The impact of the US-China trade war on the global macroeconomy

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Abstract. In recent times, one of the major issues currently affecting the global economy has been the trade war between the United States and China. This paper examines the impact of the US-China trade war on the global macro economy, including U.S. tariffs, real exports, macroeconomic indicators, and production structure. This paper finds that increased U.S. tariffs on China not only reduce the welfare of U.S. consumers and firms but also cause a domino effect throughout other regions that significantly impact the global trade structure. The US-China trade war, with its complexity regarding taxes and extensive geopolitical implications on current economics, proves itself to be an interconnected entity dictating the course of the present world economy. Based on examining some essential elements, from real exports macroeconomic parameters, the trade conflict has merely exceeded the bilateral dimension and now marks even the global economy. Therefore, the dynamics of this trade war call for global collaboration and advanced planning to guard against its wide-ranging implications.

1. Introduction

In recent times, one of the major issues currently affecting the global economy has been the trade war between the world's largest economies, the United States and China, which has seen highs and lows due to escalating tariffs and trade restrictions. This paper discusses the impact of this trade war on the global macroeconomy, including U.S. tariffs, real exports, macroeconomic indicators, and production structure. Through this analysis, this paper endeavor to reveal the complex structure of the trade war's significant impact on the world economy.

The U.S.-China trade war is rooted in severe trade deficits, intellectual property infringement, and suspicion of fair competitive practices. Growing tensions have led to tariffs, including tit-for-tat tariff escalation between the U.S. and China. The World Trade Organization (WTO) recognized that the cumulative effects of these tariffs were at peak levels, involving many industries and disrupting global trade lines [1]. The initial impact on the economies of both countries was enough to affect production processes, complex supply chains, and reduced trade volumes. According to the International Monetary Fund, the trade war has slowed the world's economic growth and increased uncertainty in financial markets where investor confidence is low [2]. Concerns about the growth of the trade war became widespread, and some analysts even warned that the escalation of tariffs could exacerbate their adverse effects globally, leading to increased volatility in international markets.

2. The Impact of U.S. tariff increases on the domestic economy in the context of the U.S.-China trade war

In turn, raising tariffs as a sales tax on foreign products fundamentally reshapes the global business economy. Tariffs can be thought of as tariffs levied on all imported goods, which directly affect these companies and local consumers involved in foreign trade [3]. Tariffs are like general taxes because they cover multiple items that enter the U.S. territory. It affects the cost of imported goods and extends from manufacturers to retailers. As a result, complex and diverse economic adjustments are intertwined and reflected in different sectors and regions complicating the consequences of trade wars.

The impact of higher tariffs on U.S. producers is a double-edged sword. For example, high prices of imported intermediate input products such as raw materials and components place an additional burden on production costs [4]. As a result, this may lead to a decrease in firms' profitability. The second thing that needs to be considered is the rise in the cost of production in the US industry, which becomes higher than international competitors whose products do not attract such high tariffs. This may reduce the competitiveness of the US products and thus affect the export-oriented industries. Amiti et al. found that the tariffs imposed by the U.S. on China in 2018 were fully passed on to domestic U.S. prices of imported goods, while Chinese exporters did not lower commodity prices. As a result, the price of goods at U.S. ports of entry has risen in line with the

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tariff hikes. The study also found that every 10 percent tariff imposed led to a 43 percent reduction in import demand.

Complex supply chains pose major difficulties in shifting exports and changing the origin of imports. As a result, many United States industries have close relationships with global supply chains; they therefore need help to rapidly change the routes of production and exchange. As a result of the interconnectedness of the various steps within the supply chain, disruptions have occurred, making it difficult for the companies involved to adapt to the new trade realities. Long-term agreements and relationships in these supply chains add to this complexity; therefore, change will take time.

Table 1. U.S. tariff costs

Tariffs in 2018	**Pay taxes**	**Unnecessary loss**	**Total cost to the consumer**
Monthly cost	$3 billion	$ 1.4 billion	$ 4.4 billion
Annual cost	$ 36 billion	$ 16.8 billion	$ 52.8 billion
Annual cost per family	$ 282	$ 132	$ 414
After a 15 percent increase in tariff rates on $200 billion of Chinese goods			
Monthly cost	$ 2.245 billion	$ 6.594 billion	$ 8.84 billion
Annual cost	$ 26.942 billion	$ 79.132 billion	$ 106.674 billion
Annual cost per family	$ 211	$ 620	$ 831

Note: Data from analysis of six U.S. tariffs in 2018 [5]. The annual cost per household is based on 127.6 million U.S. households in 2018.

Comparing the estimated cost of the 2018 tariffs with the estimated cost of the recently announced tariffs on $200 billion of Chinese goods shows that two factors are at play. As can be seen in Table 1, in November 2018, importers were paying an additional $3 billion per month in taxes and $1.4 billion in needless losses, for a combined total cost of $4.4 billion per month. When annualized, the total annual cost to consumers is $52.8 billion and the annual cost per household is $414. Nonetheless, the unnecessary loss of $132 per year per U.S. household means that the net loss to the U.S. economy exceeds any tariff revenues collected by the government [5].

Based on these estimates, it is possible to extrapolate the estimated cost of a $200 billion increase in tariff rates on Chinese goods from 10 percent to 25 percent. As can be seen in table 1, the cost of paying taxes per household declined from $282 to $211 because the taxed price of Chinese imports was so high that consumers began to purchase substitutes from countries such as Vietnam. As the U.S. imported more goods from countries other than China, firms were forced to pay higher prices for similar goods without tariffs. In principle, consumers could shift their spending to domestically produced goods, and domestic firms might benefit from the lack of foreign competition. In practice, however, studies have found that other developing countries tend to fill much of the gap in goods from the taxed country. However, whether consumers choose more expensive alternative foreign suppliers or domestic suppliers, the needless efficiency losses inevitably rise [6].

3. The impact of U.S. tariff increases on the economies of other countries

The effect, for example, of US tariffs on China shows up as the consumers' goods and producers' in the country. The prices of various Chinese exports traded in the United States rise as retaliatory tariffs are established. This decreases American consumers' domestic demand for products from China, thus affecting different industries like electronics, textiles, and manufacturing [1]. Despite this, the Chinese government selectively excluded some intermediary products from the tariffs to ease costs for local manufacturers and lessen the immediate effect on the prices. However, the overall increase in consumer goods prices is a problem for those Chinese industries relying on exporting products to the American market [7].

In reaction to these tariffs, China is responding strategically by moving its exportation away from the US, increasing its presence in other global markets. Diversification among exported destinations is aimed at reducing the impact of reduced access to the US market. The diversion of exports towards these markets has meant a renewed emphasis on Europe and countries from the East and Southeast Asian sub-regions [8]. With the success of the Chinese invasion in these markets, there is an increase in Chinese exports into all such regions, which increases total exports in them. Therefore, countries in these regions export more products to the United States, leading to a complex web of changes in international business with a ripple effect on world trade.

This causes a chain reaction, leading to several interrelated events that significantly impact the global trade structure. Compared to other nations that are more agile about trade adjustments, it has been difficult for the US to change its import sources or divert its exports because of the complexity of its supply chains [9]. On the other hand, changes occurring in China's export concentration also contribute to international trade flow alterations. Such a dynamic process demonstrates that world trade has a complex web, where events in one region cause a domino effect throughout other regions.

4. Variables and their impacts within the U.S.-China trade war

Considering significant parameters within the U.S.-China trade war contributes to revealing the changing

circumstances of the international economics sector. Using the detailed tariff data helps analyze all aspects of determining how the current dispute affects global trade [10].

4.1 Real exports

Real exports, indicating the volume of cross-border physical transactions, are one of the most important indicators of economic activities and trading relations among nations. Tariffs significantly affect the volume and composition of goods exported by the United States, China, and other countries. A detailed analysis of actual export statistics helps us notice changes in trading patterns and discover fast-developing economic sectors and their consequences on the world economy, as ahown in table 2.

Table 2. Impact of the tariffs on the real exports from the rest of the world to China and the U.S between June 2019 to December 2019

Country Exporting	June 2019 United States	December 2019 United States	June 2019 China and Hong Kong	December 2019 China and Hong Kong
United States	0.00	0.00	-7.32	-14.38
Canada	0.23	0.31	-0.29	-0.84
Mexico	-0.06	-0.02	-2.63	-3.18
Europe	1.51	2.21	-0.98	-0.89
China and Hong Kong	-5.61	-10.69	1.49	2.71
Japan	2.57	3.14	-1.03	-1.15
South Korea	2.02	3.17	-0.55	-0.91
Other high-income Asia	1.82	3.44	-0.24	-0.68
Low-income Asia	0.61	3.56	-0.04	-0.76
Central America	0.28	1.40	-0.70	-2.03
Latin America	0.04	0.24	1.58	1.55
India	-0.05	2.20	0.69	0.02
Africa	0.21	0.56	-0.03	-0.36
Russia	0.28	0.56	-0.11	-0.42
Middle East and North Africa	0.21	1.19	-0.31	-0.75
Other countries	-3.07	2.67	0.70	-0.19
All countries	-0.33	-0.59	-0.85	-1.64

Figure 1 is a graphical presentation of the impact of the tariffs on the percentage change of exports from other countries to the United States and China. In June 2019, when the tariffs were relaxed, the line graph showing the percentage change in exports for the United States was higher compared to December 2019. Consequently, the line graph for China between June and December 2019 displayed the same results. Both lines show that between June and December of 2019, exports from most nations to the United States and China fell. During this period, exports to China and Hong Kong fell at a greater rate than exports to the United States, suggesting that the former were hit harder by tariffs. Therefore, China felt the significant impact of the tariffs imposed due to the trade war between China and the United States.

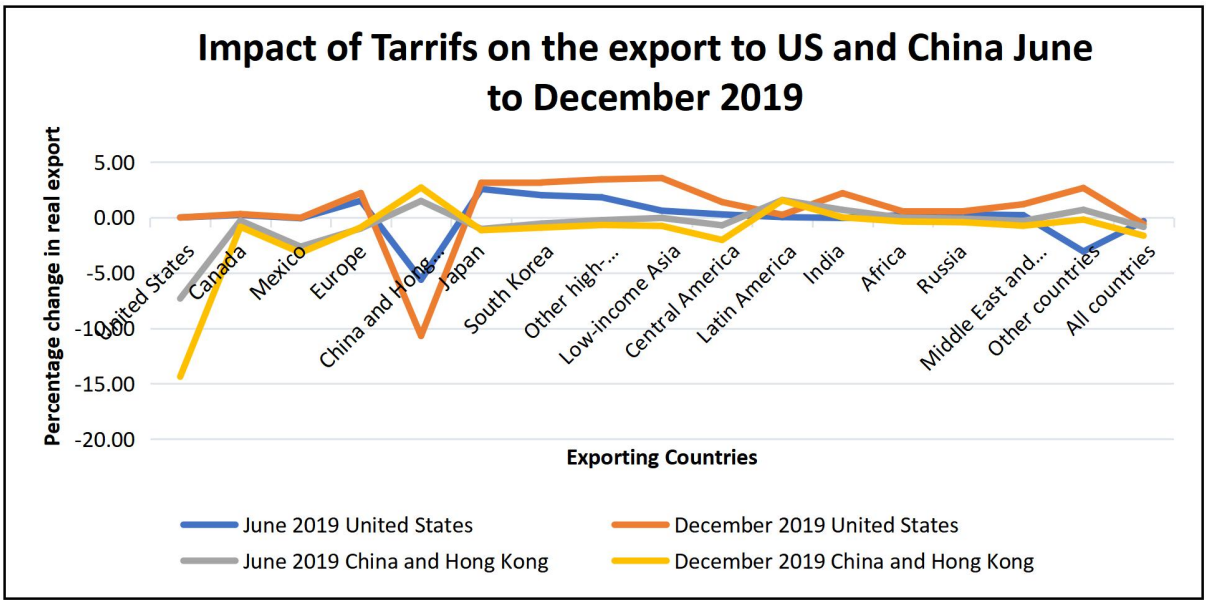

Fig. 1. Impact of the tariffs on the percentage change of export from other countries to the United States and China (Picture credit : Original)

4.2 Macroeconomic Indicators

Regarding the ongoing trade war between the US and China, it is prudent to look into macroeconomic factors to unearth the more profound economic implications. The changes in the indicators are analyzed based on the drawn detailed tariff schedules and reveal new insights into the ongoing trade war.

4.2.1 Impact on GDP

The trade war between the US and China is an essential indicator of GDP strength. With tariff restructuring trade moves and consumption patterns changing, their influence can become the most critical indicator showing the health status of two countries and an ability to cause external negative consequences for the world economy [4]. Through analysis of the GDP figures, one can identify the size of economic shocks and better understand each country's strategy to face trade hostility.

4.2.2 Effects on Final Demand

Trade war goes far beyond production and consumption to affect final demand, an essential element in economic activities. Tariff-related disruptions affect consumer behavior, altering demand for goods and services [3]. The above variable presents a more sophisticated perception of how people feel about the dispute as they shift their preferences, markets adjust dynamically, and households persevere amid all these challenges by sustaining homebound demand.

Table 3. Impact of Tariffs on GDP and Final Demand for Different Countries

Country	GDP June 2019	GDP December 2019	Final Demand June 2019	Final Demand December 2019
United States	-0.02	-0.07	-0.08	-0.21
Canada	-0.02	-0.02	0.25	0.21
Mexico	-0.08	-0.09	0.43	0.39
Europe	-0.01	-0.01	0.04	0.04
China and Hong Kong	0.02	0.01	-0.68	-0.95
Japan	-0.01	-0.02	0.07	0.07
South Korea	0.00	0.00	0.20	0.18
Other high-income Asia	-0.01	-0.01	0.12	0.08
Low-income Asia	-0.01	-0.03	0.18	0.15
Central America	-0.01	-0.04	0.17	0.15
Latin America	0.00	-0.01	0.11	0.09
India	0.00	-0.01	0.08	0.09

Africa	0.01	0.01	0.15	0.12
Russia	-0.01	-0.01	0.09	0.06
Middle East and North Africa	-0.01	-0.01	0.08	0.05
Other countries	0.02	0.00	0.11	0.10

As can be seen from Table 3, a negative effect (-0.02 to -0.07) was seen in U.S. GDP between June and December 2019. Countries like Mexico, Japan, Russia, and the Middle East/North Africa might see similar unfavorable tendencies. GDP fell somewhat in both Canada and Europe. At first, China and Hong Kong's GDP showed some improvement, but by December 2019, the decline had become more pronounced.

Regarding final demand, most nations appear to have witnessed a reduction in ultimate demand. China and Hong Kong had a significant drop in final demand between June 2019 and December 2019 (-0.68 to -0.95) due to the trade war, as shown in figure 2. Final demand fell in Canada, Mexico, Central America, and low-income Asian nations, but the extent varied by region.

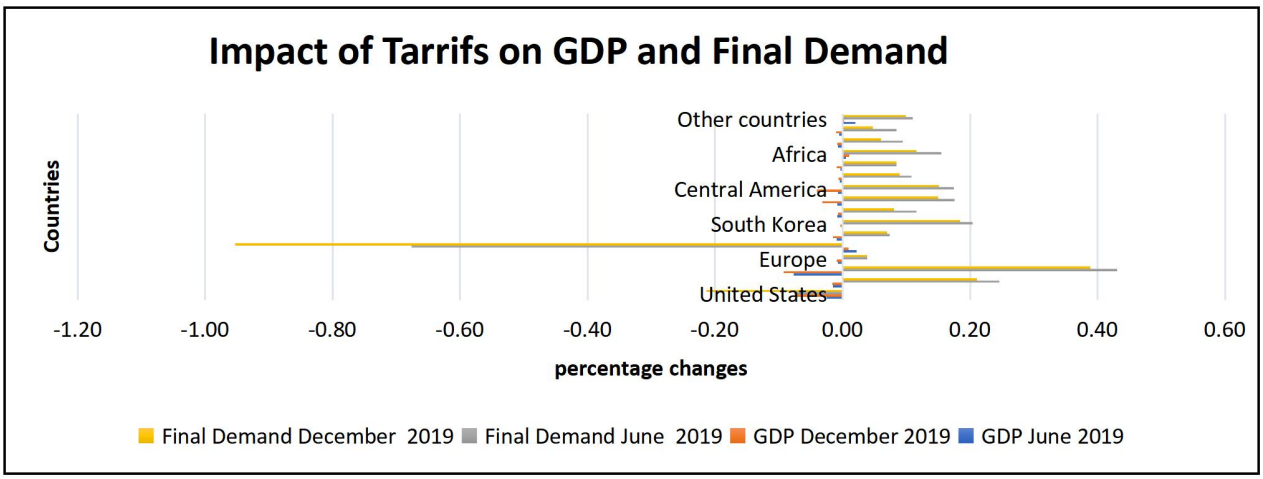

Fig. 2. Impact of Tariffs on the GDP and Final Demand for other Countries (Picture credit : Original)

5. Conclusion

Ultimately, the U.S.-China trade war, with its complexity regarding taxes and extensive geopolitical implications on current economics, proves itself to be an interconnected entity dictating the course of the present world economy. Based on examining some essential elements, from real exports macroeconomic parameters, the trade conflict has merely exceeded the bilateral dimension and now marks even the global economy. Therefore, the dynamics of this trade war call for global collaboration and advanced planning to guard against its wide-ranging implications.

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