The Influence of Trade War on Macroeconomic Variables and International Trade Volume, the Prospect of Trade War on Global Economy, and the Strategies for Korea

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[Abstract] The basic international trade theories have been suggesting that trade enables improving global economic welfare. However, government of United States led by Donald Trump declared its “America First” policies including several protective trade policies. The background of this decision was that United States had been experiencing severe twin deficits, deficit of current account as well as deficit of trade revenue. Due to price-competitive products flowing from China and other OECD countries, several industries in United States were destroyed and the market share is occupied by foreign or multinational corporations. As China accounts for large portion of US deficit in trade revenue, government of United States imposed tariff to Chinese products. At this point, as China retaliated with imposing tariff on products from United States, conflict arose and trade war have emerged. The very first industry that responded to this devastating incident was shipping industry. After experiencing unexpected boom, due to the trade war, their revenue was expected to drastically plunge as trade volume decreased. As protectionism, lower trade volume and replacement of imported products to domestically produced products, the utility experienced by consumers will be decreased as well as the amount of production and consumption, which leads to permanent loss of Gross Domestic Product. However, as the trade war out broke between China and United States, other OECD countries experience two possibilities; GDP loss due to decrease of production and consumption in those countries, and increase of export due to trade-diversion effect. As many Korean corporations’ export intermediary goods to China and United States, their revenue is expected to decrease due to lowered production and consumption in China and United States. Moreover, Korean shipping industries and ports are also going to lose from the trade war due to reduced global trade volume, especially that between China and United States. In order to cope with this kind of incident, Korean industries have to hedge their risks by diversifying target market and production base.

[keyword] Trade war, protectionism, protective trade policy, tariff, trade revenue, Free trade agreement, retaliation, shipping industry, GDP, trade-diversion effect, intermediary goods, trade volume, risk hedging, diversification

I. Introduction

Emerging Protectionism, Prelude to the Trade War

Protectionism is a policy protecting domestic industries against foreign competition by means of tariffs, subsidies, import quotas, or other restrictions or handicaps placed on the imports of foreign competitors. Starting from the United States, other countries with high trade dependence in their gross national product are implementing this policy. So, Prime Minister Abe discussed his concern about protectionism at the APEC summit. Especially due to the trade friction between United States and China, restrictions in trade are expanding; countries must follow any actions set by the World Trade Organization. Newly elected Donald Trump, the president of the United States, continuously supported reinforcement of protectionism policies; United States decided to put tariffs on steel and aluminum, which increased potential for global trade war outbreak. Trump propelled
renegotiation of free trade agreement and safeguard action with the ideology of "America First". Shortly after the inauguration, President Trump announced that he will propose numerous policies for American product purchases, and job creation in America. He reexamined trade agreements that he believed that America is at a disadvantage and even withdrew out of the Pacific Rim Economic Partnership Agreement (TPP). He reviewed the US-Korea FTA, and NAFTA trade agreements. In addition, safeguard action was exercised on sunlight modules, washing machines, and some import goods; there was an increase in antidumping tariffs on steel and chemical products. With the resignations of national economic aides, there is a greater possibility of reinforcement of protectionism. Especially after United States declared the increase in tariffs on steel and aluminum by "Trade Expansion Act Article 232", EU and China have installed retaliatory action, which increase the possibility of global trade war. EU, Norway, Mexico and other countries announced that they will participate in dispute resolution process by WTO; United States is putting political pressure.

On the other hand, Korea is one of the countries that implemented 25% tariffs on steel and 10% tariffs on aluminum importations. Canada, Australia and Mexico are indefinitely removed from being subjected to tariff measures. Correspondingly, European Union, not only after WTO filing, decided to put tariffs on American rice, kitchen supplies, makeup, whiskey, and clothes. In China, China investment corporation has sold all of its stake in US private equity Blackstone and is likely to sell US treasury bills and levy tariffs.

Why did the United States declare protectionist policies and tariffs and caused international scale trade disputes? To understand the background, first, big twin deficit of the United States must be discussed. The US trade balance has been in a deficit since 2010. The approximate size has been around $50 billion, and the current account deficit has continued to be deficit. (Instead, the capital account is surplus) In 2015, just before Trump was elected, the US trade deficit reached $752.2 billion, which would have influenced Trump’s protectionism policy. The size of the trade deficit in Korea has continued to increase since the Korea-US FTA took effect, reaching $28.3 billion in
2015 and the trade deficit with China is steadily increasing. (The US trade deficit with China was about $370 billion in 2015). Moreover, the US public debt has also surpassed $10 trillion since 2010, and was expected to expand to $16 trillion by 2016.

3) Facts about the Past Trade Wars

The Smoot-Holly Act, which took effect in the United States in 1930, caused a world-side trade war. Similar to the current trade war, there was levy tariffs or raised tariff rates on a significant amount of import items. As a result, countries around the world increased import tariffs on each other and protectionism spread throughout the world. The proliferation and strengthening of such protectionism has greatly influenced the reduction of world trade volume. The worlds trade volume in 1930 was estimated to have declined by about 8% compared to 1929, and in 1932 it declined to about 31%. World trade volume fell by more than 60%. The difference between the trade volume decline rate and the decline rate based on the amount are due to the fact that the countries competitively devalued their currencies (Devaluation of the domestic currency has the effect of lowering the local price of the exported goods, thus increasing exports).

Protecting trade has reduced world trade volume, leading to a decline in global industrial production and a contraction in the stock market, hitting the real economy around the world. Especially in industrial production, it decreased by 15% in 1930 and decreased about 40% in 1932.

Major countries have been hit hard by the global economy due to protectionism and have been trying to establish the basis of world trade order and expand free trade through the WTO to prevent the recurrence of this phenomenon.

4) Current State of Affairs of the Trade War and Influence of trade war on International Trade Volume

As mentioned earlier, China accounts for a large portion of the US trade deficit; in the United States, there is a growing voice of protectionism on the basis of the financial
burden on the deficit and domestic job problems. For many reasons, a large-scale tariff bomb that the United States imposed on Chinese products has triggered a trade war; the size and current status will be discussed in this research paper. On July 6, 2018, the United States imposed tariffs totaling $34 billion on a total of 818 items from China, at a tariff rate of 25%. China has also applied tariff retaliation on the same scale to the United States, imposing tariffs totaling $34 billion, with a tariff rate of 25% on 545 categories. The US didn't stop there, and on August 23, it imposed a total of $16 billion in tariffs for 259 duties at a tariff rate of 25%, and China responded with tariff retaliation of the same size (25% tariff on 333 items, totaling $16 billion).

The US-China trade war is intensifying; the US imposed a tariff rate of 10% on 5745 items on September 24, 2018 and enforced it on January 2019. (Up 25% to $190.5 billion). In contrast, China imposed tariffs on 5,207 items on September 24, 2018 at 5% and 10% respectively ($53.4 billion).

The trade war between the US and China is expected to affect trade volume, which will also affect the shipping industry. In general, it is expected to have a negative impact on freight volume and shipping industry. According to Clarkson’s analysis, the total trade war is expected to affect 170 million tons of cargo or 1.5% of global cargo volume (8.5% of grain, 5.7% of steel, and 3.7% of containers).

However, as mentioned earlier, the current pattern of trade war is not limited to the US and China. Rather, the US is strengthening its protection trade not only in China but also in other countries through measures like renegotiating free trade agreements and raising tariffs. In particular, the EU also raised tariffs on EU (which entered into force in June 2018), and the EU decided to impose retaliatory tariffs on them. This is expected to have a significant impact on the shipping industry. Drew Lee also pointed out that container shipping companies, which felt the pressure of the trade war in oversupply shipping market, would shut down freights. Nonetheless, container shipping volumes for the Atlantic route (US-Nordic route) increased by 57% over the previous year, according to shipping researchers Pierce and Container Trade Statistics. In particular, cargo volume from the Americas to Northern Europe increased sharply in March 2018, up 15% from the previous year.

The volume of trade in the Americas and Nordic routes has not increased. The trade volume between the US and China also increased by 10.4% (in the Western Americas) and 8.8% (in the Eastern Americas) in July 2018. The increase in freight volume contributed to the increase in freight rates along with the adjustment of the shipping alliance supply (the shipping industry was stagnant due to a drop-in freight rates due to oversupply). In the maritime industry, these freight rates were interpreted as a result of the export pushing ahead of the full-scale trade war. Demand for shipping has surged as shippers began securing products before the customs duty was imposed. In particular, the number of shippers who want to import and secure clothing and home appliances increased, and it was difficult to secure a cargo space for loading China to the US. However, if these observations are accurate, it is not a general increase in volume, but a temporary rush of different points of view, which will return to negative effects over time.

On the basis of these observations, it can be said that container shipping companies have decided to stop services n the Atlantic route even in the case of increase in freight volume. The Ocean Alliance has decided to suspend the TAT4.TAX service, which will include five 4200~5000 TEU container ships, and Hyundai Merchant Marine will withdraw from the Atlantic route and concentrate more
on upgrading services to Asia-Europe routes. In particular, Hyundai Merchant Marine saw the volume of freight increase temporarily from November to December 2018 before the tariff increased. Such service interruption seems to have been influenced by the threat of trade friction and the increase in operating costs due to rising oil prices and charter fees. In addition, due to the growing risk of trade war between the US and China, Maersk and MSC have decided to reorganize their services, which is the suspension of the US-China routes. With the restructuring of the Maersk and MSC services, it is expected that the fleet will decrease by 1.5% for the entire Pacific route and 9.5% for 2M. Such a shutdown seems to be due to the prediction that a decline in cargo volume will have a negative impact on freight rates.

When the trade war is prolonged, it is observed that trade volume inevitably declines worldwide. Researcher Kun woo Choi of the Korea Fisheries Development Corporation predicted that the trade war between the US and China would affect 1.1 million TEU (10% of the annual cargo volume from China to US). The International Monetary Fund (IMF) also adjusted the global trade growth rate from 5.1% to 4.8% (2018) and from 4.7% to 4.5% (2019).

In addition, it is thought that not only the US but also the countries around the world can compete with protectionist policies to raise tariffs. The spread of protectionist movements around the world can reduce trade volume and replace imported goods with domestic products. This can lead to a reduction in utility as seen in various trade theories. According to a study by the Hyundai Economic Research Institute, trade volume declines by an average of 0.48% when the tariff rate increases by 1% globally, and the effects can be even worse if competing domestic currency devaluation and import restrictions are applied.

5) Macroeconomic variables and the Trade War

The following is the analysis of the trade war scenarios from the CPB report. Each scenario is as follows. Scenario 1: US imposition of tariffs on iron and aluminum Scenario 2: reimbursement of tariffs in China, EU< Canada and Mexico with scenario 1, Scenario 3: US-China trade war with scenario 2, Scenario 4: Scenario 3 and imposed tariffs on US cars. The noted scenario is scenario 3. Scenario 1 and 2 show that the trade volume decreases as the US imposes tariffs and that it

![Trade War Scenarios Diagram](image-url)
sees the benefits of the Terms of Trade when it imposes tariffs. However, these Terms of Trade profits will return to their origin when the counterparty imposes retaliatory tariffs, so that countries that are subject to retaliatory tariffs will see a permanent loss of GDP. Permanent means that the GDP level decreases when viewed in the long term. Prior to the retaliation tariff, US steel and aluminum companies would have benefited from higher prices, but the price competitiveness of industries using these raw materials would have weakened as intermediate prices increased. The decrease in demand and supply due to the increase in intermediate goods prices (consumption and production decline) was offset by the benefit of the Terms of Trade. In scenario 2, however, the imposition of retaliatory tariffs would inevitably lead to permanent GDP losses.

When the full-scale trade war begins, both the US and China see permanent GDP losses, as China's GDP share in GDP in the US accounts for a small percentage of GDP of the total cost of ownership. The analysis shows that in the GDP growth trend, the US and China will see a permanent loss of 0.3% and 1.2% respectively. In this case, the European Union shows a 0.4% rise in the GDP growth rate. This can be seen as the effect of the trade shift, as the relative price competitiveness of experts from other OECD countries, such as the European Union, has increased due to the imposition of tariffs on the other countries. If excluded other political influences, Korea will benefit from the trade transitional effect when the US-China trade war is intensified.

However, if the trade war is intensified, it is expected that the global trade volume will decrease rather than the effect of such a trade shift, leading to a decrease in production and consumption, and a total loss of GDP. The following states the same thing as facts about the past trade war.

The following graph shows the loss of GDP in the case of a further deepened trade war and shows that the higher the tariff, the greater the GDP loss. (Scenario 6: Trade wars of the US, China and the EU: Scenario 7: More OECD countries in Scenario 6)

6) Current State of Affairs of Korean Industries and Ports

The case of Hyundai Merchant Marine was mentioned earlier, they decided to withdraw the Atlantic route, which seems to be due to the situation that is difficult to take the threat of trade war. Hyundai Merchant Marine expects a significant amount of tariffs to boost exports and boost operating profits by pushing exports before it enters into the
The influence of trade war on macroeconomic variables and international trade volume, the prospect of trade war on global economy, and the strategies for Korea trade war. In particular, as in the previous study, as the protection trade trend is expanding globally and the tariff rate increases, it is inevitable that the trade volume will decrease. So, the shipping industry in Korea will not be able to escape.

The maritime industry is not the only one to see losses from the US-China trade war. Busan Port's trade volume is also hitting. According to the Busan Port Authority on September 19, the import and export growth rate was 0.5% of the previous year, which is far short of the target 2.2%. Meanwhile, transshipment cargo increased by 8.9%, exceeding the 8.5% target. The sluggish import and export volume is due to the decrease in the exports of intermediate goods to China. However, if the trade war is prolonged, the transshipment cargo volume of Busan Port will decrease as the service of Asia-North America routes is reduced. Busan Port is part of the Asia-North America route, temporarily suspended due to the reorganization of services. Thus, it is suggested that Busan Port's prospect is not optimistic.

The volume of Incheon Port is also hit. Container cargo volume growth at Incheon Port is 3.7%, far below the 8.2% target. Container shipments in China to Incheon Ports are experiencing a steady decline, which is in contrast to the increase in trade volume in Vietnam and Philippines. This is also attributed to the decrease in the exports of intermediate goods from China due to the trade war.

As mentioned earlier, the US-China trade war has been a huge blow to Korea's exports of intermediate goods. If this is expanded and a global trade war erupts, domestic exports will sharply decrease, and economic growth rate and employment decrease will occur. In particular, it is necessary to concentrate on export-dependent countries like Korea, because this may cause more serious adverse effects. According to an analysis by the Hyundai Economic Research Institute, if the global average tariff rate increases from 4.8% (current) to 10%, domestic exports will fall by 17.3 billion dollars, economic growth will fall 0.6% points, and employment will decrease by 158,000. Professor Duk Geun Ahn of Seoul National University said that the US-China trade war would ultimately exacerbate the trade balance between the US and the rest of the world.

7) Suggested strategies for Korean Government

The Korea Institute for International Economic Policy (KIEP) believes that changes in imports by interested parties caused by increasing disputes in the US-China trade war may allow Korean firms to secure niche opportunities in the US market. In both the US and China, Chinese and American products are less competitive, resulting in export opportunities for Korean products. In addition, there is a view that the US-China trade dispute can create an advantageous environment for Korea in the new technology competition in China. Due to the adjustment process of China's opening and the check of new technology, the Korean industry can earn some time. Especially in the situation where Korea is the most affected country due to the 2025 strategy of manufacturing (high portion of manufacturing industry in GDP and high portion of high technology industry in manufacturing industry). Unstable elements of the Korean economy must be eliminated.

In the context of the US-China trade war, especially in the situation where the grenades can fly to Korea, Korea should first strengthen trade cooperation with neighboring countries against protectionism. In particular, the Korea Economic Research Institute emphasized the importance of cooperation with ASEAN. "If the three countries of Korea, China and Japan concluded a free trade agreement with ASEAN, there will be 2.3% increase in GDP." Diversification of trade targets by paving the way for new markets such as ASEAN, away
from the structure in which trade volume is largely biased in China and the US as it is now, will be a way to alleviate the instability of the Korean economy.

8) Suggested Strategies for Enterprises in Korea

According to the results of the analysis so far, the effects of trade disputes between the US and China on Korea can be roughly classified into two types. First, it is the effect of trade conversion. It is calculated that Korea products, which have not been competitive in price compared to Chinese products, can increase sales volume through the trade conversion effect. This is possible because the real price increases due to the imposition of tariffs on Chinese products. The second possibility is that production in China sharply declined due to sluggish exports to the US, and orders from Chinese companies for intermediate goods in Korea, which are a part of them, have plummeted. This is supported by the fact that 45~50% of Chinese products are made by participation of multinational companies including Korea.

Therefore, it is expected that SMEs exporting to China, especially those exporting Chinese intermediate goods, will be greatly affected by the trade war. In addition, according to the report on “Trade Disputes between the US and China and SMEs”, only 7% of respondents have their own countermeasures, and 93% of companies have no solutions.

SMEs need to hedge their risks in situations where it is difficult to know where and how trade wars will spread. In other words, do not put eggs in a basket. In the case of a company that exports Chinese products, there is a high possibility that revenue will be generated depending on the Chinese economy. Therefore, it is necessary to diversify the export market. To do this, there must not just be an increase in competitiveness of Korean products, but also provide information to enable Korea to enter overseas markets in a timely manner. Therefore, it is necessary to link with government agencies like KOTRA. In particular, attempts to sell intermediate goods to multinational companies other than Chinese companies should continue. And Korean intermediate goods should be put into the global supply-value chain led by various countries. To do this, Korean SMEs’ products should be informed to many global companies and national brand value must be raised.

There is a need to diversify the export market as well as the production map. Now, since factories of multinational corporations are also located in China, many factories of small and medium enterprises of Korea are located in China. There should be plans to transfer them to ASEAN countries such as Vietnam. However, the trade dispute has been quiet for a while, and many multinational companies have not left China, so it is not wise to move the factory prematurely. It is possible to reduce risk by closely monitoring the situation and diversifying production bases. Especially, when the US wants to suppress the high-tech growth of China, it needs to make Korean high-tech products become a substitute of China. To this end, SMEs should increase their product value through their own R&D and closely monitoring the market trends.
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