

## ***The Impact of the U.S.-China Trade War on Algeria's Economy: A VAR Model Analysis***

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### **Abstract:**

*The US-China trade war is shaking the world and the discontinuity of interdependence between the two major economies seems incomprehensible. But in an effort to impede China's economic activity and boost the U.S. economy, the Trump administration (previously) imposed tariffs on Chinese imports shortly after taking office, shifting U.S. foreign trade policy from decades of liberalism to protectionism. It moved. China retaliated, and the trade war has persisted to this day.*

**Keywords:** trade war; Tariffs; free Trade.

**Jel Classification Codes :** F13 ; F01 ; F05 ; H02

**المخلص:**

هزت الحرب التجارية بين الولايات المتحدة والصين اركان العالم، ويات توقف الاعتماد المتبادل بين الاقتصاديين الرئيسيين غير مفهوم. وفي محاولة لعرقلة النشاط الاقتصادي للصين وتعزيز الاقتصاد الأمريكي، فرضت إدارة ترامب (سابقا) تعريفات جمركية على الواردات الصينية بعد فترة وجيزة من توليها منصبها، وتحولت سياسة التجارة الخارجية الأمريكية من عقود من الليبرالية إلى الحمائية. ولقد تحركت الصين وقاومت واستمرت الحرب التجارية حتى الآن.

الكلمات المفتاح: حرب تجارية، التعريف، تجارة حرة.

تصنيف JEL: F13 ; F01 ; F05 ; H02

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## **I. Introduction**

China's growing economic power in recent decades, combined with the United States' declining share of global manufacturing and trade in the early 2000s, has significantly reshaped the global geopolitical landscape.

In 2018, after more than half a century of leading global efforts to reduce international trade, the United States implemented multiple waves of tariff increases on specific products, industries, and countries. Import duties were raised from 2.6 percent to 17 percent on 12,007 products, representing \$303 billion (12.6 percent) of annual U.S. imports in 2017. The measures represent the broadest protectionist trade policy the United States has implemented since the Smoot-Hawley Acts of 1930 and 1971.

In July 2018, the U.S. government imposed tariffs on \$34 billion worth of Chinese goods, and in August 2018, they raised tariffs on an additional \$16 billion. That same month, the Chinese government imposed 25 percent retaliatory tariffs on U.S. goods, including many agricultural goods and food products (Aaron Smith, 2019).

The trade war between the US and China does not only affect domestic Chinese companies that operate in China. In fact, in the first six months of 2018, more than 40 percent of China's exports to the world were made by foreign multinationals, according to China's General Administration of Customs. (SUN & TAO, 2019).

Algeria may be the country most indirectly affected by The US-China trade war is of particular significance to Algeria, as it is one of the largest trading partners of both the United States and China. In terms of total imports, Algeria is China's largest trading partner and is a largest trading partner of the United States.

### **I.1 Problem Statement of the Study**

One key aspect that many people fail to grasp about the trade war is its global ramifications. There are no such things as purely bilateral trade wars or wars that only impact specific industries. This is a conflict with far-reaching consequences for all countries and sectors. While some tariff-protected businesses may emerge as winners, the broader trend is that they are, in fact, losers.

How dose the US-China Trade War impact the Algerian economy?

For more details we ask the following questions:

-Who is Gaining the Upper Hand in the U.S.-China Trade War?  
how might this reshape global trade flows over the next decade?

### **I 2.Hypothesis Statement**

Accordingly, the following hypothesis is develop:

H0: The Algeria Economy sees extraordinary economic changes after the implementation of tariffs

H1: The Algeria Economy does not see extraordinary economic changes after the implementation of tariffs.

**H<sub>0</sub>**: There is no significant impact of Tariffs imposed by China and US on the Algerian economy.

**H<sub>1</sub>**: There is a significant impact of Tariffs imposed by China and US on the Algerian economy

### **I.3 Research Objectives**

This paper seeks to highlight the following objectives:

1. To investigate the potential indirect effects of tariff hikes in the recent US – China trade war on other trading partners;
2. To analyze the reasons for the tariffs introduction in bilateral trade from the United States side and China's position;
3. in the short and medium term and to characterize the challenges and threats to the Algerian economy.

## **II. Literature Review:**

The U.S.-China trade war represents the most significant trade policy turning point in recent decades, offering researchers a rare opportunity to study the mechanisms of global trade (Fajgelbaum & Khandelwal , 2021).

### **II.1.Theoretical Background**

The gradual transition to free trade with the rapid growth of trade in recent decades has given rise to a series of empirical studies that have largely focused on the effects of international trade flows, Intense competition, lower prices and higher living standards.

the U.S.'s recent shift towards more aggressive trade policies appears, at least from an external perspective, to be primarily driven by concerns about the trade balance, which is a key macroeconomic factor. Moreover, there is growing concern that the U.S.-China trade war could dampen global output and international trade. (Wilko, 2019).

### **II.2.The concept of a trade war**

as a situation in which one country retaliates against another country's protectionist measures with equal or similar tariff increases or import restrictions. The economic philosophy of protectionism, the idea of protecting a country's domestic industries by taxing foreign goods, has become increasingly entrenched in the global economic system in recent years. The concept of a protectionist policy became a trade war, a phenomenon in which one country explicitly attacks another by raising tariffs in important key areas, and recipient countries respond in turn (Marley, 2022).

### **II.3. The Dynamics and Development of U.S.-China Trade Relations Through History**

Three decades after the establishment of the People's Republic of China in 1949, economic ties between China and the U.S. were nearly nonexistent, especially after Washington cut diplomatic relations with Beijing's Communist government. However, the normalization of relations in 1979 triggered a dramatic surge in trade, soaring from just a few billion dollars annually to hundreds of billions over the next forty years.

Even before China joined the WTO, trade between the two countries was already on the rise. However, WTO membership guaranteed 'permanent normal trade relations, further cementing the growth of trade between them and provides additional security for U.S. (Anshu & Noah , 2022).

### **II.4. the Causes of Trade War:**

The U.S. actions are aimed at undermining Xi Jinping's declared goal of rejuvenating China by 2049. The Made in China 2025 plan is one of the major steps in this direction, aiming to promote China as a high-tech manufacturer, dominating advanced industries: robotics, advanced information technology, aviation and green electric vehicles (Yefremov, 2022).

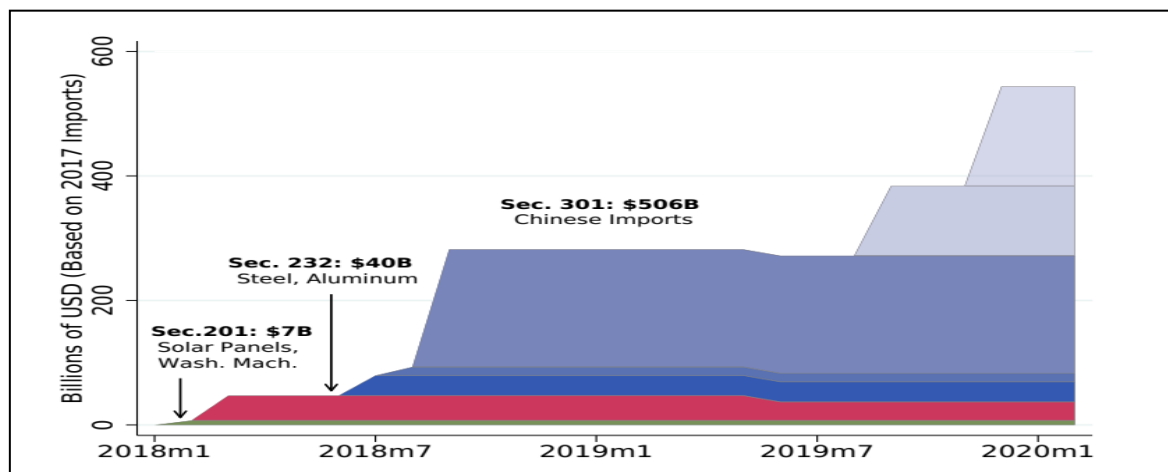
### **II.5. Timing of U.S. and Retaliatory Tariffs**

The trade conflict between the US and China has been going on for a long time. The consensus is that the Chinese government continues to use subsidies and tax breaks to distort the true cost of production for Chinese exporters, and to devalue or manipulate the yuan to gain an unfair trade advantage over any foreign competitors (OLUWOLE & OLUGBENGA A, 2020).

Beginning in March 2018, the US imposed a series of tariffs and then imposed quotas on some steel and aluminum imports from all countries except Australia. The reactions of these countries were the same. The U.S. has also imposed tariffs on a large portion of U.S. imports from China, and China has responded with tit-for-tat. The United States has threatened to impose additional tariffs on U.S. imports of motor vehicles and parts from specific countries, as well as remaining imports from China. (Trade Partnership Worldwide, 2019).

The Figures 2 and 3 illustrate the escalation in tariff levels, which significantly contributed to the intensification of the trade war.(Aaron & Justin, 2019).

**Figure 1:** Timeline of New U.S. Import Tariffs: 2018-2019

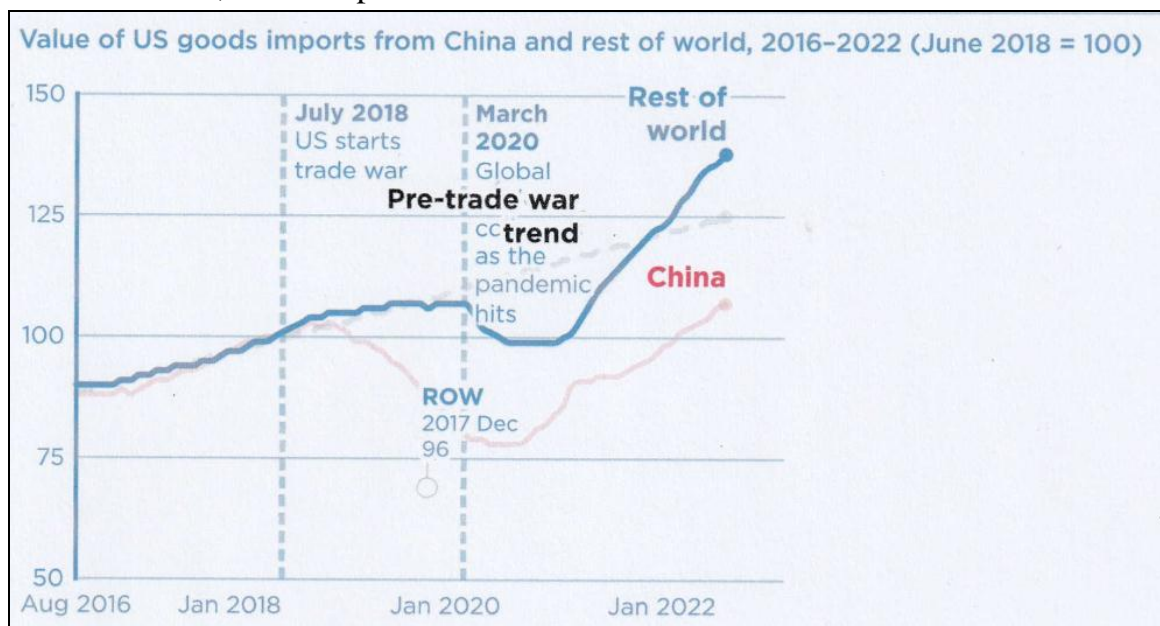


Sources: Aaron Flaaen & Justin Pierce, 2019.

## II.6. After Four years into the trade war:

Overall, the trade war has reduced U.S. imports from China (Figure 1). Imports fell immediately after the tariffs were imposed and have continued to decline since March 2020, when global trade collapsed due to the COVID-19 pandemic, before recovering slowly. Today, U.S. imports from China (red line) remain well below the pre-trade war trend (dotted line) defined by (conservatively) U.S. imports from around the world, and have only recently recovered to pre-trade war levels in June 2018. China is now only accounted for 18% of total U.S. merchandise imports, down from 22% at the start of the trade war (Chad P, 2022).

Figure:2 US imports from China have only recently returned to pre-trade war levels, while imports from the rest of the world are above trend



**Source:** Chad P. Bown, Four years into the trade war, are the US and China decoupling?,

But on the other, 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. Stuck at home, Americans switched their spending away from services and toward many of these goods manufactured in China.

## II.7. Winners and Losers:

Economists generally agree that, overall, trade wars are not easy to win. Tariffs lead to retaliation, increase costs, stifle competition and create barriers to the flow of goods and services. Protected industries could benefit, at least temporarily. But today's globalized supply chains and multinational operations allow some companies to bypass barriers by exempting countries from directing exports. Tariffs can also have unintended consequences. For example, legendary American motorcycle maker Harley-Davidson announced in June that it would

shift some production overseas to avoid harsh retaliatory tariffs imposed by the European Union in response to U.S. trade measures. Whirlpool's washing machine sales will benefit from U.S. tariffs on washing machine imports, but those benefits are offset by higher production costs from new tariffs on imported steel and aluminum. (Caught in the Middle: Trade War's Impact on Consumers and Investors, 2022).

### **II.8. Impact of tariffs on investment:**

Usually people focus on the cost of tariffs, which means if you put a tax or a tariff on a product imported into the US it becomes more expensive, and it hurts China's exports so it is not good for growth but the researcher believes that the biggest impact actually comes from policy uncertainty. When the two sides are negotiating, sometimes you do not know whether to increase or to reduce tariffs. The damage done by political uncertainty is that investors are so overwhelmed that they often hold back from investing. Therefore, it will seriously affect economic activity. The Fed actually did a study last year and it showed that increased political uncertainty around US-China trade tensions could shave 1 percentage point off global GDP growth, so I would say political uncertainty is probably the biggest channel of disruption to the economy Activity (Huang, 2022).

### **II.9. Spillover Effect along the Global Supply Chain:**

A tariff hit on intermediate goods will affect all manufacturers along the supply chain, in addition to end consumers. When markets are efficient, intermediate products from other countries are less desirable in terms of quality and/or price than pre-trade war US-China intermediate products. The trade war has forced China and the United States to switch imports to inferior alternative sources. Currently, it is generally accepted that production is organized based on global supply chains. Manufacturing, especially high-end, and ultimately damage domestic industries that rely heavily on the global division of labor. In addition, the Sino-US trade war may hurt US allies.(Xinquan , Yingxin , & Yue , 2020).

### **II.10.The Decoupling of the Chinese and U.S. Economies:**

No major country wants to become overly dependent on another for the supply of critical raw materials, components, parts, or technology, as disruptions in supply chains could significantly impact the economy. However, a prerequisite for decoupling is the existence of alternative sources of supply. Economic decoupling can be costly in itself, but it can also bring benefits. The availability of alternative second sources prevents monopoly, reduces monopoly power, and makes the global economy more stable and competitive, benefiting all consumers. However, having a second resource should not be equated with trying to achieve complete self-sufficiency. In many cases a second source of supply from another country is often possible and this will suffice.

Every major country must prepare for sudden and unforeseen disruptions to critical supplies. It is not in the best interests of China or the United States to rely too heavily on each other for the supply of key products and technologies. Therefore, not only does the United States have to move its supply chain out of China, but China also needs to move part of its supply chain out of the United States. This is the only way to hedge and protect against unforeseen disruptions. But decoupling, like buying insurance, has a net cost. But like insurance, there are benefits to decoupling. The obvious thing is to be independent from a single supplier from countries with different interests. The second is to reduce monopoly power and monopoly rent. (Lawrence J. , 2022).

### **II.11. The Future of the USA-China Trade War:**

Ongoing trade tensions and decoupling will be mutually damaging for the US and China. For example, the US-China Business Council estimates that the trade war will reduce real U.S. GDP by \$1.6 trillion over the next five years and reduce U.S. jobs by 320,000 in 2023. In addition, the continuation of the trade war will mean that the aforementioned manufacturers face lower margins and growth, and the public faces higher prices and fewer jobs. The complex trade dynamics between the United States and China require a multi-pronged strategy to develop aggressive next steps for this important economic relationship, including bilateral, multilateral, and unilateral actions.

Bilateral agreements should not include Chinese commitments to increase U.S. imports and reduce the trade deficit, because such a regulated trade framework is contrary to U.S. free-market values and is unlikely to comply with WTO rules. Instead, U.S. trade should be driven by market forces and not run counter to broader U.S. calls for less government intervention. Future agreements must be verifiable and enforceable, as China's promises to better protect intellectual property, prevent forced technology transfers and comply with WTO rules have proven futile. Where possible, this should be done through the WTO dispute settlement mechanism (Hasnat , 2022).

### **III. Research Data and Methodology:**

This section outlines the empirical methodology for analyzing variable dynamics. We employ two estimation approaches: a primary country-level analysis to assess the macroeconomic effects of tariffs, and a secondary sector-level analysis that serves as a robustness check. The sector-level approach not only identifies transmission channels but also mitigates limitations inherent in aggregate country-level analysis, particularly concerning tariff variation impacts.

#### **III.1. Restoring the Algerian Economy after the Pandemic:**

Meanwhile, the economic recovery in non-hydrocarbon sectors has lost momentum and remains largely incomplete, while inflation risks are becoming more evident. After a strong rebound in the second half of 2020, driven by a



recovery in investment and construction activity, GDP contracted in the first and second quarters of 2021 as construction and services activities slowed.

Therefore, during the first half of 2021, both GDP and non-hydrocarbon GDP remained 3.1% and 3.9% below their pre-pandemic levels, respectively (Algeria's Economic Update — Fall 2021, 2022).

### **III.2. Determining factors in the development of algerian-chinese relations:**

Today's Algeria has a closer relationship with China, thanks to its independent, non-aligned foreign policy based on the diversification of international relations. Politically, Algeria appreciates Beijing's policy of non-interference in other countries' internal affairs. China adheres to this principle, checks, and balances the attempts of Western powers to interfere in Algeria's internal affairs.

From a business and development standpoint, Algerians value unconditional soft loans from China that help them circumvent the political and economic compacts of the IMF and World Bank; access to Chinese capital; and fast delivery of services and cheap goods. Although Algerians are attracted to the Western model, they see the Chinese model as an alternative, provided Algeria implements the necessary internal reforms. Part of China's appeal stems from Beijing's avoidance of human rights concerns or the absence of corruption as investment requirements. Algerians feel they can cooperate with China without deviating from their independent and nonaligned principles.

Algeria is the largest country in Africa and has a geostrategic position in the Mediterranean Sea. It is the gateway to the African continent and is of great significance to China. It straddles the Sahel and sub-Saharan Africa, regions where Beijing has significant security and economic interests. This geostrategic location forms an important hub for the Belt and Road Initiative (BRI) and the Maritime Silk Road (MSR). Algeria's political influence in the Mediterranean region and in the Organization of African Unity (OAU) and, since 2002, in the African Union has drawn the attention of Chinese politicians, who are aware of Algeria's role in persuading African countries to support China. (Yahia H., 2022).

From an economic point of view, the presence in Algeria of many Chinese public and private companies can facilitate shipping to Europe with lower shipping costs and shorter travel times. The planned megaport at El Hamdania, 80 kilometers west of Algiers, and the now-completed Algiers-Lagos Trans-Saharan Highway, which passes through Algeria, Chad, Mali, Niger, Nigeria and Tunisia, will be key MRS hubs. The outpost also serves as the completion of numerous Sino-Arab projects within the scope of the Belt and Road Initiative and the Comprehensive Strategic Partnership (CSP), respectively.

China and Algeria signed a strategic partnership and cooperation declaration in 2006, which was upgraded to a CSP in 2014 (National Committee of the Chinese

People's Political Consultative Conference, 2014). This is Beijing's first-ever CSP with a Middle East and North African (MENA) country and the highest form of partnership Beijing has entered into with a specific country to demonstrate its standing in international relations(Yahia H., 2022).

### **III.3. U.S.-ALGERIA RELATIONS:**

Algeria is a strategic partner with which the United States cooperates on diplomatic, law enforcement, economic, and security matters. The historical ties date back to the 1795 Treaty of Peace and Friendship, while modern diplomatic relations were established following Algeria's independence from France in 1962. The United States and Algeria maintain frequent civil and military exchanges, and the two countries participated in the fifth U.S.-Algeria Strategic Dialogue in March 2022.

Algeria and the United States maintain significant trade relations, with the U.S. being one of Algeria's top trading partners and Algeria serving as a key economic partner for the U.S. in the (MENA) region. World Bank data from 2020 highlights that the United States was the leading provider of foreign direct investment in Algeria. Accounting for 28 percent of total FDI, or \$6.2 billion. The majority of U.S. foreign direct investment in Algeria has been concentrated in the hydrocarbons sector. In addition, the two countries signed a Trade and Investment Framework Agreement, which serves as a platform for addressing obstacles in their economic relationship and exploring broader avenues for business interaction. The two countries held TIFA talks in June 2022. The United States also supports Algeria's efforts to diversify its economy, promote a transition to renewable energy, and pursue transparent economic policies and an open investment climate.(U.S. Relations With Algeria, 2022).

### **III.4. DATA**

The secondary data will be collected from various sources. Journal articles, scientific papers, reports from economic organizations as well as newspaper articles were used. Since this topic is highly dynamic, and industry trends are constantly developing and changing, online research with the help of newspapers and reports from economic organizations or government organizations was also used.

The Vector Autoregressive (VAR) model is one of the most successful models for analyzing multivariate time series. It relates current observations of a variable to its own past observations, as well as to past observations of other variables in the system.

The standard model seeks to assess the effects of potential shifts in the U.S.-China trade war—proxies by China's and the United States' export volume indices—on Algeria's export volume index using(VAR) framework. The analysis

relies on export volume index data for Algeria, China, and the United States, sourced from the World Bank database.

**III.4.1. Estimation and inference in VAR models**

**Unit Root Test Results (ADF)**

The stationarity test can be conducted in several ways, the first is called the Augmented Dickey Fuller (ADF) test, and the second is called the Phillips Perron (PP) test. The ADF test is one of the most important and most common tests used to test the stationarity of time series and determine their degree of integration, where the degree of integration is determined According to the degree of stationarity of the series, if the series are stationary in the first difference, it is said to be integrated of the first order  $I \rightarrow (1)$ , and if it is stationary in the second difference it is said to be integrated of the second order  $I \rightarrow (2)$  and in most cases the time series is non stationary and integrated of the first degree .

**Table 1: Augmented Dickey Fuller (ADF) test results**

variables	At First Difference			At Level		
	Without Constant & Trend	With Constant & Trend	With Constant	Without Constant & Trend	With Constant & Trend	With Constant
LnAlgeria	-4.98	-6.65	-4.94	0.48	-0.41	-2.10
Lchina	-2.78	-5.54	-5.18	2.66	0.36	-1.96
Lnuse	-4.13	-5.7	-5.52	3.74	-0.69	-1.3

**Source:** Researcher Own Calculation using Eviews Software Program.

According to the results in table 1, the variables of Algeria's export volume index, China's export volume index and the use export volume index were found to be non-stationary at the level but after the first difference they become stationary, therefore the data are cointegrated for order 1.

**III.4.2. Co-Integration Test**

Since the time series of the variables under study are non-stationary in the level and stationary at the first differences, meaning that they are integrated of the same degree, i.e. the first  $I (1)$ , this indicates the existence of a long-term equilibrium relationship between these variables, and this is what will be tested using the Johansen and Joselius test (1990), which is considered the most common and used test, as it tests the existence of integrated equations in a joint manner (vectors) for the variables of the study by determining the significance of the characteristic roots of vectors ( $\lambda$ ), by comparing the calculated values of the characteristic roots with tabular values, through which the value of  $r$  is determined by the number of integration vectors, this can be done by using two important tests, the  $\lambda$  trace test and the maximum Eigenvalue  $\lambda$  max test.

The test results were as follows:

**Trace test:**

**Table2: Johansen Co-Integration Test Result**

	0.05	Trace		Hypothesized
Prob.**	Critical Value	Statistic	Eigenvalue	No. of CE(s)
0.0587	42.91525	42.21462	0.418825	None
0.1774	25.87211	21.04920	0.292950	At most 1
0.2925	12.51798	7.529692	0.175575	At most 2

Source: Prepared by the researcher depending on the Eviews Software results.

**Maximum Eigenvalue test**

The results of this test are presented in the table below:

**Table 03: Maximum Eigenvalue results**

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
	0.05	Max-Eigen		Hypothesized
Prob.**	Critical Value	Statistic	Eigenvalue	No. of CE(s)
0.1831	25.82321	21.16542	0.418825	None
0.2879	19.38704	13.51951	0.292950	At most 1
0.2925	12.51798	7.529692	0.175575	At most 2

Source: Prepared by the researcher depending on the Eviews Software results.

**Determine the optimal Lag Length**

**Table 4: VAR Lag Order Selection Criteria**

HQ	SC	AIC	FPE	LR	LogL	Lag
0.175034	0.258319	0.129036	0.000228	NA	0.548312	0
-8.190480*	-7.857340*	-8.374472	4.64e-08	305.2245*	171.1150	1
-8.068430	-7.485434	-8.390415*	4.62e-08*	15.17845	180.4179	2
-7.713280	-6.880428	-8.173260	5.88e-08	7.182795	185.2919	3

Source: Prepared by the researcher depending on the Eviews Software results.

The results in table 4, indicate that optimal Lag Length according to all the standards equals to 1.

**III.4.3. Estimation of the Vector autoregressive (VAR) model:**

The explanatory variables can be written as follows:

$$\ln \text{algeria} = f(\ln \text{china}, \ln \text{usa})$$

Where:

- $\ln \text{algeria}$ : Logarithm of Algeria's export volume index.
- $\ln \text{china}$ : Logarithm of China's Export Volume Index.
- $\ln \text{usa}$ : Logarithm of China's Export Volume Index.

After estimating the model, the results can be written as follows:

VAR Model - Substituted Coefficients:

=====

$$\text{LNALGERIA} = 0.995069008101 * \text{LNALGERIA}(-1) + 0.0135341995644 * \text{LNCHINA}(-1) - 0.0974190916415 * \text{LNUSA}(-1) + 0.393710172905$$

### **Identification of Structural Shocks in a VAR System**

According to the estimates of 10-year response functions, we note that Algeria's export volume index has been affected by shocks from both, China's and US exports volume index. (with one standard deviation), where the response during the first year was limited only to the shock in the same variable as Algeria's export volume index of 0.058, and where, from the second period, an increasing negative impact on China's export volume index of 0.001 and on the volume index of its exports of 0.004 was produced.

#### **III.4.4.Variance Decomposition:**

But, in the second period, the shocks of China's and US export volume index contributed by one standard deviation to the interpretation of about 1.54% and 2.64%, respectively, of the variance in the forecast of Algeria's export volume index. The remaining proportion represents 99.73% and is due to Algeria's own export volume index and note that the contribution of shocks to both China's export volume index and the US export volume index to the misinterpretation of Algeria's export volume index was generally between a gradual rises.

#### **Testing the Validity of the VAR model**

To ensure the validity of the VAR model the following tests are performed:

##### **1. Test the absence of error autocorrelation in the estimated VAR (LM test)**

The results of this test are presented in table 5 as follows:

**Table 5: results of the LM test**

LM-Stat	Lags	Prob
17.79639	1	0.0376
6.599635	2	0.6787
8.566946	3	0.4782
13.62637	4	0.1363
12.58357	5	0.1824
9.013094	6	0.4361
27.76894	7	0.0010
13.84378	8	0.1280
16.14865	9	0.0638
3.591447	10	0.9362
6.649553	11	0.6736
9.804373	12	0.3666
Probs from chi-square with 9 df.		

**Source:** Prepared by the researcher depending on the Eviews Software results.

between errors, because we cannot reject the null hypothesis that there is no autocorrelation in the residuals for almost orders tested.

#### **Heteroskedasticity Test**

Heteroskedasticity test

**Table: 6 Results of Heteroskedasticity Tests**

Prob.	Joint test:	
	df	Chi-sq
0.0951	36	47.50142

**Source:** Prepared by the researcher depending on the Eviews Software results.

From the results in table 6 it can be noticed that the chi-sq probability is equal to 0.0951, which is greater than 5%, this means that the null hypothesis is accepted, and it indicates that the residual series has homogeneous variance.

**Normality test**

To test residuals normality the Jarque-Berra test will be used, and table

**Table:7 Normality Tests**

Prob.	df	Jarque-Bera	Component
0.9836	2	0.033005	1
0.1798	2	3.432024	2
0.0515	2	5.931621	3
0.1525	6	9.396651	Joint

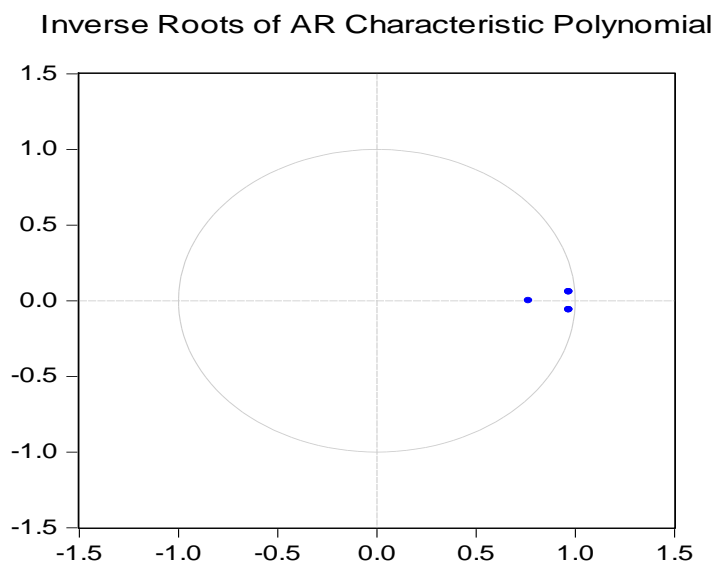
**Source:** Prepared by the researcher depending on the Eviews Software results.

Depending on the results in table 7 it can be seen that the probability value exceeds the 5% level of significance, meaning that the null hypothesis is accepted, which means that the model's residual distribution series follows the normal distribution.

**III.4.5. VAR Stability and Dynamic Analysis**

For these analyses the graph of the reciprocal of unit roots is used to test the stability of the model as follows:

**Figure 01: model stability using the reciprocal of unit roots**



**Source:** Prepared by the researcher depending on the Eviews Software results.

From the figure above it can be concluded that all the reciprocals of unit roots are within the unit circle, indicating that the estimated model reaches a stable condition at each study period and is therefore a valid model that can be used for the analyses.

### **III.5. RESULTS**

Our goal is to produce a reasonable set of benchmark results to show the robustness of model.

Taken together, our results confirm that U.S. tariffs on Chinese exports negatively affect economic output in the short run.

1. There is a correlation between China's export volume index and Algeria's export volume index. China's export volume index rose 1%, while Algeria's export volume index rose 0.01%, reflecting the growing relative importance of Algeria's economic relationship with China.
2. The US export volume index has an inverse relationship with the Algerian export volume index, with the US export volume index rising by 1% due to trade tensions, causing the Algeria export volume index to fall by 0.09%.
3. Algeria's economy was significantly affected by the shock of Algeria's export volume index in the past few years. It gradually receded rapidly from the first year after the shock, and achieved rebalancing in the third year of the shock.

### **IV. CONCLUSION:**

In this research, we examine the impact of the U.S.-China trade war on the Algerian economy. The study's results reveal that:

One would expect Algeria's economy to be affected by the US-China trade war. Additionally, the global pandemic has forced many countries to shut down their economies. However, Algeria has done an excellent job in fighting the epidemic. More than on any other issue, economists agree that international trade should be free. This view dates back (at least) to Adam Smith and is supported by many arguments. In general, economists believe that markets, when operating freely, allocate resources most efficiently—free from distortions, externalities, or other market failures. Competitive markets tend to maximize output by putting resources to their most productive use. While market flaws certainly exist, tariffs—taxes on imports—are almost never the best solution to these problems. Tariffs encourage trade diversion to inefficient producers and smuggling to avoid tariffs, which distorts market outcomes and reduces welfare. Moreover, for every tariff imposed, the losses to consumers typically outweigh the profits to producers, resulting in a deadweight loss.

Tariff-related redistributions often generate self-interest, so the damage usually remains. Widespread protectionism could also spark retaliation, causing further costs in other markets. All of these production losses are exacerbated when inputs are protected because it increases production costs.

Our results show that tariff increases have negative effects on output and productivity; these effects are both economically and statistically significant.

These effects are amplified when advanced economies implement tariffs during periods of expansion and when tariffs continue to rise. Additionally, we find that higher tariffs lead to higher unemployment and greater inequality, further exacerbating the deadweight loss caused by tariffs. However, tariffs have little impact on the trade balance, partly because they lead to offsetting exchange rate appreciation.

Finally, protectionist policies reduce aggregate consumption. Combined with our other results, this suggests that tariffs impose net welfare losses on the economy.

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