
The Impact of Protectionism and Trade Policy Uncertainty on Bilateral Trade Flows: Evidence from the United States and China

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Abstract

This paper evaluates the role of tariff protection and trade policy uncertainty in influencing U.S. Chinese bilateral trade flows between 1995 to 2023. An Autoregressive Distributed Lag Model was applied to yearly panel data for bilateral trade, U.S. tariffs imposed upon Chinese imports, trade policy uncertainty indexes, U.S. Gross Domestic Product, Brent crude prices and structural control measures regarding China's World Trade Organization accession and the COVID-19 pandemic. A choice of the ARDL method was reasonable since the included variables exhibited mixed levels of integration and none were classified as being of order 2. The bounds test found a strong presence of a long-run relationship amongst trade, tariffs, uncertainty and the specified control variables. The ARDL estimates indicated that there is a significant long run relationship between U.S. tariffs and bilateral trade such that higher levels of tariffs were associated with decreasing bilateral trade over time. Additionally, the estimated error correction coefficient indicates that a portion of last years' disequilibrium is corrected in the current year. Finally, the estimation indicates that trade policy uncertainty has a separate effect on bilateral trade beyond what may be explained by changing tariffs. Therefore, this study adds to existing literature by simultaneously modeling the impact of tariffs and uncertainty using a single bilateral time-series approach. Moreover, the findings of this study will complement other evidence related to the incidence of tariffs, uncertainty, and supply chain adjustments.

Keywords: tariffs; trade policy uncertainty; bilateral trade; United States; China; ARDL; Bounds Test; Error Correction Model

1. Introduction

Protectionist policies such as tariffs are often cited as tools to correct trade deficits or protect domestic industries. However, empirical studies suggest that these protectionist policies increase costs, decrease welfare, and create new ways of organizing global supply chains. The United States and China trade relationship represents a key example of a large trade volume, extensive inter-industry linkages and numerous trade policy events. demonstrate the impacts of recent tariff imposition on price, firm behavior, and consumer well-being demonstrate that tariffs impacted the economy. For instance, Amiti et al. (2019) demonstrated that

tariffs increased import prices in the United States and decreased the purchasing power of consumers. In addition, Fajgelbaum et al. (2020) found that returning to a protectionist policy resulted in less trade occurring and a loss of welfare benefits for all producers despite those benefiting from protection. Lastly, Cavallo et al. (2021) showed evidence that tariff pass-through was high across various goods and stages of distribution at the border/retail level.

However, tariffs represent just one component of the overall policy environment that affects business decisions. Businesses also react to uncertainty related to future trade policies. Research by Handley & Limão (2017), indicate that reductions in uncertainty following China's WTO membership contributed to increases in exports and welfare benefits. Caldara et al., (2020) found that trade policy uncertainty negatively impacts investment and economic performance even when separated from direct tariff measures. As such, understanding trade policy involves analyzing both levels of trade barriers and uncertainty regarding future policy.

A gap exists in the prior literature in that many studies investigate tariffs, uncertainty, prices or firm responses separately often employing methods specific to individual products/firms/events. This study investigates if tariff changes and trade policy uncertainty individually account for changes in aggregate bilateral trade between the United States and China during an extended period of time (1995 to 2023). The primary objective of the research is to determine if tariff changes and trade policy uncertainty are responsible for short term adjustment as well as long-term equilibriums in bilateral trade flows.

Therefore, the contributions of this paper are primarily empirical and focused on demonstrating whether tariffs and trade policy uncertainty affect bilateral trade flows both in terms of short-term adjustments and long-term relationships between the two countries.

Therefore, this paper employs an ARDL approach to quantify short-term dynamics, long-term coefficients and rates of return to equilibrium for bilateral trade resulting from tariff changes and/or trade policy uncertainty. While the approach employed in this paper will not supplant micro-level evidence regarding the incidence of tariffs nor supply-chain adjustments; it will contribute additional evidence by illustrating how the bilateral trade relationship evolves over time considering tariffs, uncertainty, output, oil prices and structural episodic events.

4: Data and Methodology:

Annual time series data was employed for this research over the 1995–2023 interval to evaluate the influence of protectionism through tariffs and trade related uncertainty on U.S.–China bilateral trade. This time frame includes many significant events in the U.S.–China trade relationship such as China's accession to the WTO in 2001; the start of increased trade tensions in 2018; and the disruption caused by the COVID-19 pandemic.

The dependent variable in this research is L_TRADE or the log of total bilateral trade between the U.S. and China. The primary independent variables include tariff measures, trade policy uncertainty indicators, macroeconomic control variables and structural dummy variables.

Variables used in this research were identified as follows:

- **L_TRADE:** Logarithmic form of all bilateral trade between the United States and China.
- **TARIFF_US_ON_CHINA:** Average tariff rate imposed by the United States on imported goods from China. Represents protectionism exercised by the United States against China.
- **TPU_US:** Trade policy uncertainty index for the United States. Reflects uncertainty about future actions taken by the United States regarding trade.
- **TPU_CHINA:** Trade policy uncertainty index for China. Demonstrates uncertainty about future development of trade policy by China.
- **L_GDP_US:** Logarithmic form of Gross Domestic Product (GDP) of the United States. Represented in terms of GDP because it is an indicator of the economy size/production capacity and therefore, a measure of import demand.
- **L_GDP_CHINA:** Logarithmic form of Gross Domestic Product (GDP) of China. Represents the GDP of China which reflects its economic capability and export opportunity.
- **L_OIL_BRENT:** Logarithmic form of Brent Crude Oil Prices. Incorporated into the model to reflect changes in production and transportation cost due to variations in price.
- **TRADEWAR_DUMMY:** Dummy variable equal to one when a trade war exists between the U.S. and China, and zero otherwise.
- **COVID_DUMMY:** Dummy variable to demonstrate how the COVID-19 Pandemic affects bilateral trade between the U.S. and China.
- **WTO_DUMMY:** Dummy variable indicating China’s accession to the World Trade Organization.

4.2 Model Specifications:

Long-run relationship equation has been presented below to analyze factors affecting bilateral trade:

$$\text{LTRADE}_t = \beta_0 + \beta_1 \text{TARIFF}_t + \beta_2 \text{TPUUS}_t + \beta_3 \text{TPUCHINA}_t + \beta_4 \text{LGDPUS}_t + \beta_5 \text{LGDPCHINA}_t + \beta_6 \text{LOIL}_t + \beta_7 \text{TRADEWAR}_t + \beta_8 \text{COVID}_t + \beta_9 \text{WTO}_t + \varepsilon_t$$

Where:

- LTRADE_t shows trade between the U.S. and China at time t.
- β₀ represents constant or intercept term.
- β₁ through β₉ show coefficient values corresponding to long-term impact of each independent variable on LTRADE_t.
- ε_t shows stochastic error term.

Expected sign for coefficients have been established using prior empirical results along with some theory-based expectations. Protectionist tariffs are predicted to negatively relate to bilateral trade. Trade-related uncertainty will also negatively impact bilateral trade by influencing investments and behavior of firms. Both country-specific economic growth are expected positively contribute to trade while oil prices increase transportation costs leading to decrease in trade.

Autoregressive Distributed Lag Methodology

Autoregressive distributed lag (ARDL) framework proposed by Pesaran et al., (2001), has been utilized in this study. ARDL method is specifically appropriate when there is an indication that variables in a particular model have different levels of integration; however, no variables should be I(2).

Unrestricted ARDL equation could be written as:

$$\Delta LTRADE_t = \alpha_0 + \sum \alpha_1 \Delta LTRADE_{(t-i)} + \sum \alpha_2 \Delta X_{(t-i)} + \lambda_1 LTRADE_{(t-1)} + \lambda_2 X_{(t-1)} + u_t$$

4.4 Bound Testing Procedure

To test for long run relationships amongst the variables, we utilize the bounds testing procedure developed by Pesaran et al. (2001). The null hypothesis of no cointegration can be stated as follows:

$$H_0: \lambda_1 = \lambda_2 = \lambda_3 = \dots = 0$$

The alternative hypothesis can also be stated as follows:

H1: At least one of the λ coefficients does not equal zero.

After calculating the F-statistic we compare this number against its corresponding upper and lower bound critical values. When the calculated F-statistic is greater than the upper bound critical value then H0, that there exists no long run relationship between the variables, should be rejected; and thus, we conclude that cointegration exists.

4.5 Error Correcting Models

Once cointegration has been established, we proceed with estimating our short run dynamics utilizing an Error Correcting Model. We express the ECM specification as:

$$\Delta LTRADE_t = \alpha_0 + \sum \beta_i \Delta X_{(t-i)} + \theta ECT_{(t-1)} + \mu_t$$

In the above equation $ECT_{(t-1)}$, denotes the lagged error correcting terms from the long run equilibrium relationship.

We anticipate that the coefficient of the error correct term will be negative and statistically significant. The magnitude of the coefficient indicates how quickly deviations from long run equilibrium are rectified following a short-run shock.

4.6 Estimation Methodology

Our empirical methodology consists of five steps.

- Step one employs descriptive statistics to establish the distributional characteristics of our variables.
- Step two involves conducting Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) unit root tests to ascertain whether each variable exhibits unit roots.

- Step three utilizes the Akaike information criterion to select the appropriate number of lags for our ARDL models.
- Step four implements the bounds testing procedure to establish if cointegration exists among our variables.
- Lastly, step five estimates both the long-run coefficients and their associated error-correcting models to identify how protectionism and trade policy uncertainty affect U.S.-China bilateral trade flows in both the long run and short run.

Empirical results:

Table 1: Descriptive Statistics (1995-2023)

Statistic	COVID_DUMMY	L_GDP_CHINA	L_GDP_US	L_OIL_BRENT	TARIFF_CHINA_ON_US	TARIFF_US_ON_CHINA	L_TRADE	TRADEWAR_DUMMY	WTO_DUMMY	TPU_US	TPU_CHINA
Mean	0.034483	29.11072	30.30873	3.877197	10.62135	11.32840	20.70425	0.103448	0.793103	111.0881	131.5141
Median	0.000000	29.27767	30.32361	3.996915	0.000000	0.000000	21.06429	0.000000	1.000000	61.70255	66.13520
Maximum	1.000000	30.53884	30.95320	4.718231	58.33295	66.63428	21.48599	1.000000	1.000000	797.1224	687.6163
Minimum	0.000000	27.32747	29.66439	2.543176	0.000000	0.000000	19.06368	0.000000	0.000000	28.73999	0.000000
Std. Dev.	0.185695	1.104140	0.355683	0.650102	22.26843	24.51379	0.773466	0.309934	0.412251	156.2834	170.9166
Skewness	5.102520	-0.196322	-0.088408	-0.459612	1.664427	1.750390	-0.865582	2.604237	-1.447136	3.443769	1.872943
Kurtosis	27.03571	1.503312	2.094861	1.985844	3.845903	4.145769	2.284017	7.782051	3.094203	14.67114	5.804335
Jarque-Bera	823.9123	2.893046	1.027736	2.263794	14.25449	16.39497	4.240721	60.41210	10.13270	221.9149	26.45761
Probability	0.000000	0.235387	0.598177	0.322421	0.000803	0.000275	0.119988	0.000000	0.006305	0.000000	0.000000
Sum	1.000000	844.2109	878.9533	112.4387	308.0190	328.5237	600.4232	3.000000	23.00000	3221.554	3813.908
Sum Sq. Dev.	0.965517	34.13551	3.542288	11.83373	13884.73	16825.93	16.75097	2.689655	4.758621	683885.8	817949.5
Observations	29	29	29	29	29	29	29	29	29	29	29

Table 1 contains the information on the descriptive statistics of all variables considered within this analysis. These are the findings on the distributional features of the data throughout the sample time frame (1995-2023) which show a number of different statistical summaries including the mean, median, standard deviation, lowest value and highest value to get an early impression of the empirical evidence regarding the bilateral trade flows, tariff measures, trade policy uncertainty and macroeconomic indicators. Overall, the findings based upon these descriptive statistics suggest considerable variability across the variables as it appears there has been considerable changes to the United States-China trade relationship since the beginning of the sample. Tariff measures and trade policy uncertainty appear to be most variable due to their association with significant levels of trade tensions and economic shocks. The variability apparent in the bilateral trade flows implies that trade volume has likely been affected by both structural economic changes and government actions.

Table 2: Unit Root Test Results Augmented Dickey-Fuller

Method	Statistic	p-value		
Level (ADF Test)				
ADF - Fisher Chi-square	20.4606	0.0589		
ADF - Choi Z-stat	-1.35467	0.0878		
First Difference (ADF Test)				
ADF - Fisher Chi-square	59.1869	0.0000		
ADF - Choi Z-stat	-4.82902	0.0000		
Variable	Test Statistic	p-value	Lag Length	Observations
Level Test Results				
L TRADE	0.0164	0.0164	6	28
TARIFF US ON CHINA	Dropped from test			
TARIFF CHINA ON US	Dropped from test			
TPU US	0.0948	0.0948	6	28
TPU CHINA	0.1100	0.1100	6	27
L GDP US	0.9295	0.9295	6	28
L GDP CHINA	0.5001	0.5001	6	25
L OIL BRENT	0.4529	0.4529	6	28
TRADEWAR DUMMY	Dropped from test			
COVID DUMMY	Dropped from test			
WTO DUMMY	Dropped from test			
First Difference Test Results				
D(L TRADE)	0.0787	0.0787	5	27
D(TARIFF US ON CHINA)	Dropped from test			
D(TARIFF CHINA ON US)	Dropped from test			
D(TPU US)	0.3409	0.3409	5	23
D(TPU CHINA)	0.0045	0.0045	5	26
D(L GDP US)	0.0086	0.0086	5	27
D(L GDP CHINA)	0.7618	0.7618	5	25
D(L OIL BRENT)	0.0007	0.0007	5	27
D(TRADEWAR DUMMY)	Dropped from test			
D(COVID DUMMY)	Dropped from test			
D(WTO DUMMY)	0.0002	0.0002	5	27

Table 3: Phillips-Perron (PP) Unit Root Test Results (1995–2023)

Variable	Statistic	p-value	Bandwidth	Observations	PP - Fisher Chi-square	PP - Choi Z-stat
Level Test						
L TRADE	0.0153	0.0153	2.0	28	40.5545	-1.06450
TARIFF US ON CHINA	0.9621	0.9621	1.0	28		
TARIFF CHINA ON US	0.9462	0.9462	1.0	28		
TPU US	0.0846	0.0846	2.0	28		
TPU CHINA	0.4197	0.4197	3.0	28		
L GDP US	0.9261	0.9261	1.0	28		
L GDP CHINA	0.6252	0.6252	4.0	28		
L OIL BRENT	0.4921	0.4921	6.0	28		
TRADEWAR DUMMY	0.2206	0.2206	8.0	28		
COVID DUMMY	0.0002	0.0002	2.0	28		
WTO DUMMY	0.2795	0.2795	4.0	28		
First Difference Test						
D(L TRADE)	0.0919	0.0919	3.0	27	106.817	-7.76105
D(TARIFF US ON CHINA)	0.0512	0.0512	3.0	27		
D(TARIFF CHINA ON US)	0.0238	0.0238	3.0	27		
D(TPU US)	0.0000	0.0000	10.0	27		
D(TPU CHINA)	0.0407	0.0407	2.0	27		
D(L GDP US)	0.0093	0.0093	2.0	27		
D(L GDP CHINA)	0.0752	0.0752	3.0	27		
D(L OIL BRENT)	0.0005	0.0005	10.0	27		
D(TRADEWAR DUMMY)	0.0004	0.0004	0.0	27		
D(COVID DUMMY)	Dropped					
D(WTO DUMMY)	0.0002	0.0002	1.0	27		

Prior to estimation of an ARDL model, we tested the variables for their stationarity with use of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. This was necessary because testing the order of integration allows us to determine whether or not our data set can be appropriately analyzed with an ARDL model.

The ADF test provided evidence of the degree of integration of each variable. The variables have a mix of orders of integration; while most variables are nonstationary when measured at level, they became nonstationary after first-differencing. Importantly, there was no indication that any of the variables had an order of integration greater than one. Consequently, it is reasonable to examine both the short-run and long-run associations among the variables with an ARDL model.

Table 4: ARDL Model Estimation shows immediate effects of tariff increases on bilateral trade flows between the United States and China (1997-2023)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
L TRADE(-1)	0.812833	0.129593	6.272203	0.0000
TARIFF US ON CHINA	0.006811	0.008560	0.795669	0.4417
TARIFF US ON CHINA(-1)	-0.018583	0.009111	-2.039536	0.0640
TPU US	-0.000446	0.000553	-0.806640	0.4356
TPU US(-1)	-0.001663	0.000527	-3.158706	0.0082
TPU CHINA	0.000574	0.000385	1.491536	0.1616
TPU CHINA(-1)	0.001457	0.000429	3.398790	0.0053
L GDP US	4.107253	0.594978	6.903199	0.0000
L GDP US(-1)	-3.717852	0.747944	-4.970766	0.0003
L GDP CHINA	0.904460	0.316258	2.859877	0.0144
L GDP CHINA(-1)	-0.888174	0.276187	-3.215847	0.0074
L OIL BRENT	-0.110769	0.055312	-2.002621	0.0683
TRADEWAR DUMMY	-0.402387	0.151905	-2.648933	0.0212
COVID DUMMY	1.105382	0.301647	3.664486	0.0032
WTO DUMMY	-0.030822	0.059291	-0.519846	0.6126

After confirming the use of a specific order of integration, an optimal ARDL specification was chosen based upon the Akaike Information Criterion. The best model as defined

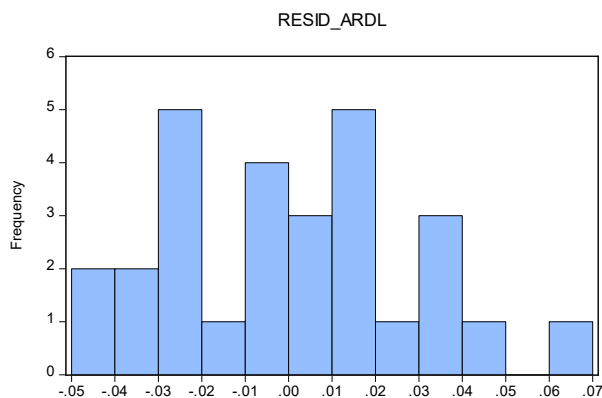
by the selection process, was ARDL(1, 1, 1, 1, 1, 1, 0)..

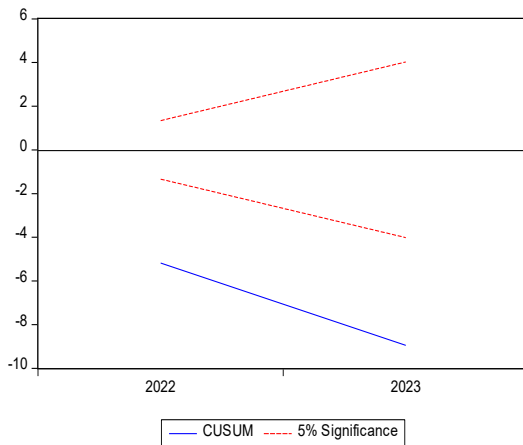
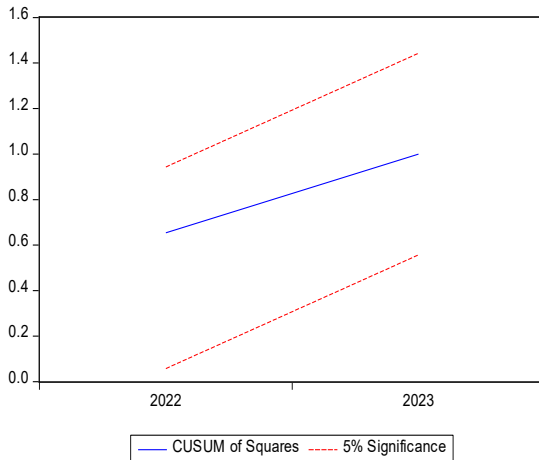
These results from the ARDL model can be used to determine whether protectionism influences the short-run changes to bilateral trade flows. In addition to establishing statistical significance at the appropriate levels for each explanatory variable and establishing the impact of the lagged dependent variable on the variation in trade flows across time, it identifies which variables are most likely to influence trade. This includes the impact of tariff measures and trade policy uncertainty. Additionally, they identify macro-economic and shock-related issues that may have a direct effect on trade flows. Overall, this supports arguments that protectionist policies will cause measurable distortions in international trade patterns.

Table 5: Bounds Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8.085658	9.350378	-0.864741	0.4041
L TRADE(-1)*	-0.187167	0.129593	-1.444273	0.1743
TARIFF_US_ON_CHINA(-1)	-0.011772	0.002558	-4.601788	0.0006
TPU US(-1)	-0.002109	0.000855	-2.467237	0.0296
TPU CHINA(-1)	0.002031	0.000477	4.254943	0.0011
L GDP US(-1)	0.389401	0.414013	0.940552	0.3655
L GDP CHINA(-1)	0.016287	0.082302	0.197887	0.8464
L OIL BRENT**	-0.110769	0.055312	-2.002621	0.0683
D(TARIFF US ON CHINA)	0.006811	0.008560	0.795669	0.4417
D(TPU US)	-0.000446	0.000553	-0.806640	0.4356
D(TPU CHINA)	0.000574	0.000385	1.491536	0.1616
D(L GDP US)	4.107253	0.594978	6.903199	0.0000
D(L GDP CHINA)	0.904460	0.316258	2.859877	0.0144
TRADEWAR DUMMY	-0.402387	0.151905	-2.648933	0.0212
COVID DUMMY	1.105382	0.301647	3.664486	0.0032
WTO DUMMY	-0.030822	0.059291	-0.519846	0.6126

The calculated F-statistic was found to be greater than its upper critical value for typical significance values. Thus, the null hypothesis stating there is no cointegration can be rejected; therefore, we have evidence of the long-run stability in relationships between bilateral trade flows and the other variables used in the analysis. Since cointegration exists among these variables, it indicates that while temporary deviations from their long-run equilibrium exist, they will continue to move toward this equilibrium as time progresses.





The results of this study show that all the necessary requirements for using an econometric model have been satisfied by the results of the diagnostic testing. There is no indication of Serial Correlation or Heteroscedasticity (both of which would be problematic) and the residuals appear to be normally distributed. These positive findings provide a high level of assurance regarding the reliability of the estimates derived from the model. In addition, Stability Tests indicate that the structural relationship as defined within the model has remained constant during the sample time frame, thereby providing confidence that the estimated relationships will remain consistent over future periods and can thus be used for policy interpretation.

Discussion

The results indicate that there exist two interrelated yet different paths. One is the tariff path. It has been shown that higher tariffs will result in higher costs of trade and therefore lead to less bilateral trade in the long run. These results are similar to other studies which have demonstrated that tariffs increase prices, decrease consumer welfare, and disrupt global production networks. The second path is the uncertainty path. Even if the levels of tariffs were held constant for analytical purposes, uncertainty as to what form the U.S. trade policy would take in the future could deter firms from taking actions such as committing resources to specific products or investments in specific geographic areas based upon where they would like to source their inputs.

Since the sample size was small and since annual data cannot possibly capture all adjustments made by firms or at the category level (e.g., automobiles), the results should be viewed cautiously. Similarly, while the high values of the goodness of fit statistics suggest that the model may provide good forecasts (i.e., that the model fits well) these high values should not be taken too literally. A large R-squared statistic by itself does not confirm that a model provides useful forecasts. The primary contribution of this paper is that it demonstrates a reasonable long run relationship and describes a meaningful adjustment mechanism for short run fluctuations in trade flows.

Additionally, the findings of this study align well with the larger body of literature regarding supply chains. While tariffs may not immediately cause a firm to "reshore" -- i.e., bring back into its own country a portion of its global supply chain, -- instead many firms look for alternative sources of materials, renegotiate contracts with current suppliers, begin purchasing additional raw materials or finished products prior to shipping them to customers; and/or simply reroute shipments through other ports. This behavior explains why there are likely to be differences in the impact of tariffs on trade flows during the short-run versus long-run. An initial policy shock is expected to produce transitory increases or disruptions in trade flows prior to the eventual long run contractionary effect on trade flows.

2. Conclusion

A Study of Protectionism, Trade Wars and Bilateral Trade Flows Between the U.S. and China: 1995-2023
Protectionist policies and trade wars have been growing concerns in recent years, particularly with regards to the U.S. and China's ongoing bilateral trade dispute. Over the past few decades, the global economy has faced numerous structural events that have influenced trade flows and impacted the stability of national and regional economies. Therefore, the purpose of this study is to investigate the impact of protectionist policies and trade wars on bilateral trade flows between the U.S. and China during the period of 1995 to 2023.

By utilizing the autoregressive distributed lag (ARDL) modeling technique, the study will examine the short-term dynamics of bilateral trade flows between the two nations and assess whether there exists a long-run equilibrium relationship between the two nations' trade flows and a variety of explanatory factors. Explanatory variables will include; tariffs imposed by each nation, levels of trade policy uncertainty between the two nations, economic growth, oil prices, and major structural events that have impacted the world

economy. The results from this study demonstrate that protectionist actions can significantly affect bilateral trade relations between nations. Specifically, this study found that bilateral trade flows can respond to policy intervention in multiple ways, through both short-term adjustment and long-term structural changes. Additionally, the results from the bounds test indicate that there exists a stable long-run relationship among all of the variables included in the study. The positive coefficient from the error correction model indicates that while short-run shocks may disrupt bilateral trade flow in the near term, bilateral trade flows tend to move back towards their long-run equilibrium path.

Furthermore, this study illustrates that trade policy uncertainty is another factor that influences international trade. Uncertainty surrounding future trade policies can cause firms to behave differently, make different investments decisions, and ultimately lead to volatility in trade. Therefore, this study highlights the need for researchers to consider the broader policy environment when examining international trade issues, rather than just focusing on the immediate impacts of tariffs.

As policymakers continue to debate whether to implement tariffs or other forms of protectionist policies, the results from this study indicate that policymakers should thoroughly analyze potential unintended consequences before implementing new protectionist policies. Tariffs may be used to achieve various domestic economic goals or correct what is viewed as a trade imbalance between two countries; however, tariffs may also reduce trade intensity, create uncertainty, and disrupt previously established supply chains. Overall, the results from this study emphasize the importance of creating consistent, reliable, and predictable trade policies that foster greater cooperation in international economics and minimize unnecessary disruption to global trade.

This study contributes to previous literature in three distinct areas. First, this study simultaneously investigates both tariffs and trade policy uncertainty as they relate to international trade within a single empirical framework. Second, by utilizing a time-series approach focused on analyzing both short-term and long-term responses to protectionist policies, this study establishes a distinction between short-term responses to tariffs and long-term responses to those same tariffs. Lastly, this study provides an update on the U.S.-China trade relationship by studying a timeframe that includes both liberalization efforts and rising trade tensions, along with a number of significant global disruptions such as the COVID-19 pandemic.

Although this study offers some originality in its methodology and scope of examination compared to previous studies on international trade; this study still contains a number of limitations. One limitation is that this study primarily addresses aggregate bilateral trade flows between the U.S. and China and does not address possible sector-specific differences in industry sectors. Another limitation contained in this study is that due to the annual nature of our data set we cannot adequately capture high-frequency responses to policy shocks that may take place shortly after announcement of new policies or tariff changes. Finally, since this study primarily focuses on two country pairs and does not directly measure trade diversion effects experienced by third-country trading partners; further research would benefit from incorporating third-country

trade diversion effects into future models. Although the ARDL model allows us to gain insight into both short-run dynamics and long-run equilibrium relationships between variables; the methodology itself does not allow us to conclude causality between variables studied in this paper.

Possible avenues for future research related to extending this current analysis include: first, conducting a more granular examination at the industry-level; second, collecting more frequent data such as quarterly or monthly data; third, gathering data on global value chain participation to better understand the indirect effects of trade wars on connected economies; fourth, comparing similar major trading partner pairs to determine if similar patterns exist in today's climate of increasing protectionism..

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