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CHANGES IN TRADE FLOWS BETWEEN CHINA AND THE US AMID THE TRADE WAR

V. Klus

Student of the Master's Program in International Economic Relations

Odesa I. I. Mechnikov National University

2, Dvorianska str., Odesa, 65082, Ukraine

ORCID: 0000-0002-4808-9206

S. Yakubovsky

Doctor of Economic Sciences, Professor,

Head of the Department of World Economy and International Economic Relations

Odesa I. I. Mechnikov National University

2, Dvorianska str., Odesa, 65082, Ukraine

ORCID: 0000-0002-1193-0241

The article studies the case of the trade war between People's Republic of China and the United States of America, exploring the causes, including issues such as trade imbalances, intellectual property rights, and market access barriers, and consequences of the conflict, including the disruptions in global supply chains, fluctuations in trade volumes, and the impact on key sectors such as manufacturing, agriculture, and technology. We evaluate the impact on the economies of both countries, participating in the trade war, and also analyze its influence on some other countries, which can benefit from this confrontation such as Vietnam, Taiwan and Mexico. The construction of the VAR model confirmed the deep interdependence between the exports of the USA and China. Drawing on extensive research and data analysis, the article offers a balanced view of the complexity and ambiguity of the economic consequences of the trade war. It was determined that despite of numerous sanctions imposed by the countries' governments, the outcome of the trade war has only had a temporary effect due to adaptation of the Chinese economy to these transformation, as evidenced by the worst performance in US and China trade for the US in 2018. However, already in 2019 and 2020, there was a significant improvement in US performance due to sanctions imposed on China, but in 2021 and 2022, China adjusted to changes and tariffs, so the negative balance in US trade with China began to grow again in favour of China and almost reached the levels of 2018.

Thus, although the US and China have made some progress in resolving the trade war, tensions between these countries continue, and further changes in trade relations will depend on the political and economic situation in the world.

Key words: China, international trade, US-China trade war, economic development.

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ЗМІНИ В ТОРГОВЕЛЬНИХ ПОТОКАХ МІЖ КИТАЄМ ТА США ПРОТЯГОМ ТОРГОВОЇ ВІЙНИ

В. В. Клус, С. О. Якубовський

У статті досліджуються чинники торговельної війни між Китайською Народною Республікою та Сполученими Штатами Америки, зокрема причини та динаміка торговельного дисбалансу між двома країнами, проблеми, пов'язані з дотриманням прав інтелектуальної власності і режиму вільно плаваючого валютного курсу, насамперед у Китаї, та бар'єрами доступу до ринку. Результати аналізу дозволяють оцінити також наслідки торговельного конфлікту, у тому числі збої в глобальних ланцюгах постачання, коливання обсягів торгівлі та вплив на ключові сектори, такі як виробництво, сільське господарство та технології. Під час дослідження оцінено вплив від торговельної війни на економіки обох країн, які беруть участь у цьому протистоянні, а також проаналізовано вплив цього конфлікту на деякі інші країни, які можуть навіть виграти від цього протистояння, такі як В'єтнам, Тайвань і Мексика. Побудова моделі VAR підтвердила глибоку взаємозалежність між експортом США та Китаю. Спираючись на результати дослідження та аналіз статистичних баз даних, запропоновано збалансований погляд на складність та неоднозначність економічних наслідків від цієї торговельної війни. Було встановлено, що, незважаючи на численні санкції, запроваджені урядами країн, результат торговельної війни мав лише тимчасовий ефект через адаптацію китайської економіки до цих трансформацій, про що свідчать найгірші показники торгівлі США та Китаю для США у 2018 році. Проте вже у 2019 та у 2020 роках відбулося значне покращення показників США через санкції, запроваджені проти Китаю, але у 2021 та 2022 роках Китай пристосувався до змін і мит, тому від'ємне сальдо в торгівлі США з Китаєм знову почало зростати на користь Китаю та майже досягло рівня 2018 року.

Таким чином, хоча США і Китай досягли певного прогресу у врегулюванні торговельної війни, напруженість між цими країнами триває, і подальші зміни в торгових відносинах залежатимуть не лише від дій керівництва обох країн, а ще від політичної та економічної ситуації взагалі у світі.

Ключові слова: Китай, міжнародна торгівля, американо-китайська торгова війна, економічний розвиток.

The trade war between the US and China is one of the most significant conflicts in the world economy, which covers a wide range of goods and services, and therefore has a considerable impact on world trade and the global economy, including the growth of economic indicators of different countries, changes in prices for goods and services, international investment and other aspects. It causes tension in the world economy, which can lead to significant economic losses for all participants in world trade.

The objectives of this study are to analyze recent changes in the course of the conflict, the impact of US sanctions on the Chinese economy, to assess the consequences of the trade war between the United States and China and predict the future in trade relations between these countries.

The trade war between the world's two most powerful states, the US and China began in 2018, when the US government started a protectionist policy towards China, its largest trading partner, which lately appeared as a series of US sanctions against China. Bilateral trade between these countries was \$683 billion in 2018, of which \$120 billion and \$563 billion were US exports and imports, respectively, according

to the International Trade Center [ITC, 2020]. Whereas many experts and analysts explain this problem within frameworks of the US strategy of containing China, there also are some more essential economic problems that have prompted US policymakers to implement such measures.

Protectionist policy pursued by China demands the global market to be open to its companies. However, the Chinese market is quite selective towards global business. Additionally, China officially declares that it never violates its obligations, strongly supports multilateralism and an open economic policy, and calls for mutually beneficial global cooperation, which is rather controversial. In fact, the state does not comply with its obligations to the World Trade Organization (WTO) and is accused of intellectual property infringement.

Monetary policy of the PRC also causes lots of arguments. Citing Mr. Matou's conclusion, Professor Khitakhunov [Khitakhunov, 2020] underlined that the undervalued exchange rate is used by China as an import tariff and export subsidies regulation. There is a fear that China will gain even more market share as a result of any trade liberalization under the Doha Round, and many industrial and developing countries therefore defend their markets, as can be seen from the increasing share of their anti-dumping actions against China.

Moreover, by manipulating its exchange rate, China can significantly influence global trade flows. In particular, exchange rate movements in China can have significant implications for competitor countries (a 10% appreciation of China's real exchange rate increases a developing country's exports at the product level by about 1.5–2.5% on average) [Khitakhunov, 2020].

After 2018, considerable changes were detected in China-US trade relations, which had a major impact on the economies of both countries. Initially, the US imposed tariffs on a range of Chinese goods, including steel and aluminium, as well as on goods like electronics, machinery, and consumer goods. In response, China imposed retaliatory tariffs on a range of US products. As the tariffs made goods more expensive, it led to a decrease in demand, which reduced trade between the two countries. According to data from the US Census Bureau, US imports from China decreased by around 16% in 2019 compared to 2018.

However, the situation is not as unambiguous as it seems at first glance. On the one hand, US imports of certain products from China – including semiconductors, some IT hardware, and consumer electronics – have fallen dramatically. But on the other hand, imports from China of laptops and computer monitors, phones, video game consoles, and toys are higher than ever. Demand for these products surged in response to the COVID-19 pandemic.

Nevertheless, in 2021 trade between China and the United States rose 28.7% to \$755.6 billion, maintaining strong growth and accounting for 12% of total foreign trade for the year, despite tariffs and heightened political tensions between the world's two largest economies. China's exports to the US increased by 27.5% in 2021, while imports rose by 32.7% to \$179.53 billion.

China's trade surplus with the United States was \$396.5 billion in 2021, according to Global Times calculations. Moreover, this figure has increased compared to the period before the trade war in 2018, when it constituted \$323.3 billion.

In 2021, U.S. exports to China were \$151.1 billion, a 21.4% (\$26.6 billion) increase from 2020; the U.S. imports from China were \$506.4 billion, a 16.5% (\$71.6 billion) increase; and the trade deficit with China was \$355.3 billion, a 14.5% (\$45.0 billion) increase [U.S. Trade with China. Summary, 2021].

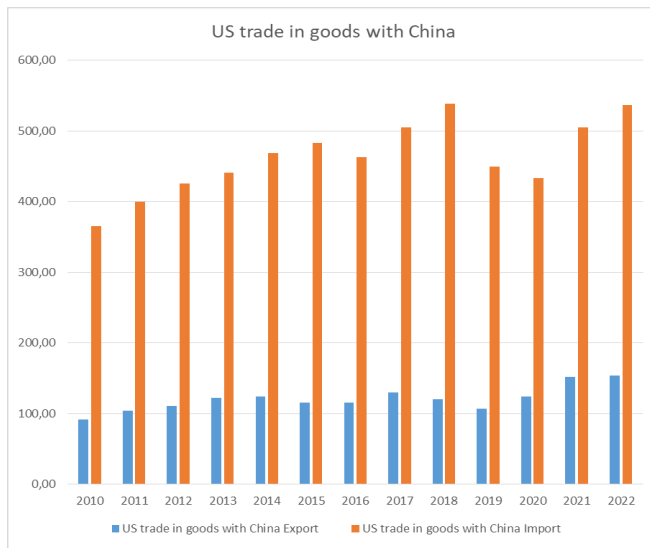


Figure 1. Demonstration of US trade in goods with China

Compiled by the author based on Census Bureau

To illustrate the changes more specifically, based on data from the US Bureau of the Census the following graph was constructed. It demonstrates US trade in goods with China.

The analyzed data introduced changes in US-China trade for the 12 years. The main trend shows the stable significant exaggeration in the US goods import in comparison to exports quantities. It can be explained by several reasons: low expenses on manufacturing and cheap labour make Chinese goods affordable and in turn increase demand for them all around the world. China is also investing heavily in the development of new technologies and infrastructure, which allows it to remain competitive on the international arena. Moreover, China has a developed export sector and a wide range of goods that are in demand on world markets. China actively promotes its products at international exhibitions and fairs, which helps it sell its products abroad.

The decline in imports was noticed in 2019 and 2020 due to the Corona-19 pandemic, as the production and logistics were quite complicated because of numerous restrictions. The pandemic has disrupted global supply chains, making it difficult for US businesses to source products from other countries. As a result, many have turned to China to meet their needs. But in 2021 the situation stabilized and reached its previous level of slightly more than \$500 billion. Moreover, despite the ongoing trade war this indicator almost reached its peak in 2022. The US goods exports also steadily recovered after 2019.

There are many reasons why the trade relations between countries stay quite strong, contrary to the sanctions. Firstly, as China remains a significant producer of many goods that the US relies on, such as electronics, clothing, and household goods. The Chinese products are often cheaper than those produced in the US, which makes them attractive to American consumers and businesses. Secondly, while the US has imposed tariffs on many Chinese goods, these tariffs have not covered all

Chinese imports, and many companies have found ways to avoid them, such as by changing their supply chains or reclassifying their products. Moreover, both countries have shown some willingness to negotiate and make progress in resolving the trade disputes. This has led to occasional temporary truces, during which the tariffs have been eased, which has allowed more goods to be imported from China.

Nevertheless, tariffs implementation still influenced the Chinese economy. They led to a shift in supply chains as companies looked to avoid the higher costs associated with trade between the US and China. Some companies shifted production to other countries, such as Vietnam or Mexico, while others started producing goods in the US. In addition, the US government increased its scrutiny of Chinese companies, particularly in the technology sector, citing concerns around national security. This led to the US blacklisting companies like Huawei and ZTE, which were deemed a national security risk.

In 2020, the US and China signed a phase one trade deal, which called for China to increase its purchases of US goods and services by \$200 billion over two years, and also promised structural reforms to its economy, such as increased intellectual property protection. However, due to the COVID-19 pandemic and both countries' restrictions on the movement of people and goods, China has been unable to meet its commitment to increase purchases of US goods under the agreement. The overall trade between the US and China also has not increased as much as expected. In addition, during the last two years, the United States and China imposed a series of reciprocal tariffs on goods, which significantly reduced the volume of trade between the countries and negatively affected the economies of both sides.

In view of the imposition of sanctions by the US government, the Chinese economy lost out. The overall negative impact can be sorted for some categories.

1. ***Decline of China's exports to the US***, as many goods made in China were subject to tariffs, which then resulted in a reduction in export volumes and decreased exporters' income.

2. ***Decreased foreign investment***, because many companies are afraid of the risks associated with a trade war and possible sanctions against China.

3. ***Reducing GDP***, as a result of the trade war and sanctions. This is due to a decrease in exports and a decrease in investment, as well as an increase in prices for imported goods.

4. ***Rising unemployment*** was caused by the demand of cutting off the number of jobs due to a decrease in production and sales in many companies.

However, US sanctions also have some beneficial effects on the Chinese economy: they can also be an incentive to develop the domestic market. It boosted domestic consumption in China, as many Chinese consumers are ditching imported goods in favour of domestic ones. Secondly, they can also reduce China's dependence on exports.

Chinese sanctions also could negatively impact the US economy. The average tariff on goods imported from China to the United States increased from 3.4% in 2016 to 19.3% in 2022. First of all, China is an important trading partner for the US, and further tension could reduce trade between the two countries. This could affect companies that depend on Chinese supplies or export their products to China and result in loss of revenue.

Moreover, China is an important investment partner for the US, so sanctions cause a decrease in available financial resources for companies that rely on Chinese investment. Then, sanctions increase the price of imported goods that are due to increased transportation costs or finding new suppliers.

The conclusions of the US International Trade Commission's research found an almost one-to-one increase in the price of US imports, which proves that the cost of the tariffs hurt American firms, and contradict Trump's claim that China paid the ultimate cost of the duties. President Joe Biden's administration has kept the tariffs on imports of Chinese goods and is currently reviewing the duties to evaluate their effectiveness and decide if they should continue. Imports of the affected products from China declined to about \$265 billion in 2021 from \$311 billion in 2017, the year before the duties were imposed. Across all affected sectors, the duties lowered Chinese imports by 13% during 2018 to 2021, raised US output by 0.4% and increased prices of US products by 0.2% [Martin, 2023].

The China-US trade war has complex and varied effects on different countries, and the extent of the benefits can vary depending on specific industries and trade relationships. However, it can be some other beneficiaries, who win as a result of the China-US trade war. Among them could be Vietnam, Taiwan and Mexico. In some terms all these countries can be identified as rivals to superpowers involved in the trade war.

Vietnam has emerged as a major beneficiary of the trade war as many companies relocated their manufacturing operations from China to Vietnam to avoid tariffs. Vietnam emerged as one of the major beneficiaries of the trade war due to its favourable business environment, low labour costs, and strategic geographic location. The trade war pushed Vietnam's industrial growth and helped develop its manufacturing sector. Vietnam's exports to the United States surged during the trade war, particularly in sectors such as electronics, textiles, and footwear. Moreover, Vietnam attracted a significant amount of FDI as businesses sought to diversify their supply chains and establish manufacturing bases in the country. However, the trade war also posed challenges for Vietnam. The rapid influx of investment and increased exports put pressure on infrastructure, labour resources, and environmental sustainability. Vietnam also faced risks associated with over-reliance on specific industries and potential changes in global trade dynamics.

Taiwan also experienced an increase in exports to the United States during the trade war. Taiwanese manufacturers benefited from the shifting supply chains and redirected investment as they became alternative suppliers for American businesses. As Taiwanese manufacturers scrambled to avoid the tariffs, the Tsai Ing-wen administration unveiled a three-year (2019–2021) reshoring incentive program: the "Action Plan for Welcoming Overseas Taiwanese Businesses to Return to Invest in Taiwan" [Fulco, 2019]. The trade war prompted Taiwan to focus more on technology and innovation, leveraging its strengths in the semiconductor industry. Taiwanese companies played a crucial role in the global supply of semiconductors, which were in high demand amid the trade tensions. This led to an increase in exports from Taiwan, particularly in sectors such as electronics, machinery, and telecommunications.

Newly implemented sanctions, imposed in 2022, restrict the ability of US persons to support the development, or production, of ICs at China-based advanced semiconductor manufacturing factories without a license. Undoubtedly, this ban is a major blow to China's advanced semiconductor sector, which is already struggling to be at the leading edge of the semiconductor industry.

Mexico played a significant role in the trade war between China and the United States due to its close proximity to the United States and its strong economic ties with both countries. As the trade tensions escalated, Mexico emerged as an attractive alternative manufacturing destination for companies seeking to diversify their supply chains and reduce dependence on China.

Mexico had an increase in its exports to the United States in sectors such as automobiles, electronics, and machinery. During the trade war, there were negotiations to update the North American Free Trade Agreement (NAFTA), resulting in the United States-Mexico-Canada Agreement (USMCA), which have made Mexico an attractive option for these industries [García, 2023]. The renegotiation aimed to address various trade issues and modernize the agreement.

Nevertheless, while certain countries may experience short-term benefits, the overall impact of the trade war on the global economy remains a complex and dynamic issue. The trade war has also had negative consequences for many countries, including increased uncertainty, disrupted supply chains, and slower global economic growth.

To assess the sensitivity of China’s exports to US exports, an auto regression model was constructed. The dynamics showed a clear relationship between the exports of two countries with an excess of exports of goods and services from China to the United States.

The correlation between the exports of the two countries in this case is almost 98%. This means that the two countries have a close relationship and interdependence in the field of trade, which in turn confirms the mutual vulnerability of countries in a trade war. Moreover, China and the US are often key players in global supply chains, where components and intermediate goods are sent between countries to produce final goods. Therefore, changes in the demand for final goods in one country may affect the exports of another country.

The constructed VAR model, taking into account the optimal number of lags (in the amount of 4), indicates an improvement in trade between China and the United States, despite the fact that diplomatic relations are still deteriorating.

Table 1

	US EXPORT	CHINA EXPORT
US EXPORT	1.000000	0.979376
CHINA EXPORT	0.979376	1.000000

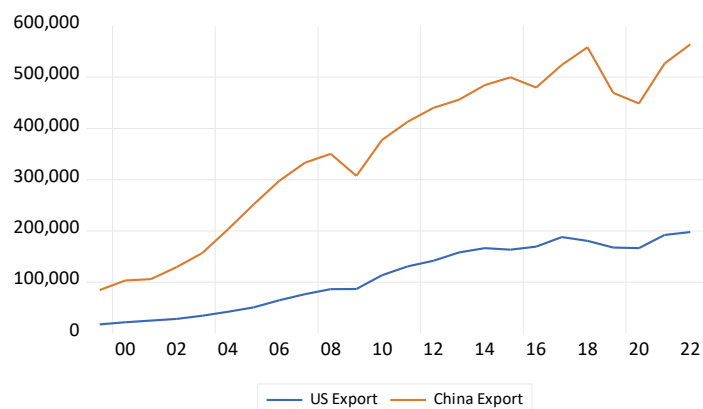


Figure 2. Dynamics of exports of goods and services from the US to China relative to exports from China to the US

Compiled by the author based on [International Trade, 2023, BEA data]

Table 2

Vector Autoregression Estimates		
Sample (adjusted): 2003 2022		
Included observations: 20 after adjustments		
Standard errors in () & t-statistics in []		
	US EXPORT	CHINA EXPORT
US EXPORT(-1)	1.344766 (0.41960) [3.20489]	3.684984 (1.17574) [3.13420]
US EXPORT(-2)	-0.528611 (0.56179) [-0.94093]	-2.384399 (1.57417) [-1.51470]
US EXPORT(-3)	0.071620 (0.67623) [0.10591]	-2.475215 (1.89482) [-1.30630]
US EXPORT(-4)	-0.163485 (0.47277) [-0.34581]	2.206389 (1.32471) [1.66556]
CHINA EXPORT(-1)	-0.145214 (0.12853) [-1.12985]	-7.81E-05 (0.36013) [-0.00022]
CHINA EXPORT (-2)	0.059934 (0.14232) [0.42113]	0.422322 (0.39878) [1.05904]
CHINA EXPORT (-3)	0.116276 (0.12798) [0.90857]	0.505971 (0.35860) [1.41098]
CHINA EXPORT (-4)	0.045162 (0.12660) [0.35672]	-0.472590 (0.35474) [-1.33221]
C	13559.86 (12186.1) [1.11273]	100842.3 (34146.1) [2.95326]
R-squared	0.981163	0.968541
Adj. R-squared	0.967463	0.945663
Sum sq. resids	1.06E+09	8.31E+09
S.E. equation	9809.849	27487.65
F-statistic	71.61948	42.33337
Log likelihood	-206.2232	-226.8302
Akaike AIC	21.52232	23.58302
Schwarz SC	21.97040	24.03110
Mean dependent	128867.6	407189.0
S.D. dependent	54384.55	117920.2
Determinant resid covariance (dof adj.)		2.20E+16
Determinant resid covariance		6.64E+15
Log likelihood		-421.0790
Akaike information criterion		43.90790
Schwarz criterion		44.80406
Number of coefficients		18

At the moment, in 2023, the trade war between the US and China continues. One of the main reasons for the continuation of the trade war is mistrust and tension between the US and China. The US continues to accuse China of unfair trade practices, intellectual property infringement, and other economic problems, while China believes that the US is using the trade war to pressure China [Itakura, 2020].

At the same time, in 2022, the US and China reached a new trade war agreement that led to lower trade tariffs on certain goods, as well as an agreement to protect intellectual property. This agreement is a sign of improving relations between the US and China.

However, despite some progress, the trade war continues. Recently, the US imposed new sanctions against China related to human rights violations in Xinjiang, and continues to restrict access to technology for Chinese companies [Itakura, 2020]. In response, China continues to impose tariffs on goods from the US and strengthen its economic position in Asia and other regions.

Overall, the outcome of the trade war for the US has had a temporary effect, as evidenced by the worst performance in US and China trade for the US in 2018. However, already in 2019 and 2020, there was a significant improvement in US performance due to sanctions imposed on China, but in 2021 and 2022, China adjusted to changes and tariffs, so the negative balance in US trade with China began to grow again in favour of China and almost reached the levels of 2018.

Thus, although the US and China have made some progress in resolving the trade war, tensions between these countries continue, and further changes in trade relations will depend on the political and economic situation in the world.

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