



The Consequences of the US_China Trade War on Global Economic Growth

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Abstract:

Trade has a huge influence on the economic growth of a country, due to globalization no country could fulfil their national needs and desire without international trade. This study aims to measure and analyse the consequences of the United States and China trade war on the United States and China's economic growth and global economic growth. To achieve this objective, the study employed Autoregressive Distributed Lag (ARDL) model depending on monthly data from 2016 M1 to 2019 M12. The data were obtained from Federal Reserve Economic Database (FRED) and The United States Census Bureau (USCB), Economic indicators. The result of the study shows that: Dummy variable (D) indicates the tariff rate has a positive and statistically significant effect on United States GDP. However, the effect of tariff rate (D) on the Chinese GDP is negative and statistically significant. Likewise, tariff rate(D) harms global GDP, thus if tariff rate (D) changes by 1%, the global GDP decreases by (0.005). In conclusion, increasing tariff rates from both countries (the U.S. and China) has negative consequences on their economic growth and the global GDP.

Keywords: International trade, Trade war, Tariff, GDP, ARDL.

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Introduction

International trade is the trading of goods and services across international borders or regions. Generally, there are two approaches to international trade: Free trade and Protectionism.

Free trade is a policy in which a government does not discriminate against imports or restrict exports by applying tariffs (on imports) or subsidies (on exports). Whereas, Protectionism is a policy in which the government restricts international trade to support domestic industries(Krugman & Obstfeld, 2009). Additionally, there is an economic conflict between the countries that initiate a trade war. This includes employing protectionism policies in the form of trade obstacles. One of the trade tools used in trade wars is tariffs. The trade war between US-China initiated by imposing tariffs on goods. In the past few decades in the world, there were many examples of economic war. US and China are the two largest economies of the world not only in GDP but also in international trade and Foreign direct investment(FDI). Hence, the strong and bad relationship between these two countries will have a substantial impact not only on their economies but also on the world economy.

Reducing the trade deficit was one of the Trump policies since 2106 to create more job opportunities in the country, consequently, in 2018, the Trump administration launched a series of tariffs that sparked a trade war between the United States and China. US officials state that China has taken advantage of trade liberalization and WTO (World Trade Organization) membership to pursue unfair trade policies while subsidizing its domestic market against foreign competition currency devaluation (Kapustina, L . et. al,2020). According to a report published by CNBC in 2019, the Trump administration claims that China has adopted predatory tactics to give Chinese companies the lead in advanced technologies, robotics and electric vehicles. Beijing's strategy includes hacking into the computers of U.S. companies as well as stealing trade secrets, forcing foreign companies to turn to sensitive technology in exchange for access to Chinese markets.

Nonetheless, the most important reasons behind imposing a tariff on some types of Chinese products are as follows: (Scott. R, 2017), (EPI report2017 9), (Vlados, C., 2020), (Albasoos & Al-Hadhrani, 2016).

The growing trade deficit with China is the cumulative reason for the trillions of dollars transferred abroad by the United States. The United States has a large trade deficit with China and it has widened since the end of the Great Recession. This deficit has caused a massive failure to create job opportunities and cost the United States millions of jobs since China's accession to (WTO) in 2001.

The alleged theft of intellectual property by foreign companies: The United States trade representative has recommended the Trump administration investigate China's intellectual property (IP) theft for more than six months. The shift of a U.S. trade agent to China costs between \$225 to \$600 billion annually.

Currency devaluation: Another reason for the US-China conflict is China's policy of managing its currency exchange rate (RMB) to limit its rise against other currencies such as the US dollar. This policy has received plenty of criticism from US lawmakers as a currency manipulator. 1

¹ The U.S. argues that China is taking advantage of exports and attracting foreign direct investment at the expense of other countries, including the United States. The claim also alleges that



China has retaliated against the United States by imposing tariff rates on some American products. China and the United States have imposed additional tariffs on each other's products since 2018, bruising their trade war that has sent shockwaves through the global economy.

Total US tariffs applied exclusively to Chinese goods account for US\$550 billion until 2020, and total Chinese tariffs applied exclusively to US goods accounted for US\$185 billion until 2020. However, the economic and technological competition between these two countries is likely to continue even after the tariff war is resolved.

This paper is structured into five subsequent sections. Section 1 consists of the introduction, problem statement, objective of the study, and research hypothesis. Section 2 mainly describes the theoretical framework of the research and discusses the literature review. Section 3 describes the trade war between the United States and China. Section 4 presents the results and discussion and Section 5 presents the conclusion of the paper.

Problem Statement

The quantitative and qualitative development of Chinese power is a challenge to the United States in the 21st century. The impact of China's trade and industrialization policies on the U.S. economy is undoubtedly realistic and substantial, China seeks to develop a self-reliant approach across all major industries and services sectors to become a developed economy. Implementation of this scenario may result in China winning the position of a superpower while minimizing the impact of the United States. Therefore, it is in the United States' best interest to maintain the world's number one economic position and maintain a favourable strategic position. The consequences of the trade war between China and the United States are enormous for the global economy. According to a report by the Bank of Finland (2019), the trade war slowed the global GDP.

Significance of this study

This study will intend to fill some of the gaps in the existing literature by measuring and analyzing the effect of the Tariff rate on the United States' economic growth, China's economic growth, and global economic growth. To the best knowledge of the researcher, no current literature combines the effect of tariff rates on the United States, China and the world.

The objective of the study

The study aims at measuring and analyzing the consequences of the U.S-China trade war on themselves economic growth and global economic growth.

Research hypothesis

The main hypothesis of the study is that: There are negative consequences of the U.S-China trade war on global economic growth.

China's manipulation led to a higher U.S. trade deficit as well as a higher unemployment rate. Meanwhile, Chinese policymakers argue that its exchange rate policy is a tool to boost China's growth and market growth to make it prosperous and powerful.



Methodology of the Study

The study employed Autoregressive Distributed Lag (ARDL) model, depending on monthly secondary data from 2016 M1 to 2019 M12.

Theoretical Framework

International Trade and Economic Growth Theories:

The belief that free international trade is beneficial for everyone is spread all over the world. However, if so, why are there even trade policies and trade wars?

Several theories can be adopted to explain the general trade war directly or indirectly. Economists have developed theories to explain the mechanisms of world trade. The origins of the theoretical literature on trade and growth are absolute advantage and comparative advantage, as well as the Hecksher-Ohlin model and its followers. However, when applied to the current situation of China and the US, The New Trade theories are most related the reason behind this belief is that the new trade theory suggests that governments might have a role to play in promoting new industries and supporting the growth of key industries. Additionally, new trade theory emphasizes that the basic cause of trade happening is due to the existence of economies of scale, relative differences in factor endowments and economies of scale and monopoly power. Even if there are no relative differences in factor endowments between the two countries, trade is likely to happen due to economies of scale and monopoly (Meini, Z, 2013). Traditional trade theories claim that free trade is the best trade option for countries to benefit from trade. Whereas the new trade theory asserts that in a market structure of an economy of scale and imperfect competition, a free trade policy may not be the best policy, the new trade theory asserts that free trade in the context of the international flows of goods and capital is better than interventionism. This is because interventionist trade policies can lead to government failure and retaliation when protected market structures are less effective. Increasing returns to scale and imperfect competition not only helps to reshape traditional trade theory, but they also have a significant influence on trade policy thinking, and provide a new rationale for trade protectionism (Lam, T.D., 2015).

Literature review

(Bekkers, and Schroeter, 2020) conducted an economic analysis of the US-China trade conflict, and reviewed tariff increases. The study found that bilateral tariffs between the United States and China increased by an average of 17%, while in the Phase-1 agreement signed between the two countries in January 2020, tariffs fell slightly to 16%. On the other hand, (Mao, H. and Görg, H., 2020) studied the possible indirect effects of the tariff increases in the recent trade war between the United States and China on other trading partners. They found that due to the close trade relationship with the United States, the EU, Canada and Mexico are most affected in absolute terms by the increase in US tariffs on Chinese imports. Besides, they estimated that the tariffs impose an additional burden of between 500 million and \$1 billion on these countries. Nonetheless, to analyze the causes and the consequences of the trade war between the United States and China (Kapustina . et al, 2020) did research taking into account the GDP and export ratio of both countries. As a result, they



found out this trade war comes against the backdrop of a slow in global production and international trade. To analyze the direct economic effects of the US-China tariff war on both China and the United States (Tu, X., et.al 2020) use the smart model. The results show that U.S. imports from China and China's imports from the United States will fall by about \$91.46 billion and \$36.71 billion, respectively. U.S. imports will be diverted to other markets in most areas, including Mexico, Japan and Germany. Chinese imports from the US will be mainly diverted to Brazil, Germany, Japan, Argentina, the United Kingdom and Canada. However, trade between the United States and China cannot be fully relocated to other suppliers in other countries without additional costs or a loss of utility, resulting in a significant reduction in total imports and better results in the United States and China. In conclusion, trade wars damage the welfare of both parties and could have extra negative effects on global value chains and the multilateral trading system. To evaluate the economic consequences of the 2018 US-China trade war conflict (Tsutsumi, 2018) performed a study using a global CGE model. He found that the tariffs imposed on additional goods affected the U.S. and China's GDP by 0.1% and 0.2%, respectively. Additionally, both the U.S. and China lose their comparative advantage in the production of transportation, electronic, and machinery equipment, while other countries expand their production in these areas. Nonetheless, a study done by (Minghao Li, et. al, 2019) found that an increase in tariffs in September 2019 reduced welfare by 1.9% in China and 0.3%. In the US. China's exports to and imports from the United States fell by 58.3% and 50.7%. Respectively. Furthermore, (Lau, L.J., 2019) performed a study to examine the real effects of the China-U.S trade war on the Chinese and US economies. It has shown that while the effects are negative and significant, they are both absolute and low. So GDP of the US is less than the GDP of China but driven by both economies. Besides, (Vlados, 2020) has done research studying 12 scientific articles to identify the content and basic parameters of the US-China trade war. He found that the emphasis was on the decline of US hegemony on the world stage and the search for a sustainable new global balance.

Results and Discussion:

This section consists of the data collection, variable descriptions and model specification, and time series estimation by using (ARDL) approach with stationary and co-integration tests.

4.1 Variable descriptions

Table (1) Variable Descriptions and Data Source

Variables	Description	Data source
Global GDP	Gross Domestic Product, Billions of Dollars, Quarterly, Seasonally Adjusted Annual Rate	Federal Reserve Economic Database (FRED)
EX China	Export of China to the U.S.A. in millions of U.S. dollars on a nominal basis, not seasonally adjusted	United States CENSUS Bureau, Economic indicators
EX U.S.A	Export of the U.S.A to China in millions of U.S. dollars on a nominal basis, not seasonally adjusted	United States CENSUS Bureau, Economic indicators



Import, US	U.S.A Import from China .in millions of U.S. dollars on .a nominal basis, not seasonally adjusted	United States CENSUS Bu- reau, Economic indicators
Import, China	China Import from the U.S.A., in millions of U.S. dol- lars, on a nominal basis, not seasonally adjusted	United States CENSUS Bu- reau, Economic indicators
ER	China / U.S. Foreign Exchange Rate, Chinese Yuan to One U.S. Dollar, Monthly, Not Seasonally Adjusted	FRED
D1	Dummy Variable, The Effect of Tariff on Global GDP	Studenmund,2014; Gujarati,., and Porter, D.C., 1999

Source: Author's collaboration

4.2 Methodology and Model Specification

To measure and analyse the consequences of the U.S-China trade war on global economic growth (Global GDP), this paper employed (ARDL) approaches for estimation. The estimation of the variables is tested using E-views 9 software.

To model the relationship between the trade war and global economic growth, a functional form model containing (EX: Export, IM: Import, ER: Exchange rate, US real GDP, China's real GDP and global GDP) can be expressed as follows:

$$GDP = f(K, M, T, R) \dots \dots \dots 1$$

The functional equation (1) can be converted to an econometric model by introducing a drift coefficient slope of each explanatory variable and the stochastic error term, as shown below:

$$LGDP_{it} = \beta_0 + \beta_1 EX_{it} + \beta_2 LIM_{it} + \beta_3 LER_{it} + D1 + U_{it} \dots \dots \dots 2$$

Where:

For $i = 1, 2, \dots, N$ and $t = 1, 2, \dots, T$.

Where

N = Number of individuals or cross-sections and T is the number of periods.

GDP=Economic growth EX=Export IM=Import

ER=Exchange rate β = intercept



U = random error term that is expected to be normally distributed.

D= dummy variable.

4.3 Times series model estimation

Stationary test Unit root test (Augmented Dickey-Fuller ADF)

A stationary series is a key idea in time series. It refers to the mean of the series, which is no longer a function of time. Stationary series play a fundamental role in the study of a time series (Studenmund, 2014: p 402). In the literature, there are several stationary tests, namely the Dickey-Fuller (DF), the Augmented Dickey-Fuller (ADF), the Phillips-Perron (PP) and the Kwiatkowski, Phillips, Schmidt, and Shin (KPSS) tests. The most commonly used tests in the literature are the ADF and the PP. Hence, this study employs the ADF unit root test. The stationary test result is reported in the table below:

Table (2 Stationary test Unit root test (Augmented Dickey-Fuller ADF)

(Variables(China	Fisher ADF	Note: (*), (**) denotes Significant at 1%, 5% respectively
LGDP	0.0000	
EX	0.0000	
LIM	0.0102	
LER	0.0459	
Variables/ US	Fisher ADF	Note: (*), (**) denotes Significant at 1%, 5% respectively
GDP	0.0734	
EX	0.0000	
IM	0.0000	
ER	0.0035	
Variables/ World	Fisher ADF	
GDP	0.0329	
LEX	0.0328	
LIM	0.0302	
LER	0.0209	

From Table (2) all variables are stationary in the first difference (intercept and intercept with trend) at the 1% and 5% significance level, respectively

4.4 Co-integration test

The co-integration concept relates to whether the variables are co-integrated, then spurious regressions can be avoided even though the dependent variable and at least one independent variable are non-stationary (Tashpinar, 2011: p 34)



Table(3) trace tests indicate (1) co-integrating eq(s) at the 0.05 level for China, (5) co-integrating eq(s) at the level 0.05 for the United States, and (3) co-integrating eq(s) at the level 0.05 for the global economic growth. Therefore, the null hypothesis of no co-integration among the variables is rejected.

Table 3: Summary of the Johansen co-integration test

Variables/China	Critical Value 0.5	.Prob
LGDP	٤٧,٨٥٦١٣	٠,٠٢٥٤
LEX	٢٩,٧٩٧٠٧	٠,١٧٠٥
LIM	١٥,٤٩٤٧١	٠,٣٠٤٥
LER	٣,٨٤١٤٦٦	٠,٤٣٨٠
Variables/ US	Critical Value 0.5	.Prob
GDP	60.0614	0.0087
EX	40.1749	0.0355
IM	24.2759	0.0376
ER	12.3209	0.04924
D	4.1299	0.0416
Variables/World	Critical Value 0.5	.Prob
LGDP	40.1749	0.0001
LEX	24.2759	0.0001
LIM	12.3209	0.0251
LER	4.1299	0.2976

4.5 Economic Growth Model Estimation for United States, China, And the World:

Estimation is the process of finding an estimate or approximation, which is a value that is usable for some purpose even if the input data may be incomplete, uncertain or unstable. There exist hundreds of methods in the literature that can be used for estimating, but, nowadays, the most common methods used are OLS, ARDL, VAR and GMM. However, the current study will use the ARDL approaches for estimation. The tables below present the result of ARDL estimation for the United States and China.

Table (4), which shows the results of the ARDL estimates, indicates a positive effect of EX, on the United States, China, and the global GDP. However, IM for both US and China harm their GDP. Moreover, global import has a negative and statistically significant effect on global GDP. In other words: if global Import changes by 1%, global GDP decreases by 0.02%. However, the Dummy variable (D) indicated the tariff rate has a positive and statistically significant effect on United States GDP.



Table 4: Estimation for economic growth model using ARDL approach

Regressors	United States	China	Global
Constant	[0.000]9.45	[0.0001]-30.5	[0.0687]0.568
Export	[0.0007]4.23	[0.0001]2.90	[0.3228]0.017
Import	[0.4503]-2.39	[0.069] -0.35	[0.0895] -0.029
Real effective exchange rate (LER	[0.0000]0.04	[0.0931]-0.90	[0.0000]-0.0498
Dummy variable: Tariff rate	[0.0000] 0.05	[0.0144]-0.05	[0.0000]-0.0054

Hence if the tariff rate (D) changes by 1%, the US GDP will increase by (0.05%) the reason behind this result is when the tariff rate increases the revenue increase when other factors remain constant. The effect of tariff rate (D) on the Chines GDP is negative and statistically significant. Likewise, tariff rate(D) harms global GDP, thus if tariff rate (D) changes by 1%, the global GDP decreases by (0.005). these results coincide with the New trade theories which assert that free trade in the context of the international flows of goods and capital is better than interventionism. Furthermore, according to the literature presented by (Ikonen, P., et.al 2019, Bekkers, and Schroeter, 2020, Tu, X., et. al, Mao, H. and Görg, H., 2020) increasing the tariff rate has a negative consequence on global GDP.

Diagnostic Checking for economic growth model:

One of the most important steps in a time-series regression model is checking the model and the goodness of fit. The purpose of diagnostic checking is to check the adequacy of the applied method. In the current study, a diagnostic test has been applied to ensure the fit and accuracy of the ARDL approach. Moreover, diagnostic checking includes six main tests (Autocorrelation problems, Multicollinearity problems, Heteroscedasticity problems, Model specification and model accuracy, Normality problems and Stability problems) that are performed to fit the model adequacy theoretically, statistically and economically. The diagnostic tests and statistical indicators are presented in the table below:



Table (5): Diagnostic Tests and Statistical Indicators for economic growth model

Countries	Tests	LM test F-statistic	ARCH) test) F-statistic	Ramsey RE- SET test F-statistic	Jarque-Bera F-statistic	VIF Centred VIF
US	R-Squared = 0.89 =	1.1266 [0.3879]	0.0557 [0.8146]	0.1684 [0.6843]	Not applicable [0.6195]	Less than 10
China	R-Squared = 0.99	8.1962 [0.1144]	0.0398 [0.8427]	1.8698 [0.1813]	Not applicable [0.7479]	Less than 10
World	R-Squared = 0.99	1.4705 [0.1945]	2.4099 [0.1277]	1.4793 [0.2307]	Not applicable [0.5305]	Less than 10

Table (5) shows that for all the tests that were used (LM, ARCH, Ramsey RESET, Jarque-Bera and Variance Inflation Factor) the F-statistic is more than the critical value. The model passed these tests. The null hypothesis (H0; the econometrics problem does not exist) is accepted for the economic growth model. Therefore, the ARDL models are correctly specified for the United States, China, and global economic growth. Table (5) also shows that R2 is too high for economic growth models. This finding shows that the model fits the data and has the correct specification.

Figure (1) Relationship between Economic Growth and Export, Import for the World

A plot of Cumulative Sum of Squares Recursive Residuals

Plot of Cumulative Sum of Recursive Residual

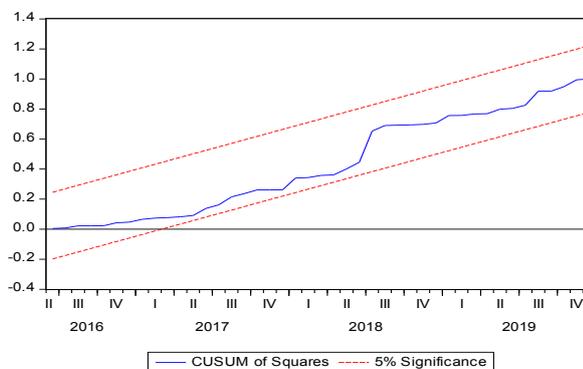
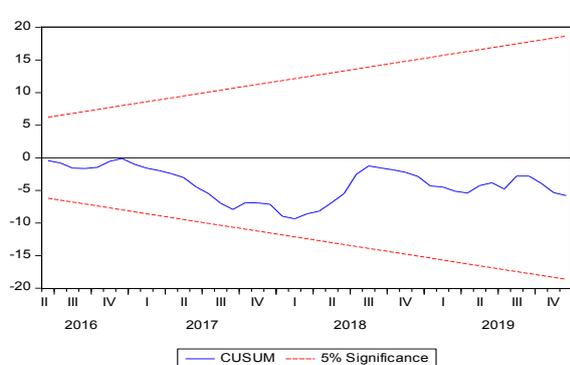




Figure (1) shows that the relationship between global economic growth and global export and global import is stable.

Conclusion

The Trade war between the two largest economies is a serious problem for the world. Especially, some countries in the world have a significant share of gross domestic product in international trade. The study measures the consequences of the trade war between the United States and China on their economic growth and global economic growth. To accomplish that, Autoregressive Distributed Lag (ARDL) model is used based on monthly data from 2016 M1 to 2019 M12. The results show that Global export has a positive effect on the global GDP. Moreover, global import has a negative and statistically significant effect on global GDP. Additionally, the Dummy variable (D) indicated the tariff rate has a positive and statistically significant effect on United States GDP, and the effect of tariff rate (D) on the Chines GDP is negative and statistically significant. Likewise, tariff rate(D) harms global GDP, thus if tariff rate (D) changes by 1%, the global GDP decreases by (0.005).

In conclusion, the increase in tariff rates has negative consequences on global GDP. The trade dispute between the U.S. and China is a long-term problem. However, given the strong complementarity of both economies, there is still a huge potential for trade and investment cooperation. Nonetheless, this trade war has some advantages for other countries, for example: while both the U.S. and China are losing their comparative advantage in the production of transport, electronics, and machinery, other countries are expanding their production in these areas and benefit from this war

دهرئه نجامه كانى شهري بازارگانى نيوان ويلايه ته يه كگرتوه كانى ئەمريكا و چين

پوختهى توپژينه وه

بازرگانى نيو ده وه لته تىي كاريگه رىي زوري هه يه له سه ر گه شهى ئابورىي ولات. به هوى جيهانگيريه وه هيج كام له ولاتانى جيهان ناتوانن به بى بازارگانى، ته واوى پيداويستىي و ئاره زوى خه لكه كه ي پر بكه نه وه. ئامانجى ئەم توپژينه وه يه برىتیه له پيوانه كردن و شيكردنه وهى شهري بازارگانى نيوان ويلايه ته يه كگرتوه كانى ئەمريكا و چين له سه رگه شهى ئابورىي جيهان. بۆ به ديهيئانى ئەم ئامانجه، ئەم توپژينه وه يه ميتۆدى Autoregressive Distributed Lag (ARDL)) به كاره ئناوه به پشتبه ستن به داتاي مانگانه له مانگى يه كى ۲۰۱۶ تا مانگى دوانزدهى ۲۰۱۹. سه رچاوهى داتا كه برىتیه له داتا به يسى ئابورىي يه ده گى فيدرالى (FRED) و ده زگاي سه رژمىريي ويلايه ته يه كگرتوه كانى ئەمريكا بۆ پينوينه ئابوريه كان. (USCB). ئەنجامى ئەم توپژينه وه يه ده ريده خات كه كاريگه رى ئەرئىي هه يه له نيوان رىژهى گومرگىي و گه شهى ئابورىي ئەمريكا. هه رچونىك بيت، رىژهى گومرگ كاريگه رىي نه رىئىي هه يه له سه ر گه شهى ئابورىي چين. له گه ل ئه وه شدا، رىژهى گومرگ كاريگه رىي گرنگ و نيگه تىقى هه يه له سه ر گه شهى ئابورىي (GDP)ى جيهان. له كۆتاييدا، زياد كردنى رىژهى گومرگ



لهلايهن ويلايهته يه كگرتوه كانى ئه مريكا و چيين ده بئته هوى پاشه كشيى گه شهى ئابورىي جيهان و ده رئه نجامى نىگه تىقى ده بئت له سه ر ئابورىي جيهان.
كليه وشه كان: بازرگانى نئوده وه لته، شه رى بازرگانى، گومرگ، ARDL، GDP.

عواقب الحرب التجارية بين الولايات المتحدة و الصين على النمو الاقتصاد العالمي

الملخص

التجارة الدولية لها أثر كبير على النمو الاقتصادي للدولة. لا يستطيع أي دولة في العالم ان تشبع الحاجات و الرغبات مواطنه في الوقت الحالي بسبب العولمة. الهدف من هذه الدراسة هي قياس وتحليل نتائج الحرب التجاري بين ولايات المتحدة و الصين على النمو الاقتصاد العالمي. لتحقيق الهدف البحث تم استخدام طريقة (ARDL)، اعتمادا على بيانات الشهرية من الشهر الاول من عام ٢٠١٦ الى الشهر الثاني عشر من عام ٢٠١٩. تم الحصول على البيانات من قاعدة البيانات الاقتصادية الفدرالية (FRED) و مكتب تعداد الولايات المتحدة (USCB) لمؤشرات الاقتصادية. و تظهر نتائج الدراسة ان هناك تأثير ايجابي من التعريفه الجمركية والنتاج المحلي الاجمالي الامريكى. و على العكس ذلك، فأن المعدل التعريفه الجمركية له اثر سلبي ومعنوي على الناتج المحلي الاجمالي الصيني و العالمي (GDP). في الختام، ان زيادة معدل التعريفه الجمركية من كلا الجانبين (الولايات المتحدة و الصين) له عواقب سلبية على الاقتصاد العالمي.

الكلمات المفاتيحة: التجارة الدولية، حرب التجاري، تعريفه الجمركية، ARDL ، GDP.

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Appendix(1) Data used in this paper

United States of America and World GDP

Date	World GDP	Export	Import	Exchange rate
Jan-16	76158.883	8,208.90	37,126.40	6.5726
Feb-16	76548.45033	8,080.50	36,066.90	6.5501
Mar-16	76938.01767	8,925.60	29,812.30	6.5027
Apr-16	77327.585	8,679.70	32,920.20	6.4754
May-16	77717.15233	8,542.00	37,513.70	6.5259
Jun-16	78106.71967	8,845.60	38,539.20	6.5892
Jul-16	78496.287	9,129.70	39,438.90	6.6771
Aug-16	78885.85433	9,372.90	43,221.80	6.6466
Sep-16	79275.42167	9,521.20	42,020.90	6.6702
Oct-16	79664.989	12,600.00	43,798.10	6.7303
Nov-16	80054.55633	12,044.10	42,602.60	6.8402
Dec-16	80444.12367	11,644.80	39,358.90	6.9198
Jan-17	80833.691	9,955.50	41,335.60	6.8907
Feb-17	81255.333	9,739.80	32,785.00	6.8694
Mar-17	81676.975	9,720.20	34,162.00	6.8940
Apr-17	82098.617	9,806.50	37,441.90	6.8876
May-17	82520.259	9,880.00	41,756.80	6.8843
Jun-17	82941.901	9,718.20	42,258.10	6.8066
Jul-17	83363.543	9,954.10	43,561.10	6.7694
Aug-17	83785.185	10,825.50	45,782.30	6.6670
Sep-17	84206.827	10,896.00	45,405.10	6.5690
Oct-17	84628.469	12,963.20	48,133.10	6.6254
Nov-17	85050.111	12,908.40	48,104.80	6.6200
Dec-17	85471.753	13,629.90	44,439.40	6.5932
Jan-18	85893.395	9,910.20	45,749.90	6.4233
Feb-18	86014.38708	9,741.80	39,003.60	6.3183
Mar-18	86135.37917	12,653.20	38,295.10	6.3174
Apr-18	86256.37125	10,510.50	38,269.40	6.2967
May-18	86377.36333	10,396.60	43,938.70	6.3701
Jun-18	86498.35542	10,858.30	44,571.20	6.4651
Jul-18	86619.3475	10,156.50	47,087.60	6.7164
Aug-18	86740.33958	9,280.90	47,817.50	6.8453
Sep-18	86861.33167	9,732.40	49,988.10	6.8551
Oct-18	86982.32375	9,187.50	52,170.10	6.9191
Nov-18	87103.31583	8,650.90	46,445.70	6.9367



Dec-18	87224.30792	9,210.50	45,906.30	6.8837
Jan-19	87345.3	7,105.10	41,514.40	6.7863
Feb-19	87111.33233	8,083.30	33,154.90	6.7367
Mar-19	86877.36467	10,574.90	31,175.60	6.7119
Apr-19	86643.397	7,883.00	34,682.70	6.7161
May-19	86409.42933	9,069.40	39,173.40	6.8519
Jun-19	86175.46167	9,166.70	38,967.60	6.8977
Jul-19	85941.494	8,694.30	41,449.20	6.8775
Aug-19	85707.52633	9,415.60	41,151.10	7.0629
Sep-19	85473.55867	8,597.30	40,165.50	7.1137
Oct-19	85239.591	8,851.20	40,114.90	7.0961
Nov-19	85005.62333	10,103.30	36,436.60	7.0199
Dec-19	84771.65567	8,903.00	33,665.50	7.0137

Source: Author's collaboration based on data from the Federal Reserve Economic Database (FRED) and United States CENSUS Bureau, Economic indicators. The units are Billions of Dollar

2. China's Data

Date	Export	Import	Exchange rate
Jan-16	37,126.40	8,208.90	6.5726
Feb-16	36,066.90	8,080.50	6.5501
Mar-16	29,812.30	8,925.60	6.5027
Apr-16	32,920.20	8,679.70	6.4754
May-16	37,513.70	8,542.00	6.5259
Jun-16	38,539.20	8,845.60	6.5892
Jul-16	39,438.90	9,129.70	6.6771
Aug-16	43,221.80	9,372.90	6.6466
Sep-16	42,020.90	9,521.20	6.6702
Oct-16	43,798.10	12,600.00	6.7303
Nov-16	42,602.60	12,044.10	6.8402
Dec-16	39,358.90	11,644.80	6.9198
Jan-17	41,335.60	9,955.50	6.8907
Feb-17	32,785.00	9,739.80	6.8694
Mar-17	34,162.00	9,720.20	6.8940
Apr-17	37,441.90	9,806.50	6.8876
May-17	41,756.80	9,880.00	6.8843
Jun-17	42,258.10	9,718.20	6.8066
Jul-17	43,561.10	9,954.10	6.7694
Aug-17	45,782.30	10,825.50	6.6670



Sep-17	45,405.10	10,896.00	6.5690
Oct-17	48,133.10	12,963.20	6.6254
Nov-17	48,104.80	12,908.40	6.6200
Dec-17	44,439.40	13,629.90	6.5932
Jan-18	45,749.90	9,910.20	6.4233
Feb-18	39,003.60	9,741.80	6.3183
Mar-18	38,295.10	12,653.20	6.3174
Apr-18	38,269.40	10,510.50	6.2967
May-18	43,938.70	10,396.60	6.3701
Jun-18	44,571.20	10,858.30	6.4651
Jul-18	47,087.60	10,156.50	6.7164
Aug-18	47,817.50	9,280.90	6.8453
Sep-18	49,988.10	9,732.40	6.8551
Oct-18	52,170.10	9,187.50	6.9191
Nov-18	46,445.70	8,650.90	6.9367
Dec-18	45,906.30	9,210.50	6.8837
Jan-19	41,514.40	7,105.10	6.7863
Feb-19	33,154.90	8,083.30	6.7367
Mar-19	31,175.60	10,574.90	6.7119
Apr-19	34,682.70	7,883.00	6.7161
May-19	39,173.40	9,069.40	6.8519
Jun-19	38,967.60	9,166.70	6.8977
Jul-19	41,449.20	8,694.30	6.8775
Aug-19	41,151.10	9,415.60	7.0629
Sep-19	40,165.50	8,597.30	7.1137
Oct-19	40,114.90	8,851.20	7.0961
Nov-19	36,436.60	10,103.30	7.0199
Dec-19	33,665.50	8,903.00	7.0137

Source: Author's collaboration based on data from Federal Reserve Economic Database (FRED) and United States CENSUS Bureau, Economic indicators. The units are Billions of Dollars