

# ***A Study on the Relationship Between Cross-border E-commerce, Business Environment, and High-quality Development of Foreign Trade***

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**Abstract:** An essential factor in achieving high-quality development of foreign trade is cross-border e-commerce, which serves as a new catalyst for trade growth. This paper empirically analyzes the impact of cross-border e-commerce on the high-quality development of foreign trade using China's provincial panel data from 2013 to 2021. The study employs the static fixed effect model and dynamic Gram Molecular Mass (GMM) regression model to investigate the relationship, and further utilizes the mechanism effect model to explore the role of the business environment. The findings demonstrate that the emergence of cross-border e-commerce has significantly facilitated the growth of international trade. By improving the structure and increasing the level, scale, and competitiveness of foreign trade, it directly promotes the high-quality development of foreign trade. Moreover, the impact of cross-border e-commerce is more pronounced in regions with high Internet penetration rates compared to those with low rates.

**Keywords:** cross-border e-commerce, foreign trade, business environment

## **1. Introduction**

Research closely related to the topic of this paper can be mainly divided into two branches. One branch focuses on the impact and mechanism of cross-border e-commerce on the scale of foreign trade. Regarding impact research, Liang found that cross-border e-commerce promotes an increase in the scale of foreign trade [1]. Yin and Choi discovered that cross-border e-commerce simulates the expansion of trade in services and goods [2]. In terms of mechanism research, Yue and Li identified that cross-border e-commerce platforms can enhance corporate productivity and transaction efficiency. The improved matching efficiency and reduced export threshold have expanded the export scale of enterprises [3]. Ju et al. demonstrated that cross-border e-commerce not only significantly reduces fixed costs in trade but also decreases variable costs [4]. Ma et al. highlighted that cross-border e-commerce achieves fresh growth in exports by encouraging the expansion of the double international value of exports from the perspectives of information cost and economies of scale [5].

The other branch mainly explores the relationship between the business environment and the development of foreign trade. At the micro level, Ye and Zhang argued that optimizing the business environment can actively regulate the impact of government subsidies on the probability and duration of enterprise exports, thereby aiding the expansion the scale of enterprise exports [6]. Another scholar,

Zhang, concluded that the business environment has a positive impact on the export intensity of enterprises [7]. At the macro level, Bah and Fang discovered that a poor commercial environment does not contribute to increasing the growth rate of foreign trade exports [8]. Yin and Liu confirmed the positive impact of optimizing the complexity of the business environment on the complexity of provincial export technology [9]. Liu Jun and Liu Lingbo found that optimizing the business environment can significantly promote import trade, thereby optimizing the foreign trade structure [10].

In conclusion, the related research predominantly emphasizes the scale of international trade and has limitations in exploring the mechanisms of impact on trade costs. The research on the relationship between the business environment and foreign trade development has gradually shifted towards the narrower perspective of foreign trade development quality. Furthermore, there is a lack of studies on the relationship between cross-border e-commerce and the quality dimension of foreign trade development, neglecting the exploration of mechanisms from the perspective of the business environment. Based on these observations, this paper examines the role of cross-border e-commerce from static and dynamic perspectives and seeks to integrate it with the high-quality development of foreign trade. By clarifying the mechanisms through which cross-border e-commerce facilitates high-quality development, this research provides a new perspective for China to deepen institutional reform.

## **2. Theoretical Analysis**

### **2.1. Cross-border E-commerce and Foreign Trade Structure**

Cross-border e-commerce plays a crucial role in optimizing the structure of foreign trade by reducing time and space barriers and promoting technological innovation. It facilitates global market connectivity, diversifies enterprises' export markets [3], stimulates domestic import demand, and enhances the overall foreign trade structure. Simultaneously, through technological innovation, it expands the boundaries of service trade, which in turn drives the development of logistics, finance, and other related tertiary industries in China [11], thereby optimizing the overall structure of the foreign trade industry.

### **2.2. Cross-border E-commerce and Foreign Trade Performance Level**

Cross-border e-commerce primarily contributes to consumption upgrades, the import of high-tech products, and the overall performance level of foreign trade. Its diverse forms of imports help promote consumption upgrades by enriching consumption content and enhancing consumption methods. Furthermore, it broadens the market scope for small and medium enterprises' production factors and eliminates channels that hinder learning effects, thus facilitating the performance of technological spillover effects and improving the overall level of foreign trade performance.

### **2.3. Cross-border E-commerce and Foreign Trade Competitiveness**

The enhancement of cross-border e-commerce's competitiveness in foreign trade is observed in three main aspects: service trade, goods trade, and industrial innovation and development. Enterprises engaged in service trade utilize cross-border e-commerce platforms to enhance supply and demand matching efficiency, improve related after-sales services, and boost the competitiveness of the service trade sector. Moreover, the seamless flow of information, data, and goods contributes to increased production efficiency in the manufacturing industry and fosters competition in goods trade. Additionally, cross-border e-commerce diversifies channels for technology spillover, enabling enterprises to promote technological innovation and ascend the global value chain.

## 2.4. Cross-border E-commerce and Foreign Trade Scale Status

Cross-border e-commerce primarily expands the scale of foreign trade by reducing trade costs and risks. It enables enterprises to overcome fixed costs associated with market openness and the establishment of distribution channels, while also reducing trade costs such as information search and communication expenses. This promotes resilience and mutually beneficial development in foreign trade, mitigates the negative impact of geographical distance and reduces international market risks faced by exporting enterprises [1]. Furthermore, it encourages enterprises to expand their export markets and product categories, thereby facilitating large-scale foreign trade.

Accordingly, a hypothesis is proposed: cross-border e-commerce directly promotes the high-quality development of foreign trade and optimizes the business environment. This indirect transmission mechanism is primarily achieved through three channels: Firstly, by addressing information asymmetry, customers and enterprises can avoid market failures through multiple channels and comprehensive methods, thus improving the overall product and factor quality. Secondly, cross-border e-commerce fosters market competition, not only driving foreign trade towards resilience and win-win outcomes but also enhancing product and factor competitiveness. By reducing barriers to the free flow of online and offline resources, it facilitates the optimal allocation of resources across industries. Lastly, it promotes institutional innovation. The development of cross-border e-commerce facilitates trade between China and other countries and aligns Chinese trade rules with international trade rules. The prevalence of small-batch and fragmented order modes necessitates the innovation of customs clearance systems, drives domestic trade system reforms, and optimizes China's business environment. The optimization of the business environment not only enhances transaction efficiency and reduces transaction costs but also improves the structure of foreign trade imports and exports.

## 3. Model Construction

### 3.1. Selection of Variables

In this paper, the entropy weight approach is utilized to construct a multidimensional assessment system for the high-quality development of international commerce, comprising four key indicators. Excluding Hong Kong, Macao, and Taiwan, the degree of high-quality development of commerce in 30 Chinese provinces from 2013 to 2021 is determined. Table 1 presents the specific metrics.

Table 1: Evaluation index system for high-quality development of regional foreign trade in China.

Total Index	Primary Indicators	Secondary Indicators	Indicator Attribute
Comprehensive Index of High-Quality Development in Foreign Trade	Optimization of foreign trade structure	Proportion of general trade	+
		Absolute value of trade balance of good	-
	Foreign trade performance level	The contribution of goods export increment to GDP increment	+
		The driving force of goods export increment on GDP increment	+
		The proportion of high-tech product imports to total imports	+
		Value added rate of processing trade	+
	Foreign trade competitiveness	TC index of goods trade	+
		High tech manufacturing industry RCA index	+
	Foreign trade scale and position	Scale of import and export of goods trade	+
		The proportion of goods trade imports to China's total exports	+

### 3.2. Explanation Variables

As the development of cross-border e-commerce is closely tied to the logistics system, the data on the logistics system ensures the relative differences in the data. Therefore, based on the previous research by Zhang et al. [12], the number of international express deliveries was used to measure the development level of cross-border e-commerce.

### 3.3. Intermediary Variables and Control Variables

To measure the business environment as an intermediary variable, the widely used market-oriented index in various provinces was employed. The following control variables were selected based on existing research: economic development level (per capita Gross Domestic Product (GDP)), financial development (ratio of local and foreign currency loan balances of financial institutions to GDP), industrial structure (proportion of the added value of the tertiary industry to GDP), government size (revenue) (proportion of general public budget revenue in GDP), and human capital (per capita actual human capital level calculated using the “China Human Capital Report (2020)”). Time series forecasting was used to predict the per capita actual human capital in the 2020-2021 level.

### 3.4. Heterogeneity Analysis

We divided the sample into regions with better and poorer business environments in order to ensure robustness and explore the heterogeneity of the impact of cross-border e-commerce on the quality of foreign trade. The internet penetration rate was also considered, based on whether the province's market-oriented index and internet penetration rate were above or below the national average for the year. Additionally, the sample was divided into eastern, central, and western regions based on geographical location. The heterogeneity analysis show that in areas with both high and low business environment indexes, the high-quality development of cross-border e-commerce positively impacts the high-quality development of foreign trade, with a greater effect observed in areas with better

business environments. This is due to the proactive encouragement of corporate innovation and market opportunities in regions with favorable business environments, which enables more effective development of cross-border e-commerce and improvement in the quality of foreign trade. In areas with high internet penetration rates, cross-border e-commerce significantly enhances the quality of foreign trade development, whereas the impact is not significant in areas with low internet penetration rates. This highlights the importance of a robust information infrastructure for promoting international trade and cross-border e-commerce. The growth of cross-border e-commerce demonstrates a significant positive impact on the standards of international trade across the eastern, central, and western regions, indicating its potential to transcend geographic boundaries and promote regional coordination to some extent.

#### **4. Policy Implications**

On the basis of the empirical study presented above, the following policy implications can be drawn:

##### **4.1. Cultivating a Favorable Environment for Cross-border E-commerce Development**

It is crucial to enhance and innovate the supervision mechanism of cross-border e-commerce platforms, foster brand awareness among businesses, and discourage uniform competition. Additionally, providing subsidies to cross-border e-commerce enterprises and organizing relevant technology and management training are necessary. Moreover, by integrating cross-border e-commerce comprehensive pilot zones and free trade pilot zones with international trade rules, an excellent business environment can be established through institutional innovation. It is also important to improve the talent training mechanism, strengthen the development of digital and logistics infrastructure, and consolidate the foundation of cross-border e-commerce.

##### **4.2. Promoting the Integration of Cross-border E-commerce and Industrial Development**

Efforts should be made to promote the integration and coordinated development of cross-border e-commerce with traditional industries, such as manufacturing. Exploring various cross-border e-commerce models and comprehensive mechanisms for traditional industries, and leveraging digital technology to drive industrial development and innovation, are crucial. Additionally, utilizing cross-border e-commerce parks as operators can foster the development of related industries, integrate resources across the industrial chain, and establish a comprehensive cross-border e-commerce industry chain and ecosystem.

##### **4.3. Improving the Balanced Development of Foreign Trade in All Aspects**

Accelerating the exploration of new models and formats related to digital trade is essential. Stimulating imports by enhancing trade promotion and utilizing digital trade to expand the boundaries of service trade is necessary. Furthermore, it is critical to broaden the diversified import and export market through e-commerce platforms, optimize the structure of foreign trade, and expand the scope of policy testing related to cross-border e-commerce. Additionally, improving the level of trade liberalization, removing barriers to technology spillover channels, and promoting the upgrading of export product quality are key aspects. Consolidating the position of major trading countries, enhancing foreign trade performance, and facilitating the adoption of cross-border e-commerce models by small and medium-sized enterprises are also important steps. These measures will increase China's participation in the global value chain, expand procurement channels, and enhance overall competitiveness.

## 5. Conclusion

This paper has examined the relationship between cross-border e-commerce, the commercial environment, and the high-quality development of foreign trade. Our study demonstrates that cross-border e-commerce has a significant positive impact on enhancing the level of high-quality foreign trade. Specifically, cross-border e-commerce contributes to optimizing the structure of foreign trade, improving the performance and competitiveness of foreign trade, and expanding the scale of foreign trade. Additionally, by fostering a favorable business environment, the indirect promotion of high-quality foreign trade development can be achieved. Moreover, the impact of cross-border e-commerce on the high-quality development of foreign trade exhibits regional heterogeneity, particularly in regions characterized by favorable business environments and high internet penetration rates. Therefore, it is essential for China to cultivate a conducive environment for cross-border e-commerce development, facilitate the integration of cross-border e-commerce with industrial development, and promote comprehensive and balanced foreign trade development.

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