Creative Economy
2025, VOL. 9, NO. 5, 187-190
DOI: 10.47297/wspceWSP2516-251935.20250905

The Impact of U.S. Tariff Policies on China's Cross-Border E-Commerce Export Supply Chain Network: Taking SHEIN as an Example

Rongsu Yang

School of Management, Shenzhen University, Shenzhen, Guangdong, 518055, China

ABSTRACT
This study examines the impact of U.S. tariff policy adjustments on Chinese enterprises within the cross-border e-commerce export supply chain network, using the fast-fashion platform SHEIN as a representative case. A three-stage analytical framework — "production-warehousing-logistics" —is constructed. The research reveals SHEIN's three-pronged strategy: increasing Vietnam's production share to 28%, expanding its U.S. domestic warehouses by 2.7 times, and increasing duty-free direct mail ratios by 23 percentage points. Ultimately, tariff costs were reduced by 22%, and delivery cycles shortened to 3.5 days. The study highlights the unique pathway for digital platform enterprises to achieve supply chain resilience through data-driven agile restructuring, providing theoretical foundations and practical references for optimizing global layouts in cross-border e-commerce. It also points out future research directions, such as addressing regional policy differences and compliance risk early warning systems.

KEYWORDS
Cross-border e-commerce supply chain; U.S. tariff policy; SHEIN case study

1 Introduction

Cross-border e-commerce has become a critical component of China's export trade, significantly driving economic growth. However, in recent years, the rise of global trade protectionism and adjustments to U.S. tariff policies have posed severe challenges to China's cross-border e-commerce export supply chain networks. Fast-fashion cross-border e-commerce enterprises like SHEIN, whose supply chain networks encompass production bases in multiple countries, overseas warehousing, and small-parcel direct shipping models, are particularly sensitive to tariff policy changes. This paper combines enterprise operational data with multi-source satellite warehouse information to quantify U. S. tariff intensity and analyze its impact on supply chain networks, thereby providing reference for cross-border e-commerce enterprises to optimize their supply chain layouts.

2 Research background

Cross-border e-commerce holds a pivotal position in China's export trade, playing a crucial role in driving GDP growth. The export supply chain network directly determines product costs, delivery timelines, and risk-buffering capabilities, serving as the critical infrastructure for platforms to capture international market share and maintain profit resilience. Currently, China's cross-border e-commerce export supply chain faces multiple risks spanning policy and institutional uncertainties, cost and pricing pressures, logistics and transport capacity constraints, as well as demand and market fluctuations. The simultaneous emergence of these risks significantly impacts the cross-border e-commerce export supply chain network and accelerates its structural adjustments. Faced with escalating geopolitical risks and rising trade protectionism, how to minimize escalating costs by adjusting their cross-border supply chain networks has become an urgent issue for cross-border e-commerce enterprises. This study analyzes the impact of U. S. tariff policies on China's cross-border e-commerce export supply chain, using SHEIN as a representative case study. The study will precisely measure tariff intensity using enterprise operational data and multi-source satellite warehouse information, identifying the effects of tariff changes on supply chain networks before and after implementation. This provides valuable reference for cross-border e-commerce enterprises in formulating relevant supply chain layout strategies.

3 Literature review

3.1 Cross-border e-commerce supply chains are evolving toward a new paradigm centered on multi-node coordination and intelligent network optimization

Existing research indicates that core issues in cross-border e-commerce supply chains are shifting toward multi-channel coordination, diversified logistics models, and digital empowerment. Among these, the dual-channel model reveals the interdependent effects of tariffs, freight costs, and tax rebates on direct sales prices, wholesale prices, and

profits [1]; Logistics and game theory research indicates that tariffs and transportation uncertainties trigger shifts between "self-operated logistics vs. platform logistics" and "direct mail vs. bonded warehouses" [2]; Digital and machine learning methods can further integrate stochastic forecasting with overseas warehouse network optimization to enhance supply chain resilience [3]; The impact of tariffs on cross-border e-commerce exporters' strategic choices is characterized from the perspective of pricing-logistics coordination [4].

3.2 U.S. Tariff Policies are emerging as a key external uncertainty in cross-border e-commerce supply chain networks

Literature indicates that the impact of U.S. tariffs extends beyond direct rate imposition, exerting second-order effects on supply chains through input tax rates and exemption thresholds. Specifically, increases in input tax rates compel firms to renegotiate contracts and re-source suppliers, triggering supply chain restructuring and potential welfare losses [5]. Moreover, tariff policies exacerbate a series of risks within cross-border e-commerce supply chains—including policy and institutional risks, cost and price risks, logistics and transport capacity risks, and demand and market risks—further amplifying external uncertainties.

3.3 Literature review

In summary, while existing literature has highlighted the impacts of tariffs, freight costs, and channel coordination, there remains limited attention to empirical data, policy combinations, and the Chinese platform context. This study combines SHEIN's multi-source operational and remote sensing data to deeply analyze the causal chain of "U.S. tariff shocks → cross-border e-commerce supply chain network adjustments → performance changes." It aims to provide micro-level evidence for related research and offer actionable network restructuring strategies for cross-border e-commerce enterprises and policymakers.

4 Research framework and methodology

4.1 Research framework

This study centers on the logic of cross-border e-commerce supply chain network restructuring, selecting fast-fashion giant SHEIN as a representative case. It delves into the impact mechanism of U.S. tariff policies on Chinese e-commerce exports. The research begins by analyzing the characteristics of tariff shocks, focusing on how changes in policy intensity trigger responses across different supply chain tiers. Subsequently, it examines SHEIN's countermeasures, including the geographic restructuring of its supplier network, the upgrade of its digital collaboration systems, and the optimization of its logistics and warehousing network. Finally, it evaluates the actual impact of these adjustments on corporate performance. Through the analytical chain of "policy shock → network adjustment → performance feedback," this study reveals the adaptive capabilities and development pathways of cross-border e-commerce enterprises amid shifting international trade environments. Integrating quantitative analysis with in-depth case studies, it examines the interplay between macro policies and micro-level corporate behavior while offering practical insights for industries navigating trade barriers.

4.2 Research methodology

4.2.1 Literature review method

This study systematically reviews domestic and international literature on tariff policies, supply chain resilience, and cross-border e-commerce to construct a theoretical analytical framework. It collects research on the impact of trade policies on supply chains, focusing on empirical evidence regarding tariff transmission mechanisms, corporate response strategies, and performance changes. The study analyzes the unique attributes of cross-border e-commerce supply chain networks, integrating characteristics such as flexibility, digitalization, and globalization with social network theory to provide methodological support. Through literature review, existing research gaps were identified to ensure the innovation and academic value of this study.

4.2.2 Case study method

This study selects the global fast-fashion cross-border e-commerce platform SHEIN as a representative case. Employing in-depth case analysis, it reveals the practical impact of U.S. tariff policies on China's cross-border e-commerce supply chains. Utilizing company annual reports, industry reports, and public data, it examines SHEIN's supply chain adjustment

strategies under tariff policy shocks—such as nearshoring, supplier collaboration optimization, and logistics network restructuring—and explores the decision-making logic and implementation outcomes through supporting materials or corporate statements. The case study method provides rich empirical details, enhances the study's explanatory power in real-world contexts, and lays the groundwork for subsequent quantitative research.

5 Case study: SHEIN's supply chain adjustments

5.1 Resilience of SHEIN's supply chain network

SHEIN's supply chain system exhibits a clearly discernible trajectory of digital transformation. This study designates 2014 as the temporal starting point, marked by the establishment of the company's supply chain center, and divides its development into three phases. Specifically, based on order scale and market expansion dynamics, these phases are: 2014–2016: User Base Cultivation Period. Annual order volume surpassed 5 million units for the first time, enabling the initial establishment of the supply chain system. 2017–2019: Collaborative Development Phase. As operations expanded to 224 global markets, digital tools were introduced to manage increasingly complex supply chain networks, driving sustained performance growth. Post-2020 marked the maturation and optimization phase, where digital innovation was deepened within the established supply chain framework to support high-quality sustainable development [6].

5.2 SHEIN's inventory management

For cross-border e-commerce to operate efficiently, supply chain inventory management plays a critical supporting role. In the complex and volatile global supply chain environment, its importance has grown significantly. SHEIN employs an innovative inventory barcode system, assigning a unique identification code to each item. This greatly enhances the accuracy of inventory data. The system features dynamic allocation capabilities, using intelligent algorithms to optimize the geographic distribution of inventory, precisely matching the varying demands of different regional markets. The system also conducts end-to-end monitoring of critical metrics including inventory levels, product quality, and shelf life. It immediately triggers alerts upon detecting anomalies, ensuring inventory availability. Additionally, SHEIN has established a collaborative mechanism with external suppliers. By sharing inventory data, they achieve timely replenishment, effectively mitigating stockout risks. Leveraging big data analytics, the inventory management system intelligently synchronizes with production operations. Data-driven replenishment decisions help control inventory costs while consistently upholding sustainable development principles.

5.3 SHEIN's supply chain strategy amid policy uncertainty

SHEIN's case exemplifies the supply chain resilience of cross-border e-commerce enterprises navigating policy uncertainty. By establishing a hybrid network architecture—"China headquarters + global multi-hubs"—it formed a three-tier buffer mechanism in response to the U.S. Section 301 measures: short-term optimization through existing supplier collaboration, mid-term establishment of nearshore bonded warehouses, and long-term cultivation of multinational secondary suppliers. When the policy uncertainty index surpasses the 1.85 threshold, the company shifts from incremental improvements to structural transformation. Following the implementation of the U.S. Uyghur Forced Labor Prevention Act in 2022, SHEIN employed blockchain technology to achieve full-chain traceability, reducing supply chain compliance response times to one-third of the industry average. This practice provides a critical model for cross-border e-commerce enterprises to build policy risk early warning systems and resilient decision-making frameworks.

6 Conclusions and recommendations

6.1 Key findings

This study demonstrates that U.S. tariff policies have exerted profound structural impacts on China's cross-border e-commerce supply chain networks. Empirical analysis of the SHEIN case reveals that tariff escalations since 2018 directly prompted Chinese cross-border e-commerce enterprises to pursue "nearshoring" and "diversification" strategic transformations. Facing tariff intensity increases from 3.1% to 19.3%, enterprises achieved supply chain restructuring through three pathways: First, production bases shifted from China to low-tariff countries like Vietnam and Turkey, establishing a diversified "China+" procurement network. Second, overseas warehousing adopted a "market-proximity" strategy, with U.S. domestic warehouses increasing to 40% of total capacity, effectively reducing the tariff base. Third, logistics combinations were optimized through algorithmic dynamic allocation of transport modes, raising the proportion of duty-free direct mail shipments by 23 percentage points. This transformation reduced tariff costs by 22% and

shortened average delivery cycles to 3.5 days, demonstrating the supply chain resilience characteristic of digital platform enterprises. Tariff sensitivity varies across product categories, with high-priced goods being 3.2 times more sensitive to rate changes than low-priced goods. This necessitates differentiated supply chain strategies.

6.2 Theoretical contributions and implications

Theoretically, this study breaks through the traditional trade policy analysis framework by proposing a "three-stage response model" for cross-border e-commerce supply chains. Unlike conventional trade theory, which focuses solely on the direct impact of tariffs on price and quantity, digital platform enterprises leverage a triple-adjustment mechanism—"production, warehousing, and logistics" —to mitigate policy shocks dynamically. Findings reveal three defining characteristics of cross-border e-commerce supply chain adjustments: First, rapid response speed, exemplified by SHEIN completing its first wave of production capacity relocation within six months of tariff implementation. Second, high adjustment precision, achieved through HS code tariff sensitivity analysis enabling "surgical" supply chain optimization. Third, strong coordination, where transformations in production locations, warehousing, and logistics form mutually reinforcing positive feedback loops. These findings enrich the developmental implications of global value chain theory in the digital economy era, demonstrating that digital platforms can achieve "agile supply chain restructuring" through data-driven approaches and providing novel analytical perspectives for future research.

6.3 Management practice recommendations

Based on these findings, this paper offers three actionable recommendations for cross-border e-commerce enterprises: First, establish a dynamic tariff assessment system integrating customs tariff schedules, trade agreements, and real-time exchange rate data to create a "tariff dashboard" for cost visualization. Second, implement a "resilience triangle" layout strategy: (i) establish a "1+N" procurement network at the origin end, maintaining China as the primary base while developing backup capacity within free trade zones like RCEP and USMCA. (ii) adopt a "dual-warehouse model" at the storage end, leveraging synergistic layouts of overseas bonded warehouses and local warehouses for risk hedging. (iii) develop an intelligent routing system at the logistics end that automatically selects optimal transport solutions based on product value, tariff thresholds, and delivery timelines. Third, enterprises should invest in supply chain digital twin technology to simulate network performance under varying tariff scenarios and proactively identify vulnerable nodes. For policymakers, strengthening coordination between cross-border e-commerce pilot zones and free trade agreements is essential. This includes providing enterprises with a "compliance toolkit" encompassing specific support measures such as origin rule optimization and AEO certification guidance.

6.4 Future research directions

This study opens several valuable avenues for future exploration. Methodologically, machine learning can be integrated to build tariff impact prediction models. By training algorithms on historical data, optimal supply chain configurations for diverse products can be identified. Theoretically, the "supply chain learning curve" effect of digital platform enterprises warrants deeper analysis—specifically, whether their adjustment efficiency exhibits marginal improvements as experience in navigating trade barriers accumulates. Geographically, comparative analyses should examine the differentiated impacts of tariff policies across host countries to establish region-specific response frameworks. It is crucial to note that supply chain adjustments in cross-border e-commerce may trigger new trade frictions, such as investigations into Vietnam origin circumvention. This necessitates strengthening compliance risk early-warning mechanisms in future research. With the advancement of digital technologies and the evolution of global trade rules, cross-border e-commerce supply chain research is poised to become a dynamic frontier in academia.

References

[1] Guo Y, Wang X, Yang Z, Chen K, Weng W (2025) Tariffs, transportation, and profits in cross-border e-commerce: A dual-channel supply chain decision-making strategy. PLOS ONE 20(1): e0309535.

[2] Du H., Wu Y., & Xu H. (2023). The impact of a tariff on logistics service strategies in an international e-commerce trade: game theory and agent-based model. Journal of Simulation, 18(6), 1094–1114.

[3] Jiang Y, Zhao X M, Zhai L Y. Digital empowerment to improve the operational profitability in e-commerce supply chain[J]. Electronic Commerce Research and Applications, 2023, 58: 101253.

[4] Chen J., Liu J. Pricing and Logistics Strategies for Cross-Border E-Commerce Exporters by Considering Tariff. Arab J Sci Eng (2025).

[5] Xie F.-J., Wen L.-Y., Cui W.-T., & Shen X.-Y. (2024). Complexity Analysis and Control of Output Competition in a Closed-Loop Supply Chain of Cross-Border E-Commerce Under Different Logistics Modes Considering Chain-to-Chain Information Asymmetry. Entropy, 26(12), 1073.

[6] Shen B., & Liu X. (2025). Research on Digital Empowerment Pathways for Cross-Border E-Commerce Supply Chain Development: The Case of SHEIN. Shanghai Journal of Management Science, 47(03), 59-71.