.

<Table 1> Changes in the Manufacturing and Exports of Major Countries (1H 2019)

	Korea		Japan		Germany	
	Manufacturing production	Exports	Manufacturing production	Exports	Manufacturing production	Exports
Q1 '19	98.34	91.47	98.90	96.14	97.18	102.38
Q2 '19	97.63	91.36	98.75	94.44	94.86	98.65
Q3 '19	99.01	87.71	98.87	95.24	95.22	101.53

Note: 2018 figures on production and exports are 100 in the calculations.
Source: Calculated by author using OECD data (https://data.oecd.org/industry/industrial-production.htm, last access: Jan. 15, 2020), KITA (http://stat.kita.net/main.screen, last access: Jan. 15, 2020).

<Table 2> Comparison of Export Share: Korea vs Japan vs Germany

	Korea	Japan	Germany
Export-to-GDP ratio (2018)	44%	18%*	47%
Share of exports to China (2018)	27%	20%	7%
Share of exports to top five countries (2018)	60%	56%	36%
Export product concentration index (2018)	0.198	0.139	0.093

Note: *Japan's figures are from 2017 statistics.
Source: World Bank (https://data.worldbank.org, last access: Dec. 2, 2019); UN Comtrade (https://comtrade.un.org, last access: Dec. 2, 2019); UNCTADstat (https://unctadstat.unctad.org, last access: Dec. 2, 2019).

2. Economic Impact on Major Exporting Countries

The fallout from the US-China trade war on the Korean economy and the subsequent deterioration in consumption and investor sentiment cannot be overlooked. However, the most serious threat stems from the contraction in exports and resulting decrease in GDP growth. The bilateral tariffs imposed by the US and China will not only reduce their own exports to each other but will also affect Korea via two channels. Firstly, Korea's intermediate goods exports will be directly hit. The decline in US-China trade will slash their demand for intermediate goods, which are required to produce export items, diminishing Korea's exports. Secondly, the reduction in income will have an indirect effect on the fall in exports. The dwindling export volume of the US and China will weaken GDP and income and undermine domestic demand. As a result, Korea's exports to the two economic powerhouses will experience an overall loss, and GDP growth will further stall.

Accordingly, this study analyzed the impact of the US and Chinese tariffs on the exports and GDP of both countries as well as that of Korea using the 2014 World Input-Output Database's WIOT.[2] To that end, the products subject to additional tariffs (HS 8 units); the Korea International Trade Association's (KITA) import statistics for the US and China (HS 8 units) and; Kee *et al.*'s (2008) import elasticity (HS 6 units) were linked and the size of the fall in the imports of each HS 8 unit-product resulting from the tariffs was estimated. Based on the results, additional estimations were conducted for the changes in exports and GDP.[3]

The US-China trade conflict could directly/indirectly reduce Korea's exports, which in turn, could lead to a fall in GDP.

Two scenarios were established to analyze the impact from the tariffs. <Scenario 1> includes tariff measures under the phase one deal, i.e. the US' 25% and 7.5% tariffs and China's 20% and 25% tariffs and additional 5% and 10% tariffs included in List 1. <Scenario 2> includes the tariff measures that were announced in December 2018 by the US and China—possibly to be implemented at a later date—which include a hike in the US' tariff on 250 billion dollars of goods from China from 25% to 30% and a 15% tariff on 300 billion dollars, and China's additional tariffs on 75 billion dollars of all US exports included in <Scenario 1>. <Table 3> shows the results of the scenario analysis in terms of the changes in the GDP and total exports of the US, China, Germany, and Japan.

<Table 3> Impact of the US-China Trade Conflict on the GDP and Total Exports of Major Countries (analysis of scenario results)

(%)

	US		China		Germany		Japan	
	GDP	Total exports	GDP	Total exports	GDP	Total exports	GDP	Total exports
Scenario 1	-0.055	-1.633	-0.608	-3.777	-0.013	-0.040	-0.018	-0.135
Scenario 2	-0.023	-1.798	-1.079	-6.234	-0.021	-0.062	-0.030	-0.229

Source: Calculated by author.

The analysis found that while the US and China will both suffer from larger losses as the conflict intensifies, the impact will be bigger for the latter due to the disparity in export volume and export-to-GDP ratio. According to the 2017 trade statistics used in this study, China's exports to the US is more than triple that of the US' to China (150 billion dollars) at 500 billion dollars. Additionally, the decline in GDP is smaller for the US in <Scenario 2> than in <Scenario 1>, which is a positive outcome resulting from US products replacing higher-priced Chinese products in the US market due to the tariffs. Germany and Japan also saw a fall in GDP and total exports.

The analysis found that due to the differences in export volume and export-to-GDP ratios between the two countries, China is likely to be hit far harder than the US as a result of the intensifying trade disputes.

2) The WIOT used in this study is a database of the import and export of intermediate and final goods linked by country and industry. The most recent statistics (2014) has 56 classifications of industries in 43 major countries in accordance with the ISIC Rev.4 (International Standard Industrial Classification revision 4).

3) The decrease rate of imports depends heavily on the value of import elasticity, which indicates how much imports fall as the tariff increases. That is, depending on which import elasticity is used for analysis, the decline in exports and GDP can vary. One recent studies, Fajgelbaum *et al.* (2019), estimated the US' import elasticity to be 2.53%. Kee *et al.* (2008), on the other hand, reported the estimated US and Chinese import elasticity by product at the HS 6-unit digit level. Given that import elasticity varies among different products, this study used the estimates by Kee *et al.* (2008). In addition, using the HS-ISIC linked table, the author estimated the decrease in import amount and the rate of import decline in each industry classified in the WIOT, assuming that this import decrease rate is the same for both intermediate and final goods. The fall in imports and exports in the US and China estimated under this assumption is put into the WIOT, and each country's production and exports were recalculated. Then, the author recalculated the GDP of each country by applying the same value-added rate as before to the last estimated production.

<Table 4> Impact of the US-China Trade Conflict on Korea's GDP and Total Exports (analysis of scenario results)

(%)

	Overall economic conditions				Electronics industry		Chemical industry	
	GDP	Total exports	Exports to China	Exports to the US	Production	Total exports	Production	Total exports
Scenario 1	-0.067	-0.209	-0.775	0.086	-0.289	-0.381	-0.258	-0.428
Scenario 2	-0.122	-0.377	-1.407	0.177	-0.549	-0.728	-0.455	-0.743

Source: Calculated by author.

<Table 4> shows the analysis results for the impact of the trade war on Korea's GDP, total exports and major industries. Korea posted a larger drop in GDP and total exports than Japan and Germany, probably due to its export structure which is more dependent on exports to China. Korea's production and exports descended in 22 sectors in the WIOT. In particular, the production and total exports of the electronics industry (40% of exports to China) and chemical industry (20% of exports to China) are estimated to have decreased 0.3-0.5%p and 0.4-0.7%p, respectively. As such, Korea's exports to China in 2019 declined more sharply than that of Japan and Germany, especially in semiconductors and petrochemicals.

Most of the negative impact on the Korean economy from the trade war derives from the reduced exports to China. Also, the electronics and chemical industries were hit hard.

The repercussions to the Korean economy are primarily driven by the diminished exports to China.[4] The fall in Korea's China-bound shipments will be considerable because, compared to the US, Korea exports a great deal more intermediate goods to China than any other product. Also, the fall in China's exports and GDP due to the trade war far exceeds that of the US. On the other hand, Korea's exports to the US will be little affected, even increasing in most manufacturing industries, implying that Chinese goods will be replaced by Korean goods in the US market.

The WIOT used as the analysis framework in this study only includes production factors. But, the decline in the US' and China's exports could not only curtail their production, but also their income and domestic demand via the multiplier effect. This would, in turn, greatly diminish Korea's exports to both countries. Thus, taking the multiplier effect into account, the trade conflict could have a much bigger negative effect on Korea's exports and GDP than estimated in this study.

III. Korea's Policy Response

According to the analysis result, Korea's heavy dependence on exports and China make it more vulnerable to the US-China trade war than Germany or Japan. And, as the world trade order changes, conditions will take a turn for the worse for Korea. Firstly this is because, despite the trade deal, China is unlikely to completely give into the US' demand, prolonging the uncertainty in the world trade order. The US has made it clear that the pressure on China is in response to not only the latter's unfair practices, e.g. forcing technology transfer, restricting

4) This conclusion is the same as Jung (2017) and Kim (2019). But, these two preceding studies differ because the import elasticity used in the analysis is not the same, and hence, their figures on the decline in Korea's GDP and exports are different.

foreign investments and abusing intellectual property rights, but also to its industrial policies, especially the 'Made in China 2025' initiative.[5] As such, given that these policies are the outcome of China's catch-up growth, the conflict with the US will continue unless China overhauls its growth strategy and state-owned economic structure.

Secondly, the WTO's multilateral trading system, which served as the basis for Korea's export growth, is expected to weaken. Its rule prohibiting unilateral tariffs could be nullified by the abuse of its national security exception, which enables members to breach their WTO obligations for the purposes of national security. The Trump administration imposed additional tariffs on steel and aluminum in March 2018 based on Article 232 of the US Trade Expansion Act of 1962, which gives the US President the authority to restrict imports if they are deemed to be a threat to national security. Considering the overriding view that national security crises are a national matter and as such, the WTO Appellate Body has no jurisdiction,[6] if other countries followed in the US' footsteps and enforced unilateral trade-restrictive measures, the WTO system would be seriously undermined. Moreover, the WTO's function in dispute resolution is dwindling. Indeed, the Appellate Body, a standing body of seven appointees who settle disputes brought forward by members, has been essentially crippled by the US' obstruction of the appointment of new judges to replace those whose term ended on December 10, 2019.

The US' trade policies are highly likely to disrupt the WTO trading system and GVCs. Korea's future policies need to focus on responding to the changes in the global trade order, including the weakening of the WTO system and GVCs and ensuing fall in global trade volume.

Finally, the prevailing trade conflict between the US and China could undermine the current China-centered GVCs that have propelled the rapid growth in trade since the 1990s. The incumbent US government has been open about the fact that one of the purposes of the tariffs is to bring back US companies investing in China. If the trade war intensifies and Chinese exports are kept out of the US market for a prolonged period of time, the merits of the Chinese market as the 'world's factory' will gradually dissipate and more and more foreign companies will leave, ultimately weakening GVCs.

Accordingly, Korea's policy response should focus on the changes in the world trade order, including the weakening of the WTO system and GVCs, and decline in global trade volume, etc. The expected contraction in global trade volume could pose a huge threat to the export-dependent Korean economy. Taking into account such conditions, this study presents three policies that should be implemented as soon as possible.

1. Ramp up Efforts to Join the CPTPP

Korea's accession to the CPTPP is a necessary approach to reduce its dependence on exports to China.

Countermeasures should concentrate on reducing the heavy dependence on China by expanding trade territory. Korea's high concentration of products and destinations poses the biggest threat to its exports today and makes it vulnerable to the economic fluctuations in major trade partners. The most effective policy to alleviate the dependence on China could be to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), a free trade agreement between 10 countries in the Asia-Pacific region and Canada. The CPTPP encompasses many aspects of the Trans-Pacific Partnership (TPP), including the cumulative

5) 'Made in China 2025' aims to foster ten leading industries, including high-performance medical devices, new biologics technology and pharmaceutical raw materials, industrial robots, advanced communications devices, advanced chemical products, aerospace, electric vehicles and semiconductors.

6) Refer to Yoo (2017) for further discussions.

rules of origin to broaden the reach of GVCs. Pursuant to the rules, the intermediate goods produced in one member country is considered the finished goods of another member country once it has been exported and processed. And in theory, these rules could bolster investment and intermediate trade among members.[7)]

Amid concerns over the waning influence of the WTO system and China-centered GVCs, the CPTPP may be well suited to Korea in its pursuit of expanding and changing the export landscape. The cumulative rules of origin could help to create new GVCs that are centered on Japan and Southeast Asia, including Vietnam.[8)] If this is realized, Korea's electronics industry, which is closely integrated into the current GVC framework, could face more disadvantages in terms of supply and demand than Japan. Ergo, as Korea shifts its overseas investment targets away from China towards Southeast Asia, a more active approach is needed to join the CPTPP to reduce its dependence on China and to keep the adverse elements of GVCs at bay. In addition, Korea's accession to the CPTPP may serve as a constructive means to resolving the trade conflict with Japan, which was ignited by the latter's export restrictions, and also to establish a mutually beneficial relationship.

2. Support Policy for the Material and Parts Industries

Japan's export restriction on Korea is a testimony of the weakening WTO system due to the abuse of the national security exception clause.

On July 4, 2019, Japan removed Korea from its whitelist, imposing export restrictions on three major materials of semiconductors—fluorine polyimide, photoresist and high-purity hydrogen fluoride—for national security reasons. This incident explicitly showcases how the misuse of the national security exception clause could threaten the WTO system. Fortunately, contrary to initial apprehensions, there have been no confirmed damages to Korean firms thus far. But, Korea's electronics industry is still highly dependant on Japanese intermediate goods on the back of the pursuit for efficiency through GVCs by Korean semiconductor firms. Indeed, the recent restrictions have helped to expose the risks of the Korean economy's deep integration with GVCs, and to improve awareness about the need to enhance the competitiveness of Korean firms in core materials and parts.

In response to Japan's export control, Korea almost doubled the budget for industrial support from 0.7 trillion won to 1.3 trillion won in 2020, targeting the core materials, parts and equipment sectors. But while the government's policy efforts for the materials and parts industries have been in place since before 2000—bolstering production by three-fold and exports by five-fold compared to 2001—chronic structural flaws still exist, including a disparity between industries; weak technological independence and; export deficits with Japan. Also, R&D takes the lion's share of the support. According to Song *et al.* (2017), an evaluation of government support for R&D projects during 2009-2014 found that the contribution to growth

7) The CPTPP's cumulative rules of origin allow any input materials from one member to be considered into the domestic production of another. Without membership, Korea's intermediate goods cannot be considered as domestically produced goods of CPTPP members, which is disadvantageous for Korea when exporting to CPTPP countries. For instance, if Vietnam, a CPTPP participant, exports textiles to Japan, its import of yarn would be most likely be from another member like Malaysia or Japan, and not from Korea.

8) So far, the only countries that have not signed a FTA with Korea are Japan and Mexico. Korea's trade volume with Mexico is small, based on which some argue that the CPTPP is actually a Korea-Japan deal, disregarding the importance of the agreement's cumulative rules of origin. In addition to this argument, the lack of the Korean industry's support for joining the partnership has not been helpful and makes it difficult for the government to seek accession.

was marked for the parts industry but not for the material industry. However, it also shown that the growth of the parts industry has been driven by large enterprises while SMEs have failed to show any obvious signs of growth.

Despite the government's multifaceted efforts to fortify the competitiveness of core materials and parts companies, thorough evaluations of the past problems of government support are needed to avoid merely expanding the superficial aspects of assistance programs. The policy agenda for these industries can be summarized into: improving the productivity of SMEs in the materials industry and; enhancing the effectiveness of government R&D support to that end. Based on a clear understanding of its role and limitations in industrial policy, the government should develop solutions and transform them into feasible policies.

To cope with a weakening WTO system and GVCs, efforts should be made to increase the effectiveness and efficiency of support policies for the material and parts industries.

A full-scale, reexamination of the management of R&D projects is first required to enhance the effectiveness of government support, which includes the selection of research topics; type of implementation; researchers; evaluation methods for research results and the rewards and; dissemination methods. Song's (2017) analysis of the effects of R&D projects led by the Ministry of Trade, Industry and Energy (MOTIE) on the selection of researchers found that R&D support was far greater for startups than for mature firms. Also, improvements in the productivity of SMEs, especially in the materials industry, were significantly affected by large enterprises, i.e. the consumers of their products. Indeed, no matter how good a SME's technology is, there is no incentive to commercialize if there is no demand from large enterprises. Thus, to foster SMEs in the materials, parts and equipment industries, it is more important for the government to create an ecosystem that enables SMEs and large enterprises to build cooperative relationships, than to provide direct support.

3. Export Support Policy

Reflecting the growing unease over slowing export growth, the Korean government formulated a record-high budget of over one trillion won for export support in 2020, which includes noteworthy plans such as an additional subsidy of 3.7 trillion won for trade insurance and more assistance for export marketing e.g. export vouchers. Such support policies are required to resolve the vulnerability of Korea's export structure which stems from the high concentration of products and destinations. However, further deliberations are needed on the budget execution for export support services—the main undertaking of numerous export-related institutions such as KITA—to enhance policy effectiveness and efficiency.

There should be efforts to improve the effectiveness and efficiency of the export support policy which is needed to alleviate Korea's high concentration of export products and destinations.

Government support for export marketing may be deemed necessary for firms who lack information and export experience. The MOTIE's export marketing projects, which account for a significant share of export support, are mostly managed by the Korea Trade-Investment Promotion Agency (KOTRA). However, an in-depth assessment of its operation revealed that there is no meaningful contrast between participating and non-participating companies in terms of the direct effects from export support projects; specifically, the amount of export and destination (Song *et al.*, 2017).

As marketing projects target a large number of companies but operate on a small subsidy, it is difficult to expect any direct positive results. However, preceding studies have found

some improvements in the marketing capabilities of project participants. Thus, KORTA's programs cannot be entirely disregarded based solely on performance indicators (e.g. exports, performance reports, etc.). On the other hand, the Korea SMEs and Startups Agency's (KOSME) programs, which are similar to that of KOTRA, have also achieved positive meaningful results; necessitating a reexamination and overhaul of the latter's programs.

Besides, the various programs run by KOTRA, government ministries and related public institutes to support the entry of Korean SMEs into overseas markets have given rise to criticism about overlapping projects and excessive competition between support programs. Indeed, Song *et al.* (2017) points out that in addition to the MOTIE, 13 ministries and agencies are operating over 200 such projects, and suggests that it is now time to reconsider and draw a sensible line in terms of the scope of the government's involvement. Additionally, some SMEs were found to have been a long-term recipient of several government benefits related to exports for similar purposes, fueling the argument that the feasibility of export support projects must be examined.

The operation of trade insurance should also be regularly monitored. At the National Assembly's inspection of government offices in 2017, the Korea Trade Insurance Corporation (K-SURE) was reported to have handled approximately 1 trillion won worth of accidents annually and made payments of several trillion won, raising huge concerns about its financial soundness. According to K-SURE (2017), a total of 5.923 trillion won was reported as accidents and 3.653 trillion won was claimed. At 47.5%, almost half of these accidents occurred within large enterprises, with SMEs and middle market firms trailing behind at 28.6% and 23.9%, respectively. In order to reduce the number of trade accidents, the MOTIE (July 6, 2017) decided to implement the '2017 Mid- to Long-term Policy Direction for Trade Insurance,' and adopt the net capital ratio—used in the private sector—in trade finance. Accordingly, K-SURE's efforts to enhance financial soundness via thorough evaluations of such policy changes should come before expanding support for trade insurance.

IV. Conclusion

With the prevailing view that the global economy is under growing downward pressure, concerns over the negative impact on firms and consumers from the US-China trade war are mounting within the US. The Trump administration's trade policy has received mixed reviews. Some regard it as a threat to the US economy while others remain optimistic, believing that the dispute will be soon settled. And, while the trade tension between the two countries is not expected to further intensify, it is expected to continue in some form or another.

Corporate visions for future investment, an essential part of economic growth, can be established only when the economy maintains stable growth. The fact that the Korean economy fluctuates significantly on external conditions which are beyond its control, such as the US-China trade conflict, is not a positive signal for long-term growth. This study recommends Korea's accession to CPTPP as a means to reduce its dependence on China and to diversify its export products and destinations. The government also needs to prepare against the weakening of the WTO system and GVCs while examining policies on the materials and parts industries and export support programs to enhance their effectiveness and efficiency.

References

Fajgelbaum, P. D., P. K. Goldberg, P. J. Kennedy, and A. K. Khandelwal, "The Return to Protectionism," NBER Working Paper 25638, 2019.

Jung, Kyu-Chul, "Impact of China-US Trade Disputes on the Korean Economy," *KDI Economic Outlook*, Korea Development Institute, 2017-1st Half, 2017.

Kee, H., A. Nicita, and M. Olarreaga, "Import Demand Elasticities and Trade Distortions," *Review of Economics and Statistics*, 90(4), November, 2008, pp.666~682.

Kim, Seong Tae, "Risks in the Chinese Economy: Evaluation and Implications," *KDI Economic Outlook*, Korea Development Institute, 2019-2nd Half, 2019.

Korea Trade Insurance Corporation, "Five-year Data on Trade Insurance: Reported Accidents and Claimed Payments," document submitted to the National Assembly's Inspection of Government Offices, 2017 (in Korean).

Ministry of Trade, Industry and Energy, "Trade Insurance Support of 65 Trillion Won for SMEs and Middle Market Enterprises by 2022," press release, Jul. 6, 2017 (in Korean).

Song, Yeongkwan, *Korea's Industrial Support Budget: Achievements and Policy Direction*, Research Monograph, 2017-03, Korea Development Institute, 2017 (in Korean).

Song, Yeongkwan, Chun Hyun Baem, Seok Joon Choi and Ki-Seon Cho, *National Fiscal Management Plan for 2017~2021: Industry*, commissioned research paper, Ministry of Strategy and Finance, 2017 (in Korean).

Yoo, Ki Yeong, "Issues of US Section 232 Import Measures on National Security in International Trade Law," *International Trade Law*, No. 138, 2017, pp.9~42 (in Korean).

IMF, "World Economic Outlook Update: A Weakening Global Expansion," January, 2019a.

IMF, "World Economic Outlook: Global Manufacturing Downturn, Rising Trade Barriers," October, 2019b.

IMF (https://www.imf.org/external/datamapper, last access: Dec. 2, 2019).

Korea International Trade Association (http://stat.kita.net/main.screen, last access: Jan. 15, 2020).

OECD (https://data.oecd.org/industry/industrial-production.htm, last access: Jan. 15, 2020).

UN Comtrade (https://comtrade.un.org, last access: Dec. 2, 2019).

UNCTADstat (https://unctadstat.unctad.org, last access: Dec. 2, 2019).

WIOD (World Input-Output Database), "2014 World Input-Output Tables."

World Bank (https://data.worldbank.org, last access: Dec. 2, 2019).