

# The Impact of the Sino-US Trade War on China's New Energy Vehicle Export Volume: A Case Study of BYD and Tesla

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**Abstract.** Since 2018, the Sino-US trade war has resulted in the imposition of significant tariff barriers, which have had a profound impact on economic relations between the two nations. The present study focuses on the new energy vehicle industry, examining the impact of tariff policies on trade flows within the sector and corporate export strategies. The analysis focuses particularly on the companies BYD and Tesla. Utilizing case studies, comparative analysis and data analysis methodologies, the study concludes that, while direct exports between the two countries were affected in the early stages of the trade war, both companies successfully adapted by making strategic adjustments, such as localizing production and diversifying markets. The establishment of the Shanghai Gigafactory by Tesla signaled China's emergence as a leading global export hub, while BYD experienced a substantial expansion into European and Southeast Asian markets. Despite the presence of adverse factors, including high tariffs, China's exports of new energy vehicles have exhibited an overall growth trend. This development signifies a transition in trade patterns, moving from a US-centric model to a more global and diversified export configuration. This study demonstrates that enterprises can mitigate the impact of trade wars through strategic flexibility and innovation, providing important insights into how emerging strategic industries should respond to trade protectionism.

**Keywords:** Sino-US Trade War, Tariff Barriers, New Energy Vehicles, Export Strategy, Localized Production.

## 1. Introduction

In the context of global economic integration, Sino-US trade relations exert a profound influence on the developmental trajectories of numerous industries, with the new energy vehicle sector being a crucial component. In recent years, demand for new energy vehicles has surged dramatically in global markets, driven by heightened environmental awareness and the automotive industry's transition towards intelligent and electrified vehicles. It is evident that China has become the global leader in the new energy vehicle industry, a position that it has achieved by leveraging its comprehensive industrial chain advantages and vast market scale. Conversely, the United States maintains a substantial presence within this domain, a feat attributable to its advanced technologies and well-established market mechanisms. However, since 2018, escalating Sino-US trade frictions and reciprocal tariff impositions have had a detrimental effect on export trade within the new energy vehicle sector. The available data indicates that in the aftermath of the initiation of the trade war, the United States imposed substantial tariffs on Chinese new energy vehicles, with rates rising progressively from an initial 27.5% to the current 102.5%. This has had a substantial impact on the price competitiveness of Chinese new energy vehicles in the American market.

The objective of this paper is to explore how enterprises can achieve sustainable development through strategic adjustments in the context of trade protectionism. To this end, an in-depth analysis will be conducted of the impact of the Sino-US trade war on export strategies within the new energy vehicle sector. The research employs a case study methodology, comparing the countermeasures adopted by BYD and Tesla. The present study employs a comparative analysis to examine shifts in the trade structures of new energy vehicles between the two nations. The analysis of data quantifies the impact of tariffs on corporate export volumes and market share. This multidimensional

investigation seeks to reveal the intrinsic linkages between trade policies and industrial development. It provides theoretical underpinnings and practical guidance for China's new energy vehicle sector in navigating trade risks.

## **2. Literature Review**

### **2.1. Impact of the Sino-US Trade War**

It is evident that scholars from both domestic and international backgrounds have arrived at a comparatively consistent conclusion with regard to the consequences of the Sino-US trade war. It is asserted that the imposition of tariffs has had a deleterious effect on the global economic growth outlook, including that of China and the United States. Such measures have been demonstrated to have a detrimental effect on the welfare levels of both nations and have also been shown to be ineffective in resolving the Sino-US trade imbalance, facilitating the return of manufacturing jobs to the United States, or achieving a more equitable trade structure. The trade conflict has had a further deleterious effect on global trade conditions and generated spillover effects on third-country production. The direction of these effects is contingent on the affected nation's trade structure and its competitive relationship with both China and the United States within specific industries.

### **2.2. Impact of Tariff Policies on National Exports**

Empirical studies suggest that tariff increases have a significant negative impact on exports. Multiple investigations have estimated the elasticity of Chinese exports to the United States to be between 1.0 and 2.6. This means that a 1% rise in tariffs would cause Chinese exports to the US to decline by between 1.0% and 2.6%. Specifically, research indicates that tariff increases cause a 31.7% average decline in US import values [1] and a 16.5% to 24.5% reduction in China's exports to the US [2, 3]. At the firm level, research suggests that a 1% increase in average tariffs reduces exports to the US by 4.16%, while simultaneously prompting firms to increase exports to other countries by 0.97%. This reflects a strategy of market diversification [4]. To circumvent the impact of tariffs, Chinese firms maintain export volumes through re-export trade and overseas production.

### **2.3. Export Data for BYD and Tesla During the Sino-US Trade War**

During the trade war, BYD and Tesla exhibited markedly divergent export trajectories. BYD achieved rapid export growth through an aggressive market diversification strategy. From January to July 2025, its overseas sales of passenger vehicles and pickups exceeded 550,000 units, representing a year-on-year increase of over 130%. This volume surpassed its entire 2024 annual sales and reached over 112 countries and regions worldwide. BYD secured the top spot in new energy vehicle sales during the first half of the year in multiple countries including Italy, Turkey, Spain, and Brazil.

In contrast, Tesla's exports to China faced significant tariff impacts, though it circumvented these by establishing production bases domestically. Notably, Tesla China's export volume plummeted by 82.3% year-on-year in March 2025, reaching merely 4,701 units. This decline stemmed partly from weak European market demand and competition from domestic Chinese brands, while also reflecting Tesla's relatively lagging overseas expansion compared to BYD.

## **3. Background of the Sino-US Trade War and an Overview of the New Electric Car Industry**

### **3.1. The Review of the Sino-US Trade War**

Since the outbreak of the Sino-US trade war in 2018, the strategic competition between the two countries has intensified, which exerted significant impacts on global industrial chains and trade. One of the major reasons is that the high tariff is imposed by both countries, with the car industry being particularly affected as a key sector of exports. According to the U.S. "Section 301 investigation," the

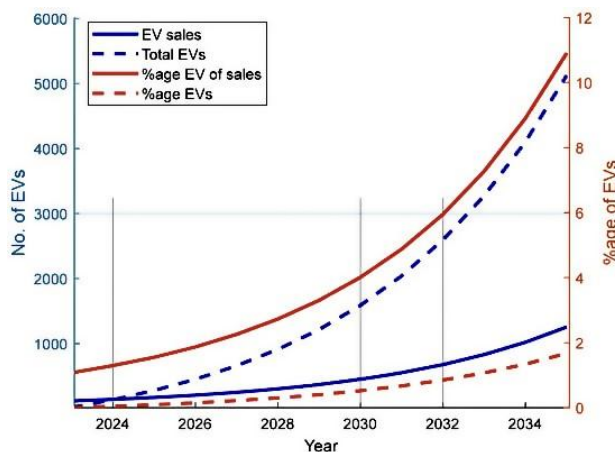
United States imposed a 25% tariff on the first batch of \$34 billion values of Chinese goods on July 6, 2018, which included new energy vehicles. Subsequently, on August 23, tariffs on an additional \$16 billion value of Chinese goods further covered the car-related products. At the same time, China also imposed high tariffs on imported U.S. vehicles, which reached the highest about 40% (Table 1). These measures have directly influenced the investment directions and market development strategies of many car manufacturers.

**Table 1.** Tariff rate added to China against time [5]

Time Period	Tariff Rate / Scope Change	Covered Goods Scope / Category
Jul 2018	25%	\$34 billion worth of goods
Aug 2018	25%	\$16 billion worth of goods
Sep 2018	10% → 25% (May 2019)	\$200 billion worth of goods
Sep 2019	15% → 7.5%	Select goods from \$300 billion list
2020-2023	19.3% (weighted avg) → 10.7% (weighted avg)	Due to expanded exemptions (medical, industrial parts)
May 2024	25% → 100%	Electric Vehicles (EVs)
May 2024	25% → 50%	Semiconductors
May 2024	7.5%~25% → 25%	Lithium batteries, Solar cells
May 2024	0~7.5% → 25%	Steel, Aluminum, Port Cranes, etc.
May 2024	–	+\$18 billion in advanced manufacturing products
Apr 2025	Proposed reduction to 50%~65%	(Planned)
Aug 2025	24% additional tariffs paused for 90 days	(Certain goods)

### 3.2. Current Status of the Global New Energy Vehicle Market

According to this backdrop, the new global energy vehicle industry developed rapidly. In the global market, companies such as Tesla (USA), BYD (China), and Volkswagen (Germany) sold over 10.5 million in 2022, marking a 55% increase [6]. In 2023, China's new energy vehicle production and sales reached 9.587 million and 9.495 million respectively, with a market share of 31.6% [7]. The export volume reached 1.203 million, which increased by 77.2%, setting a new record [7]. China's production and sales of new energy vehicles have ranked first in the global market for nine years, accounting for 65% of the global total [7]. This is benefiting from substantial government subsidies in earlier years that created a complete industrial chain, particularly in areas such as batteries and motors. Currently, China has become the world's largest market for the production, sales, and consumption of new energy vehicles (Fig.1).



**Fig 1.** The global sales of electric vehicles against time [8]

### 3.3. The Trade Structure between China and the US in the Electric Car Field

U.S. exports to China are primarily high technology vehicles, such as Tesla. Before the setup of the factory in Shanghai, Tesla exported a large number of Model S/X models from to China, but the increased tariffs significantly impacted its market competitiveness. China has also exported a large number of new energy vehicles to the U.S., such as BYD. After the substantial tariff increase, its market competitiveness declined, forcing it to seek alternative markets.

## 4. The Impact of the Trade War on BYD's Imports and Export

### 4.1. Export Market Distribution of BYD Company before the Trade War

Before the outbreak of the China-US trade war, BYD's exports were in their early development stage but were not highly dependent on a single market. As the leader of China's new energy vehicle industry, BYD's early exports mainly focused on the public transportation sector, such as exporting electric buses to European, American, and Japanese markets and the bus sold good in these countries. Meanwhile, with government support and subsidies, BYD began developing new energy vehicles like private cars and building its own industrial chain. Further major target markets included some Southeast Asian and Middle Eastern countries, but the initial export volume of this type of new energy vehicle was relatively small. The US market accounted for the majority of its electric vehicle exports, and its sales in the United States far exceeded those from other countries and was growing steady.

### 4.2. The Direct Impact of the Trade War on BYD's Exports to the US

The various strategies of the trade war added by the US have directly and sharply reduced BYD's export volume and value, affecting the development of after markets and investment directions. The multiple increase of tariffs imposed by the U.S. on Chinese exports to America on new energy vehicles exported from China facing tariffs as high as 27.5% ultimately. This policy directly impacted BYD in two aspects: Foremost, it led to a sharp contraction in export volume. The high tariffs eliminated the price advantage of BYD electric vehicles, forcing significant price increases in the U.S. market and a heavily decline in demand, which severely weakened the competitiveness of BYD's products. Consequently, the number of passenger vehicles directly exported to the U.S. reduced to extremely low levels after the trade war began, nearly coming to a standstill (Table 2). Original investment plans and collaborations were also canceled. And also, the decreasing of competitiveness in the U.S. market. The dramatic price increase made BYD electric vehicles virtually uncompetitive compared to some domestic brands like Tesla and some free tariff brands from other countries. This not only significantly reduced consumer demand but also affected the company's willingness to expand in the U.S., making it difficult for BYD continue to sale in the American market.

**Table 2.** the change in export value and volume for BYD during the trade war [9]

Time Period	Metric Type	Value	YoY Change
2021	Export Value	\$1.45 Billion	–
2023	Export Value	\$368 Million	↓ ~74%
2023	Export Volume	12,500 units	↓ 16.2%
Q1 2024	Export Volume	2,051 units	(Further decrease)
H1 2025	Export Volume	443,098 units (BYD)	↑ 117.8%
Jun 2025	Export Volume	85,957 units (BYD monthly)	–

### 4.3. BYD's Response Strategy

In order to facing the U.S. market closure, BYD implemented a positive strategy through quickly and effective strategic changes. The main approach involved accelerating market diversification, shifting its focus from the United States to Europe, Southeast Asia, Latin America, and the Middle East to pay off the declining sales in America. In the start of 2020, BYD launched multiple new models of electric vehicles and entering markets across various countries rapidly. The change is very

effective that overseas sales rising faster than the losses in the United States. In 2021, BYD's overseas passenger vehicle sales are just 15,000, but then surge to 242,000 by 2023, marking a 334% rise. The company has entered multiple developed markets successfully, as its market share expanding rapidly in Southeast Asian countries like Thailand and Singapore, having a significant growth in export volumes. To avoid trade barriers and reduce production costs in the long term, BYD established full-vehicle manufacturing factory in Thailand, Brazil, Hungary, and other regions. These facilities not only eliminate high tariffs but also shorten the supply chains, better adapt to regional market and give further opportunities for exports to other countries.

#### 4.4. Summary: the Evaluation of the Impact on BYD Exports

In a word, while the high-tariff policies during the US-China trade war created a negative impact on BYD's expansion plans and exports in the American market, they haven't hindered it's in the long-term. On the contrary, these measures accelerated the company's strategic transformation. Through market diversification and localized production strategies, BYD successfully turned export challenges into opportunities for global expansion. Not only did it maintain its total exports after loss the US market, but it even saw an increase. The trade war seems more beneficial to BYD's international operations. It forced the company to break the over-reliance on a single market, enabling early deployment of diversified global supply chains and sales channels worldwide.

### 5. The Impact of the Trade War on Tesla's Growth and Trade in China

#### 5.1. Tesla Entered the China Market Due to the Trade War

During the escalating trade friction between China and the United States, Tesla's exports to China have faced significantly reduce. New energy vehicles imported from the U.S. were added to China's tariff list, leading to a substantial decline in Tesla's price competitiveness in the Chinese market. To decrease the impacts of high tariffs and expand its markets in China, Tesla adjusted its strategy and decided to develop localized production. In July 2018, Tesla signed an investment agreement with the Shanghai government for a electric vehicle project, and in January 2019, construction commenced at Tesla's Shanghai factory. This strategic move not only effectively decrease the negative impacts of the trade war but also demonstrated it emphasis on the Chinese market.

#### 5.2. The Impact of the Trade War on Tesla Exports to China

Before the trade war, China was a crucial export market for Tesla vehicles. However, since China imposed a 25% tariff on American-made cars in 2018, Tesla's exports to China have experienced a significant decline (Table 3). According to data, in 2017, Tesla take up over half of the electric vehicles imported from the United States into China, with an annual import volume reaching approximately 15,000. In 2019, this figure dropped to fewer than 4,000, which declined exceeding 70%. The contraction of import volume directly reflects the severe impact of trade barriers on electric vehicles trade. Due to the additional tariffs, Tesla's prices in the Chinese market for vehicles originating from the US have surged significantly, which weakening their competitiveness in the electric vehicle market. Many consumers have changed to some domestically produced new energy vehicles or alternative imported brands, leading to a continuous decline in Tesla's sales in China.

**Table 3.** The change of the export to China for Tesla during the trade war [10]

Indicator	Pre-Trade War (Before July 2018)	During the Trade War (After July 2018)	Recent Situation (2025)
Tariff Policy	Normal tariff rates	Additional 25% tariffs imposed	High tariffs remain in effect
Avg. Monthly Imports	800 – 1,000 units	Sharp decline	Data not specified; overall import value decreased
Detailed Figures	—	July:145 units August:46 units September:35 units	—

### **5.3. Tesla's Response Strategies: Local Production**

To address the effects of the trade war, Tesla accelerated the localized production. This decision not only successfully helped the company avoid high tariffs but also achieved improved production efficiency and cost optimization. The localization of the supply chain significantly reduced vehicles production costs, leading to a decline in market prices and a rapid recovery in sales. On one hand, by producing and selling electric vehicles within China, Tesla reduced imports of complete vehicles from the US, so the trade deficit between China and the U.S. is smaller in the automotive sector. On the other hand, the Shanghai factory became Tesla's global export station. From October 2020, Tesla vehicles manufactured in China began exported into Europe, Asia-Pacific regions, and other key markets including Germany, Japan, and Australia. In 2021, Tesla vehicles produced in China exceeded 160,000 in export volume, accounting for a significant proportion of China's total new energy vehicle exports. In conclusion, although the trade war has impacted Tesla's exports to China in the short term, it has accelerated its localization process and expanded export markets through localized and set up factory.

## **6. A Comparative Analysis of BYD and Tesla**

As industry leaders in the new energy vehicle sector, BYD and Tesla have used different strategies in responding to tariff policies during the trade war yet have same traits. Both companies have been directly affected by the added tariffs, facing increased export costs and significantly weakened market competitiveness. In order to mitigate losses, they are adjusting their global market and production layouts.

However, their backgrounds are completely different: As a Chinese domestic corporate, BYD's strategy focuses more on setting up overseas factories and exploring emerging markets to increase sales; while Tesla, as an American company, they get benefits from localized production in China and also optimize the industrial chain. This not only help it expands the Chinese market and also make its Shanghai factory into a global export station that supplying markets to Europe, Southeast Asia, and others. In terms of exports, both companies' exports were affected by the high tariffs between two countries, while their exports to other global markets have surged significantly, which highlights the importance of market diversification.

The adjustment of strategies also reflects a deeper impact that tariffs have accelerated the technology decoupling and supply chain crises, especially in key areas such as power batteries and chips, where companies have to lay out their supply chain structures to reduce their dependence on suppliers.

From a large perspective, the tariff policy has further accelerated the competition between China and the United States in the field of new energy vehicle. Chinese electric vehicles producers such as BYD have developed core technology and overseas cooperation, while Tesla has pay more attention to escape the high tariffs through deepening localized production and supply chains in China.

In general, although the two countries have different paths, both companies have adjusted their trade strategies to adopt global trading environment.

## **7. Conclusion**

This study employs a comparative analysis of BYD and Tesla's export performance and strategic adjustments during the Sino-US trade war to demonstrate that protectionist policies have exerted profound and complex impacts on new energy vehicle trade between China and the United States. Firstly, the trade conflict directly altered the flow and patterns of bilateral trade. The imposition of substantial tariffs has had a short-term deleterious effect on Chinese exports of new energy vehicles to the US, while exports of US-manufactured Tesla vehicles to China have also declined significantly. Nevertheless, this shock did not result in the suppression of China's overall growth in new energy vehicle exports. Instead, it accelerated the transformation of the trade structure, shifting from reliance

on the US market towards a diversified global market. This resulted in the formation of a new dual-engine driving pattern for 'domestic enterprises exporting' and 'foreign-funded enterprises exporting'. The Tesla Shanghai Gigafactory has assumed a pivotal role in the global supply chain, functioning not only as a source for the Chinese market but also as a pivotal export hub, facilitating the re-export of goods to Europe and the Asia-Pacific region. This strategic shift, unanticipated prior to the onset of the trade war, underscores the dynamic and multifaceted nature of contemporary global trade dynamics. In addition, strategic flexibility and adaptability have become pivotal for enterprises in mitigating external risks and even forging new growth opportunities. Confronted with similar tariff pressures, BYD and Tesla adopted divergent response strategies based on their respective identities and resource endowments. As a domestic Chinese enterprise, BYD leveraged its long-established supply chain advantages and technological capabilities to accelerate overseas factory construction and expand into emerging markets. This approach effectively offset losses from declining exports to the US, achieving counter-cyclical growth in total exports. Tesla, as an American enterprise, has established production bases within China. This move not only circumvents tariff barriers and stabilizes and expands its market share in China but also positions the country as a pivotal node within its global production and export network. These two approaches collectively demonstrate that, against the backdrop of global value chain restructuring, enterprises can transform external pressures into opportunities for transformation and development by proactively adjusting their production layouts and market strategies.

Enterprises should pursue a globalized and diversified market strategy, avoiding excessive reliance on any single market. It is imperative that they continue to cultivate established overseas markets, such as Europe and Southeast Asia, while concurrently embarking on active expansion into Belt and Road partner nations and other emerging markets. The establishment of overseas production bases, marketing networks and after-sales service systems has been demonstrated to enhance risk resilience and market penetration capabilities. It is incumbent upon government departments to proactively expand overseas markets through diplomatic and economic cooperation. It is imperative to expedite the negotiation and ratification of free trade agreements with a greater number of countries and regions. This will serve to eliminate tariff and non-tariff barriers that currently impede the export of Chinese new energy vehicles. Concurrently, enterprises should be supported in their participation in international standard-setting, with the objective of aligning Chinese standards with global norms. This will engender a more favorable international environment for Chinese brands to go global.

The present study is not without its limitations. Firstly, the selection of research subjects focused solely on two representative brands, BYD and Tesla, failing to encompass other Chinese and foreign new energy vehicle manufacturers. This resulted in a limited sample scope, which to some extent affected the universality and comprehensiveness of the research conclusions. Secondly, at the data analysis level, constraints imposed by the completeness and consistency of publicly available data prevented the full exploration of certain export metrics and market performance indicators. For instance, the export structure across different vehicle models and regional market pricing strategies could not be sufficiently examined, potentially failing to capture the heterogeneity and complexity of the trade war's impact.

There are two improvements for future studies. Firstly, expand the research sample by incorporating more mainstream new energy vehicle brands into the analytical framework, conducting multi-case comparisons or panel data analysis to enhance the reliability and generalizability of conclusions. Secondly, advance data refinement and multidimensional processing by integrating annual reports, customs micro-trade data, regional market policy texts, and other sources for deeper matching and mining, thereby strengthening dynamic and structural interpretations of issues such as export motivations, supply chain adjustments, and market response mechanisms.

## **Authors Contribution**

All the authors contributed equally and their names were listed in alphabetical order.

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