DOI: https://doi.org/10.14505/tpref.v16.4(36).10

The Impact of Trump Administration Tariffs on Global Trade and Commodity Prices

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Article info: Received 25 October 2025; Received in revised form 16 November 2025; Accepted for publication 5 December 2025; Published 30 December 2025.

Abstract: This current research evaluates the impact of Trump-era tariffs on the trends of global trade and commodity prices, with specific focus on the overall implications of U.S. protectionist trade policy. Utilizing a multi-sector methodology, the research takes into account the implications of key tariff measures taken under Sections 232 and 301 of U.S. trade legislation, particularly those directed against steel, aluminium, and a broad range of Chinese imports. The article explores how these tariffs affected two-way trade flows - especially between the U.S. and China - and caused dramatic shifts in global supply chains, with production diverted more and more to countries like Vietnam and Mexico. The study also examines the sectoral impact on commodities, highlighting how U.S. agricultural exports such as soybeans and pork dropped due to Chinese retaliation, while metal and energy markets were affected by price volatility, supply chain congestion, and strategic restructuring. Results indicate that although the tariffs were intended to increase domestic production and restore trade deficits, they led to unintended consequences such as higher U.S. importers' expenses, reduced export competitiveness, and further uncertainty in commodity markets. The study concludes by indicating the long-term economic implications of trade wars on worldwide economic stability as well as the necessity of multilateral approaches to trade reform.

Keywords: trade wars; tariffs; Trump; United States; supply chain.

JEL Classification: F13; F14.

Introduction

The introduction of tariffs under Trump has represented a significant shift in the United States' foreign trade policy strategy. Rooted in the "America First" philosophy, the Trump administration launched assertive trade protectionism in a bid to turn around long-standing trade deficits, revitalize U.S. manufacturing, counter what it termed "unfair trade practices" by foreign competitors, and restore American economic sovereignty (Autor *et al.* 2024). Contrary to previous administrations, which by and large supported multilateral trade liberalization, President Trump utilised a unilateral tariff policy, targeting a wide range of imported raw materials and goods from both strategic rivals and traditional allies.

The key tariff actions taken, included Section 232 of the Trade Expansion Act being used to impose tariffs on steel and aluminum on grounds of national security, and Section 301 of the Trade Act of 1974 to impose punitive tariffs on roughly $360 billion of Chinese goods due to intellectual property theft and forced technology transfers (Lovely & Liang, 2018). These tariff measures led to one of the largest trade escalations in modern history - particularly between the U.S. and China which set off retaliatory tariffs and a trade war. Consequently, U.S. exporters, specifically in agriculture and energy, began losing access to important markets abroad (Kim & Yoon, 2020).

The trade restrictions created various impacts which extended beyond the bilateral relationship between the two countries. It also caused worldwide supply chain disruptions and price increases for manufacturers while countries and companies redirected their trade to different partners (Kim & Yoon, 2020). The U.S.-China tariffs led to export growth in Vietnam and Mexico because companies chose to avoid these tariffs by redirecting their trade to other countries (Amiti *et al.* 2019). The U.S. industries which depend on imported intermediate goods including

automotive construction and consumer electronics faced higher input costs and reduced competitiveness and supply chain disruptions. The global commodity markets experienced significant price volatility during the trade war precipitated by the Trump-era tariff policies.

The Chinese retaliatory tariffs had negative impact on prominent U.S. farm exports such as soybeans, corn, and pork, resulting in sharp price declines and an accumulation of unsold stocks in the domestic economy (Konduru & Asci, 2019). Furthermore, the reconfiguration of global trade routes, driven by increasing geopolitical uncertainties and shifting global demand, also heightened market volatility. These disruptions were especially damaging to commodity-exporting countries, whose economies are most dependent on stable trade flows and reliable pricing structures.

In his second term especially during 2025 the scope of Trump's trade policy has experienced significant expansion. The United States has seen an unprecedented surge in tariff implementation as the average tariff percentage jumped from 2.5% to 27% which matches the protectionist levels of the Smoot–Hawley Tariff Act from the 1930s (Coggan, 2025). The administration executed this major policy transformation through Executive Orders under the International Emergency Economic Powers Act (IEEPA) which granted them authority to enact extensive "reciprocal tariffs" without obtaining normal Congressional consent. The administration established a 10% tariff baseline in April 2025 and implemented high tariff rates reaching 50% against essential partners including India because it considered these nations to maintain ongoing unfair trade activities (Muhammad, 2025).

The 2025 tariffs extend beyond their economic function because they operate as instruments of geopolitical power and national security while maintaining the administration's tariff-based foreign and domestic policy approach. The second-term tariff measures surpass previous Section 232 and 301 tariffs because they impose restrictions on various trading partners while targeting other specific sectors including semiconductors energy and automobiles (Olsen & Niemeyer, 2025). The U.S. implementation of these measures has escalated diplomatic tensions because India together with the European Union and Canada have condemned these actions as threats to the worldwide trading system (Coggan, 2025). Domestic disputes have emerged about the inflationary effects of increased tariffs since recent research shows the 2025 measures will lead to $3,800 yearly household expenses.

This research examines the impacts and implications of tariffs imposed by trump on global trade and commodity prices with major emphasis on how the tariff policies implemented affected bilateral flow, disrupted global supply chain and sector specific markets which includes agriculture, metals and energy.

1. Theoretical Framework

1.1 Trade Protectionism Theory

According to Milner & Yoffie (2017) Trade protectionism consists of governmental strategies that limit imports as means of safeguarding internal industries and domestic workers from external industry competition by utilizing tariffs, quotas, and other limitations. The basic premise of protectionism is that protecting domestic industries improves job prospects, reduces trade deficits, and strengthens national security (Rho & Tomz, 2017). Tariffs, more specifically tariffs regulated under Executive Order Section 232 and Section 301, were utilized by the Trump administration, where tariffs were levied as ways of protecting United States' industries from unfair international competition and addressing failure to protect certain industries such as steel and technology (Milner & Yoffie, 2017).

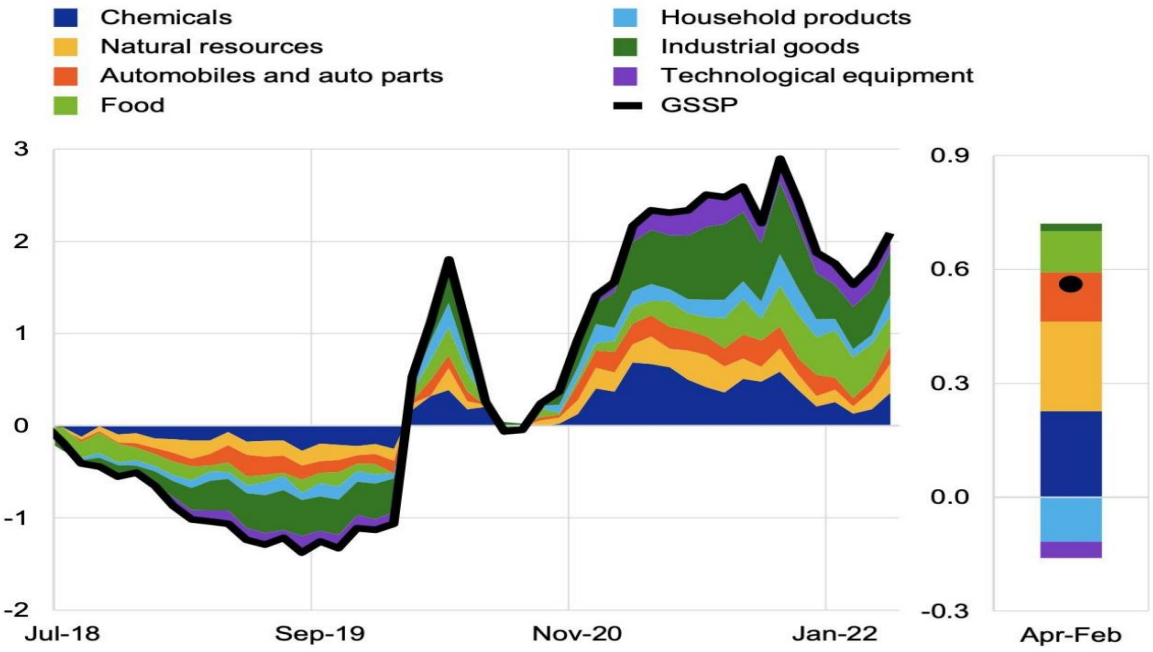
However, trade protectionism is often criticized as potentially creating overall lower economic efficiency and well-being. Economists from classical and neoclassical backgrounds argue although protectionist measures might meet process motivation goals in the short run, such measures usually have retaliatory outcomes, providing consumers with less choices, and higher prices of commodities (Li & Fang, 2024). The tariffs during the Trump administration are a clear representation of the divergence that exists between national, short-term goals, and long-term, global economic well-being.

1.2 Supply Chain Disruption Models

Global supply chains rely on optimizing costs and optimum delivery systems involving multiple countries and continents. Tariffs disrupt these systems by increasing costs, increasing uncertainty, and forcing firms to rethink their sourcing (Zhao *et al.* 2019). Disruption models in supply chains indicate how political shocks such as tariffs, disease, and natural disasters trigger a cascade of effects through global production networks. The Trump tariffs on goods from China and other countries triggered shifts in manufacturing locations and led to increased demand for alternate suppliers and in some cases, reshoring or nearshoring of production facilities. These disruptions were often made with short-term costs to implement long-term reconfiguration of trade routes (Olivares & Elmaraghy, 2020). These disruptions also had impact on price changes in commodity markets, particularly for products, such as soybeans, steel, and aluminum, whose trade flows were determined to a large extent by global value chains.

Figure 1 shows that global supply chains faced disruptions as a result of trump tariffs which was reflected in significant fluctuations across key sectors, including chemicals, natural resources, industrial goods, and technological equipment. The dramatic shifts recorded in the figure 1 reflect how prolonged logistical bottlenecks, an increase in transportation costs, stops of factories, and shortages of essential inputs contributed cumulatively to the destabilization of patterns of production in firms.

Figure 1. Supply chain pressure indicator in Global manufacturing



Source: Luo *et al.* 2023

1.3 Price Elasticity and Trade Wars

Price elasticity of demand and supply is important when determining the economic effects of tariff imposition. Elasticity indicates the level of consumers and producer's responsiveness to changes in prices. When tariffs increase the total cost of imports, the fall or shift in demand depends on the level of elasticity of the affected goods. If the goods are inelastic- which is more likely to involve inputs like machinery or raw inputs for agricultural goods--- tariffs raise prices for both consumers and manufacturers with corresponding decreases in demand are likely small (Freidmann & Schwartz, 2017). On the contrary, if demand is elastic, the imports may drop significantly, but there won't be enough domestic substitutes to fulfill the needs of demand.

The economic evidence demonstrated during the U.S.-China trade war that the majority of the cost of tariffs was passed on to American consumers and firms, especially in electronics and intermediate goods (Alessandria & Choi, 2019). Demand remained largely inelastic in the short run, due to inelastic inputs, further increasing cost burdens on domestic industries.

2. Overview of Trump Tariffs

Trade policy under the Trump administration underwent a significant change. Central to this change was the application of unilateral tariffs across various industries and nations justified by national security, trade deficits, and intellectual property violations. These policies resulted in widespread retaliation around the globe and fundamentally changed international trade relations (Steinbock, 2019). This section identifies a timeline, discussing most major tariffs during the Trump administration, including Section 232 and Section 301 tariffs.

2.1 Section 232 Tariffs: Steel and Aluminum

In March 2018, the Trump administration implemented a 25% tariff on steel and a 10% tariff on aluminium under Section 232 of the Trade Expansion Act of 1962 for national security reasons (Kim, 2020). These tariffs applied to a broad range of industries, and included impacted allies such as Canada, Mexico, and European Union, which represented a clear shift toward protectionism. While domestic producers benefited from short-term price increases and increased investments, downstream industries, *e.g.* automotive, construction, and manufacturing, faced higher

input costs and supply chain disruptions. Francois and Baughman (2019) estimated in their study that for every steel job created, as many as eight jobs were lost in other downstream industries. As the policy generated uncertainty and production costs, it had the unintended effect of deterring long-term manufacturing investments (Countryman & Muhammad, 2018).

Canada, the largest provider of steel and aluminium to the U.S., decided to retaliate with tariffs on C$16.6 billion worth of exports from the United States including whiskey and orange juice, which are targeted politically sensitive exports (Lester & Zhu, 2019).

The Section 232 authority has been used more vigorously during 2025 than during Trump's initial 2017-2021 period through the implementation of 50% tariffs on steel and aluminium imports which surpass the 25% and 10% rates from 2018. The United States implemented a 25% tariff on imported vehicles from most trading partners which it justified through national security and economic resilience (Armstrong, 2025). The "reciprocal tariff" framework of the administration functions to penalize countries which have unfair trade policies while protecting domestic industry through protective measures. The trade measures have triggered strong opposition from Canada, Mexico and the European Union because they believe the tariffs damage worldwide trade standards and harm established international relationships (Liu, 2025).

The implementation of these tariffs has led to substantial economic effects along with diplomatic tensions. Steel and aluminium manufacturers in the United States gained from immediate price hikes yet downstream industries from automotive to construction and machinery manufacturing must bear increased input expenses which creates worries about inflation risks and diminished market competitiveness (Liu, 2025).

2.2 Section 301Tariffs: The US-China Trade War

Under Trump's leadership the Section 301 tariffs established new records in present-day trade history through his ongoing 2025 trade policy enforcement. The tariff escalation continued with an initial 10% increase in February followed by another 10% in March which resulted in certain Chinese product categories facing a 145% tariff increase across consumer electronics and intermediate industrial goods (Patel & Ai, 2025). China responded by setting tariffs which rose to 125% against U.S. exports while focusing on agricultural products and energy items and automobile exports. The short-lived peace agreement during mid-May brought the tariff percentages down to 30% for U.S. goods and 10% for Chinese goods but it failed to address fundamental issues between the two trading partners or establish trade equilibrium (Patel & Ai, 2025).

The U.S.–China trade war escalated dramatically when the administration implemented tariffs that targeted strategic sectors including semiconductors and rare earths and industrial machinery. Analysts predict that semiconductor tariffs under consideration will reach 300% which would devastate worldwide electronic hardware and computing hardware supply chains (StoryBuddiesplay, 2025). Due to this uncertainty multinational corporations now feel compelled to increase their efforts toward production diversification which has pushed Vietnam India and Mexico to become their new manufacturing centres.

The rising tensions between China and the United States have triggered economic concerns regarding inflation within the U.S. because tariff increases push higher costs onto consumers and industries that depend on Chinese inputs (Fajgelbaum *et al.* 2024). Strategic tensions between nations have intensified because tariffs transformed an initial trade dispute into a wider competition between technological control and industrial governance. The Section 301 measures which started as a reaction to intellectual property theft and forced technology transfers have become a permanent aspect of U.S.–China economic relations that points toward sustained long-term consequences for global trade governance.

3. Impact on Global Trade

The Trump administration's tariff policies created a pivotal shift in international trade patterns by breaking down entrenched supply networks and changing intercontinental goods movement. The U. S. The initial actions incited broad countermeasures which intensified trade disputes that led to widespread tensions through the global markets. The implementation of these measures led to deteriorating bilateral relations while simultaneously triggering trade diversion alongside production shifts and policy adjustments (Park, 2020). The global trading system faced increased uncertainty alongside escalating costs while trade networks became more fragmented and regionally focused.

3.1 Bilateral Trade Flows

The imposition of tariffs by trump affected bilateral trade flows between many countries, including some of the most important trading partners, such as China and the European Union. The most consequential shift in U.S.-China

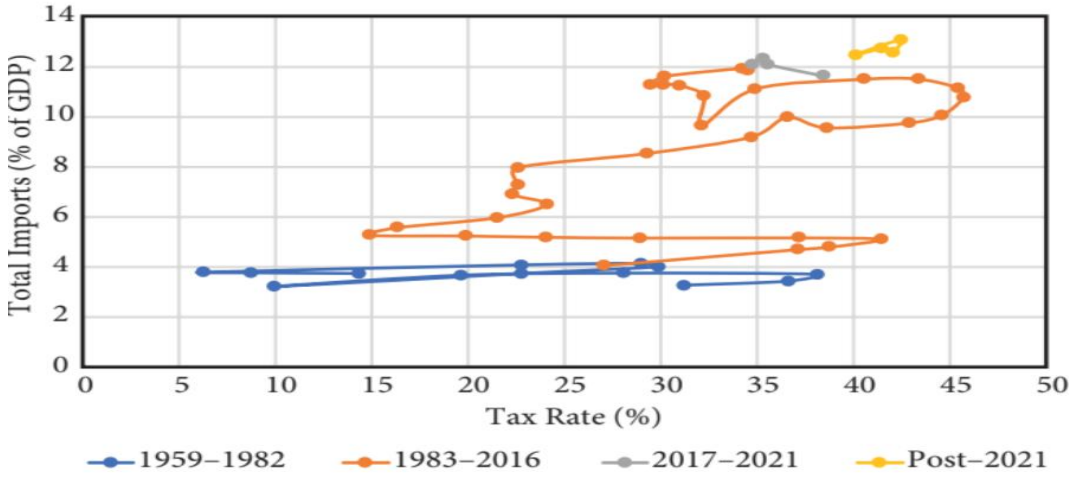
economic relations came in the form of the use of tariffs as an instrument of economic confrontation. In 2018, the U.S. imposed tariffs on over $350 billion in goods from China using section 301 of the Trade Act of 1974, which was justified by the U.S. government as a necessary response to China's unfair trade practices, theft of U.S. intellectual property, and illegal subsidies by the Beijing government to their state-owned enterprises (Chakraborty & Dey, 2024). China responded by putting tariffs on roughly $110 billion in exports from the U.S., including crucial agricultural goods for China, industrial goods, and automobiles (Wahab, 2024).

These actions had immediate and profound consequences. Trade volume between the two nations plummeted. As reported by U.S. Census Bureau (2021), imports from China to the United States decreased by over 25% from 2018 to 2020, experiencing sharp declines in electronics, machinery, and furniture. U.S. exports to China also faced the brunt of retaliatory trade policies, especially in the agriculture sector where exports of soybeans and pork experienced a drastic decline. According to Chakraborty & Dey (2024), even though the Phase One Trade Agreement, signed in January 2020, was aimed at stabilizing relations and getting China to commit to buying more U.S. goods, its execution was rescheduled by COVID-19 and geopolitical strife. Additionally, trade relations between the U.S. and the EU during the Trump administration were primarily characterized by diplomatic friction instead of a direct trade war (Xing, 2017).

In contrast, U.S.-EU trade relations under the Trump administration were characterized more by diplomatic tension than an actual trade war. The administration's use of Section 232 tariffs on steel (25%) and aluminum (10%) in 2018 on national security grounds, affected European exporters and caused the European Union to retaliate with tariffs on $3.2 billion worth of American products such as whiskey, motorcycles, and orange juice (Wahab, 2024). Tensions also grew from the longstanding Airbus-Boeing dispute when the U.S. placed tariffs on $7.5 billion worth of European products in 2019 after a World Trade Organization ruling that the EU had illegally subsidized Airbus (Kim, 2020).

The widespread reciprocal tariff system implemented in 2025 has significantly altered U.S. trade partnerships between countries through one of the most substantial changes in contemporary trade policies. A key example is the U.S.–India relationship. The Trump administration implemented a 50% tariff on India after India continued buying Russian oil at discounted rates because the administration considered it a breach of U.S. strategic economic interests (Muhammad, 2025). The rising tensions between the United States and India led to a major diplomatic crisis which had significant effect on their historical friendship and made it difficult to work together on defense and technology agreements. India has taken steps to expand its trade relationships with China and Russia and Southeast Asian nations while decreasing its dependence on U.S.-based trade networks which suggests a new direction for global trade partnerships (Verma, 2025). The variation in tax rates across the time periods corresponds, as represented in Figure 2, to remarkable changes in total imports as a share of GDP, showing how shifts in home economy tax policy or tariff policy can influence bilateral trade flows. Higher tax regimes, especially in the post-2021 period, are associated with high levels of imports, meaning that fiscal adjustment can change the incentives on cross-border exchange, reshape import demand, and finally affect the volume and direction of bilateral trade relationships.

Figure 2. Tariff rate vs Bilateral trade flow response



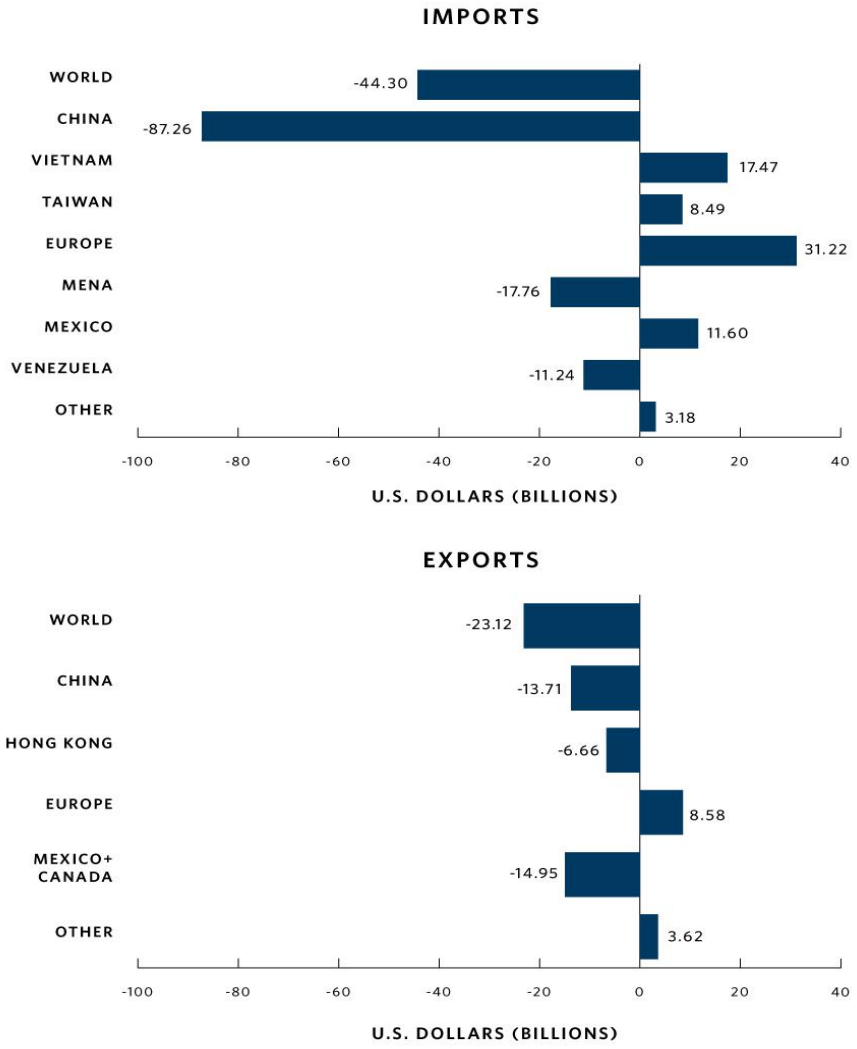
Source: Wahab, 2024

3.2 Shifts in Global Supply Chain

The Trump administration's imposition of tariffs affected a major realignment of global supply chains, particularly for firms that are heavily reliant on Chinese manufacturing. The increasing costs of doing business in China which resulted from the tariffs, regulatory scrutiny, and geopolitical tensions were the causes that led several multinational corporations to utilise "China+1" strategy, where they either diversified or completely relocated their production to other low-cost manufacturing hubs (Fan *et al.* 2022). This is a significant shift in the history of global production that has been previously centered on China and is thus referred to as "the world's factory."

One of the most prominent beneficiaries was Vietnam. The foreign trade of Vietnam to the US has increased by more than 30% during the period of 2018-2020, mainly due to the increased demand for electronics, textiles, furniture, and machinery that were previously sourced from China (Johnson & Huang, 2021). Samsung, Apple suppliers, and Nike are examples of companies that increased their operations or procured components from Vietnam so as to circumvent the US tariffs on Chinese goods (Grossman *et al.* 2024). Vietnam's favorable trade agreements, low labor costs, and relatively stable political environment contributed to its attractiveness as an alternative production base.

Figure 3. Trade Diversion Effects



Source: Grossman *et al.* 2024

Mexico also experienced a significant increase in foreign direct investment (FDI) that was mainly in sectors such as automotive parts, consumer electronics, and industrial machinery. The renegotiation of NAFTA into the USMCA agreement in addition to the proximity of Mexico to the U.S. made it the most attractive place for those companies that wanted to get access to the U.S. market and at the same time reduce the exposure to tariffs (Anbumozhi *et al.* 2020). The changes in the distribution of both import and export values among the largest trading partners, as shown in Figure 3, reflect a profound change in the patterns of global supply chains. The significant

drop in imports from China, coupled with the considerable rises from countries such as Vietnam, Taiwan, and Mexico, indicates that companies are sourcing their products from different countries to lower the risk of being too dependent on one country. In the same way, the adjustments in export flows, *i.e.*, the decrease in the volume sent to China and the relative increase directed toward Europe and other markets, emphasize the impact of supply chain repositioning on the changes of the directions of bilateral trade.

Countries like Vietnam, India, Indonesia, and Bangladesh faced poor infrastructure, including small ports, insufficient power, and bottlenecks in logistics which prevented them from migrating industrially on a big scale (Dong & Kouvelis, 2019). At the same time, the pace and the size of the relocation efforts have been limited by regulatory uncertainties, excessive formalities, and a shortage of skilled workers. Furthermore, amid increasing costs and political risk, China continued to play a central position in international supply chains owing to its unmatched manufacturing prowess, established logistics infrastructure, and rich supplier base. However, completely stopping trade with china is not economically and operationally infeasible for most companies, especially in high-tech sectors where China continues to dominate in the production of intermediate products like semiconductors, batteries, and rare earth components (Johnson & Huang, 2021). In this situation, instead of an outright exit, most companies pursued partial diversification to mitigate dependence while keeping core operations within China.

3.3 Impact on U.S Exporters and Importers

The Trump administration's tariff policy had a great influence on U. S. importers, especially small and medium-sized businesses (SMEs) very reliant on Chinese intermediates. Tariffs on more than $350 billion worth of Chinese imports from electronics and industrial machinery to consumer goods and raw materials virtually raised the cost of doing business for many U. S. enterprises (Handley *et al.* 2020). According to a Grossman *et al.* (2024) report, businesses in the retail, automotive, and construction sectors experienced greater input expenses, therefore many elected either to absorb the losses or pass them to consumers through greater prices of goods. The Trump administration's tariff re-escalation in 2025 has transformed the business environment for American exporters and importers through increased financial strain and strategic unpredictability. The Mckubbin & Shuetrim (2025) reported that in 2025 U.S. tariff rates reached 22.5% which represents the highest point since 1909 and caused household expenses to rise by $3,800 on average per year. For Importers, higher import costs have resulted in increased prices for various products which include industrial inputs and consumer necessities. Small and medium-sized businesses that depend on imports experience more significant harm because they do not possess sufficient size to manage unanticipated tariff increases. The companies must either increase prices to customers which intensifies inflation or decrease their operational capacity resulting in reduced investment and employment expansion (Ali *et al.* 2025).

The export sector has also encountered similar challenges. The U.S. market share in critical sectors including soybeans and pork and automobiles and manufactured goods has diminished because major trading partners China India and the European Union have implemented retaliatory tariffs. During 2025 China implemented tariffs reaching 125% on U.S. agricultural products which drastically reduced American sales and let Brazil alongside other competitors strengthen their presence in international markets (Verma, 2025). Also, the recent Indian tariff measures in response to U.S. duties have created trade challenges between the two nations in pharmaceutical products and machinery and agricultural items (Srivastava, 2024). The execution of these retaliatory trade measures has both lowered U.S. export sales and increased production uncertainty for businesses which depend on long-term contracts thus damaging their ability to plan manufacturing and investment activities.

4. Impact on Commodity Prices

4.1 Agricultural Commodities

Agricultural commodities, particularly soybeans, corn, and pork, saw some disruptions throughout the U.S.-China trade conflict launched by the tariff actions of the Trump administration. As a response to U.S. Section 301 tariffs, China began applying tariffs as high as 25% on a wide range of American agricultural products (Sabala & Devados, 2019). Soybeans, an important agricultural export for the U.S. for decades, were the most affected. China was a large destination for U.S. soybeans; in the years prior to the trade dispute, the Chinese imported more than $12 billion worth of U.S. soybeans on an annual basis, at times providing nearly 60% of all U.S. soybean exports, but also representing a very important revenue source for U.S. farmers, specifically in Midwest states such as Iowa, Illinois, and Minnesota (Grant *et al.* 2021).

Between the years 2017 and 2019, U.S. exports of soybeans to China declined by more than 50%, which contributed to an increase of domestic soybean inventories and a decrease in farm prices for soybeans (Giri, 2022). The trade disruption changed the plan for many farmers, producing a cohort of farmers who were either deferring

planting decisions or switching to lower-margin crops, ultimately diminishing the income of farmers during a period of low global commodity prices.

The Trump administration implemented extensive import duties on various agricultural products including essential items such as soybeans, corn, dairy products, fruits and vegetables during April 2025 to fulfil its “reciprocal tariffs" initiative (Pahnke, 2025). The new tariff structure stands out through its extensive reach and precise focus compared to previous trade measures. Research shows that retail prices of imported foods affected by tariffs may increase between 5% and 18% depending on the product and time of year thus creating price worries for consumers and industries that rely on food products (Stark, 2025).

The Chinese government has imposed high tariffs on soybeans because this product represents an essential American export. In 2025 China imposed 34% tariffs on U.S. soybeans through a combination of retaliatory duties and VAT taxes and MFN taxes which made U.S. soybeans cost more than South American competitors (Chor & Li, 2025). The 2025–2026 marketing year witnessed no new Chinese soybean orders from U.S. producers because Brazil took over the market position. The export collapse has caused excessive domestic supply while intensifying price pressure against U.S. producers.

The economic implications on American agriculture - particularly in the rural Midwest - were far-reaching and extremely severe. Net farm income in the U.S. reduced significantly between 2018 and 2019, and crop failures from extreme rain during the summer of 2019 were persistent. Growing bankruptcies soared by nearly 20% over 2018 to 2019, especially among soybean-dependent states (OECD, 2020). In the short term to help farmers, the Trump administration introduced the Market Facilitation Program (MFP), providing over $28 billion in assistance for US farmers over 2 years to compensate for lost export revenue.

However, MFP benefits were criticized for selectively benefiting large agribusinesses, introducing planting incentives that misaligned with traditional planting practices, and generally neglecting the underlying vulnerabilities in the structure of U.S. agriculture (Choi & Lim, 2022). China diversified its supply sources by accelerating imports of soybeans from Brazil and Argentina. By 2020, Brazil represented over 70% of China’s total soybean imports, compared to 53% in +2017 (UNCTAD, 2021). In addition, China began to take long-term measures to reduce dependence on U.S. agricultural imports encouraging sourcing from producers in countries like Ethiopia, investing in domestic soybean production capacity, and altering livestock feed regulations (Carter & Steinback, 2020).

4.2 Metals and Minerals: Steel and Aluminum and Rare Earth

In March 2018, the Trump administration invoked Section 232 of the Trade Expansion Act in 1962 to impose tariffs of 25% on steel and 10% on aluminum imports for national security reasons. The tariffs were intended to support and revitalize the U.S. metals industry by reducing the volume of foreign metals, including from China, which the U.S. government claimed had flooded global markets by subsidizing companies which were bolstering excess capacity to win market shares (Mancheri *et al.* 2018). While the tariffs resulted in an initial short-term boost to U.S. steel and aluminum production, where several facilities reopened, and domestic prices increased up to 40%, the longer-term economic effects were less straightforward (Feng *et al.* 2019). The tariffs had negative effects on downstream industries, including automotive, construction, beverage manufacturing (which heavily uses aluminum for its packaging), and aerospace that relied on steel and aluminum as input materials.

A report by the Peterson Institute for International Economics estimated that for every steel job that was possibly saved that resulted from higher steel tariffs, 16 jobs in steel / consuming sectors on average faced the danger of being lost due to higher costs and lower global competitiveness (Breyer *et al.* 2022). These tariffs also strained relationships with allies that the united states had a traditional trading relationship - Canada and the EU - who were initially subject to the tariffs before temporary exemptions and the creation of 'quota systems' as tariffs were imposed. Also, the retaliatory practices of trading partners who imposed reciprocal tariffs on U.S. exports - bourbon / motorcycles / orange juice, etc. – led to economic friction, particularly in these politically sensitive economic regions.

In Mid 2025, the Trump government increased its tariff system by including various metal and mineral resources which strengthened protectionist policies under Section 232 and other trade regulations. The United States implemented tariff increases on steel and aluminium imports by doubling their rates from 25% to 50% while retaining a 25% rate for U.K. imports during particular trade agreements (Armstrong, 2025). The tariff expansion included both unprocessed metals and completed goods which consisted of household appliances such as refrigerators and washing machines and HVAC systems.

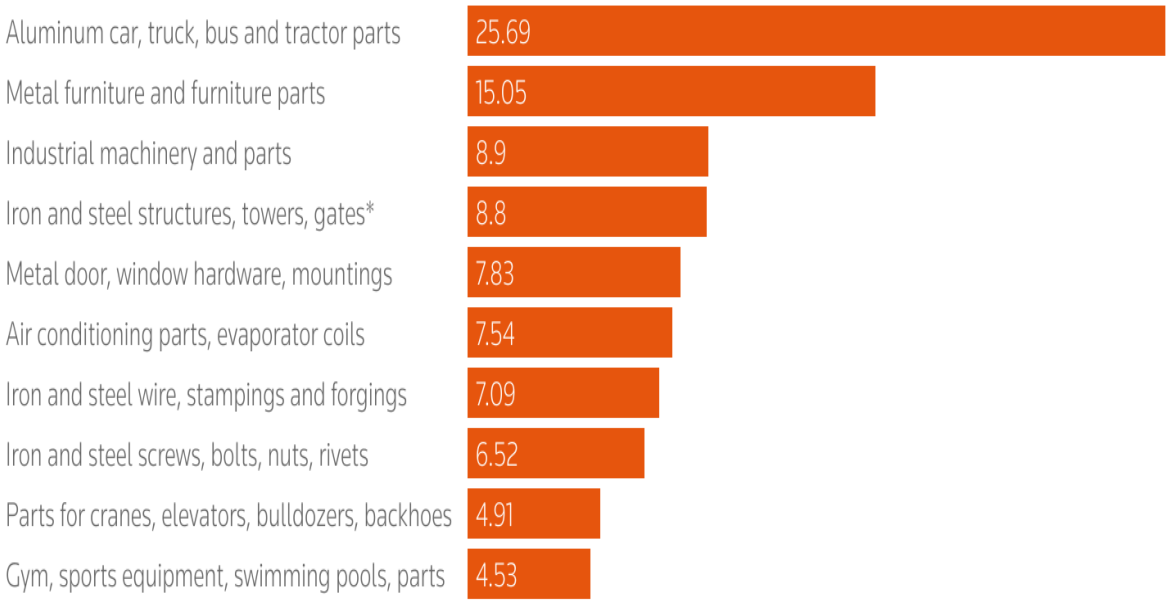
The administration introduced a 50% tariff on copper imports as part of its mineral strategy to increase U.S. self-reliance during international tensions. Copper futures experienced a 13% rush because markets promptly responded to the supply threat (Olsen & Niemeyer, 2025). Advocates of the tariff indicated that the measure worked

as a defense strategy to boost national availability of critical raw materials needed for both military applications and environmentally friendly technology development while citing the accelerated Arizona copper mining operation.

In addition to steel and aluminum, the trade dispute highlighted the strategic dependency of the U.S. and its allies on the supply of vital minerals, especially rare earth elements (REEs). While rare earths were not directly targeted by the Trump-era tariffs, the geopolitical turmoil raised concerns about China's near-monopoly of production and processing. As of 2019, China had over 80% of rare earth refining capacity globally; this fact raised significant concern in the United States, Japan, and the European Union (Wu *et al.* 2021). Furthermore, neodymium, dysprosium, and terbium are critical for the manufacture of high-tech devices, electric vehicle motors, military radar systems, and wind turbines. According to Figure 4, the trade of aluminium and steel components along with metal-based industrial products have shown a very high sensitivity to global economic uncertainty. This is a standard effect that is consistent with the general dynamics of the metals and minerals sector. The main focus is on the sectors of steel, aluminium, and rare earth elements. One of the most significant aspects that emerge from the data is the predominance of aluminium car, truck, bus, and tractor parts (25.69%), which indicates the degree to which metal-intensive manufacturing value chains react to changes in international demand and supply conditions. Such a reaction is the main cause of the energy-intensive extraction and processing activities that the sector is highly dependent on and also due to the strategic importance of metals such as aluminium and steel in industries that are going downstream.

After Huawei was blacklisted by the U.S. Department of Commerce in 2019, Chinese state media reported the possibility of stopping rare earths exports to the United States, triggering global stockpiling and speculation to drive up prices (Wu *et al.* 2021). Consequently, a number of governments including the united states began re-evaluating the security of supply chains and strategies on how to identify alternative sources including but not limited to the Mountain Pass mine in California, partnerships with Australian producers, and research into recycling and substitutive technologies for rare earths (Qasim *et al.* 2024) While the Trump tariffs did not directly affect rare earths, they provided the impetus for a broader strategic re-evaluation of dependencies on mineral resources within the frameworks of economic statecraft and national security.

Figure 4. Distribution of US Metal and Mineral Imports affected by Trump-era Tariffs



Source: Qasim *et al.* 2024

4.3 Energy Commodities: Oil and Gas under Trade Uncertainty

While crude oil and natural gas were not formally part of the list of goods subjects to tariffs under the Trump administration's trade policies, there was significant indirect impact on the energy sector stemming from the U.S.-China trade war. Energy markets are sensitive to geopolitical risk and policy uncertainty. China's imposition of retaliatory tariffs on U.S. goods, particularly a 25% tariff on U.S. liquefied natural gas (LNG) in 2018, created a sudden departure in a growing bilateral energy trade relationship (Vivoda, 2022).

Following the shale gas boom, China had quickly become one of the U.S.'s key growth markets for LNG, yet U.S. LNG became less cost-competitive with alternative supplies from Qatar and Australia as a result tariffs. U.S. LNG exports to China dropped by over 90% in 2019 compared to before the trade war (Balcilar *et al.* 2023). Purchases of U.S. crude oil were similarly curtailed and led to American producers not being able to ship crude oil to China and had to send it elsewhere to South Korea, India, and Europe. This diversified the global trade flow and complicated U.S. efforts to become a player in the global LNG market.

While energy products, such as oil and gas, faced no direct tariffs, the overall uncertainty of the trade war had a serious impact on the energy sector. Large energy projects like LNG (liquefied natural gas) export terminals, pipelines, or storage facilities needed consistent forecasts within a long-time horizon to stimulate investor interest (JRCK & Majid, 2020). But with trade relations forced to redefine and the possibility of new tariffs being introduced, many significant energy investments were put on hold or reconsidered altogether. The uncertainty also led to more volatility in energy futures markets. The U.S. energy export also fell, increasing the price differential between two significant oil benchmarks, West Texas Intermediate (WTI) and Brent crude (Perifanis, 2019).

Brent, which better indicates global demand, reacted strongly to changes in Chinese demand. While WTI, which was more U.S. market-focused, showed the effects of slowdowns in exports and domestic logistics problems. Trade tensions also had effect on long-term energy collaboration, especially between U.S. energy companies and Chinese state-owned entities. This weakened the U.S.'s position in Asia's energy industry and introduced new risks to what had been a promising area for growth (Abdollahi & Ebrahimi, 2020).

Conclusions

In conclusion, the tariffs of the Trump period were a turning point for global trade policy and had impacts still lingering across international trade and commodity markets. Through application of unilateral tariff policies, selecting specific industries in particular under the auspices of Sections 232 and 301, the U.S. not only transformed its bilateral partnership with significant EU major keys partners such as China, Canada and Mexico, but also spawned retaliatory actions, trade diversion, as well as reorientation of global supply chains. The tariffs changed old trade patterns, diverted manufacturing sourcing to Mexico and Vietnam, and escalated the efforts of the nations to diversify their dependence upon U.S. and Chinese marketplaces.

Commodity markets were particularly vulnerable to the impacts of these trade tensions. Export commodities like soybeans, corn, and pork suffered significant losses due to retaliatory tariffs, while energy markets and metals markets were destabilized by shifting geopolitical configurations and policy uncertainty. Price volatility created by these events led producers, investors, and governments to implement new risk management and market diversification practices. Furthermore, as the tariffs were intended to protect American industries and settle longstanding trade tensions, they are also the economic cost of protectionist trade policy in the era of advanced global supply chains.

Credit Authorship Contribution Statement

Angwaomaodoko, E.A.: Conceptualization, Investigation, Methodology, Project administration, Writing – original draft, Supervision, Data curation, Validation, Writing – review and editing, Visualization.

Declaration of Competing Interest

The author declares that there are no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of Use of Generative AI and AI-Assisted Technologies

The authors declare that they have used generative AI and AI-assisted technologies during the preparation of this work.

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