

# Analysis of the Development Environment and Trend of Cross-Border E-commerce in China

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**Abstract:** With the conclusion of the novel coronavirus pandemic and the increasingly complex market environment, China's cross-border e-commerce has entered a new phase of development. The external landscape is evolving rapidly, and there is a gradual improvement in laws and regulations governing cross-border e-commerce, coupled with increased government support. Despite the impact of the COVID-19 pandemic on the market economy, overall development has been steadily improving. The Internet population is expanding, the online retail market is experiencing rapid growth, the consumption structure is undergoing transformation and upgrading, and the e-commerce market is demonstrating significant potential. The advancement of technologies such as big data, artificial intelligence, blockchain, and supply chain has provided more efficient operational support for the cross-border e-commerce industry. Against the backdrop of the emergence of new forms of cross-border e-commerce in China post-pandemic, this paper utilizes the PEST model to analyze the macro environment of cross-border e-commerce in China and project its future development trends.

**Keywords:** Cross-border e-commerce; Environmental analysis; Development trend

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## 1. Introduction

The cross-border e-commerce market is undergoing rapid transformations, with the industry's development being significantly influenced by various factors, including the recent pandemic. These changes have presented both opportunities and challenges for the cross-border e-commerce sector. This paper employs the PEST model to conduct a comprehensive analysis of cross-border e-commerce, focusing on four key dimensions: policy, economy, society, and technology. The goal is to scrutinize the developmental trajectory of cross-border e-commerce in China. The underlying premise of this paper is that enterprises must thoroughly comprehend the macro environment and discern future development trends to attain high-quality growth.

## 2. Analysis of cross-border e-commerce development environment

### 2.1. Policy environment

In recent years, China’s cross-border e-commerce has experienced robust growth, supported by a continuous improvement in laws and regulations alongside increased government backing. Commencing in 2020, China initiated an extensive expansion of the pilot scope for cross-border e-commerce comprehensive pilot zones and bolstered assistance for small and medium-sized enterprises, particularly during the challenging times of the pandemic. Presently, cross-border e-commerce stands as a crucial catalyst for promoting the transformation and advancement of foreign trade, solidifying the external cycle and garnering support from multiple policies.

Reviewing **Table 1** for pertinent policies in China’s cross-border e-commerce, these encompass reforms in import and export procedures, overseas warehousing, and logistics, all of which have played pivotal roles in propelling the industry’s growth.

**Table 1.** Support policies related to China’s cross-border e-commerce

Time	Department	Policy	Main contents
2023.4	General Office of the State Council	Opinions on Promoting Steady Scale and Excellent Structure of Foreign Trade	Strengthen trade promotion and expand markets Stabilize and expand the import and export of key products Increase fiscal and financial support Improve the environment for foreign trade development
2022.12	The State Council	The 14th Five-Year Plan for the Modern Logistics Development	International logistics network continues to extend Overseas warehouse and landing distribution of enterprises are accelerating the layout Overseas logistics service capacity is steadily improving Build international and domestic logistics channels
2022.9	The State Council	Opinions on Further Optimizing the Business Environment and Reducing Institutional Transaction Costs of Market Entities	Explore solutions to cross-border e-commerce returns and exchanges.
2022.1	The State Council	The 14th Five-Year Plan for the Construction of a Modern Circulation System	Develop new forms of foreign trade Promote diversified development of trade Encourage cross-border e-commerce platforms to improve their functions Guide enterprises to optimize the layout of overseas warehouses
2021.7	General Office of the State Council	Opinions on Accelerating the Development of New Forms and Models of Foreign Trade	Improve policies to support cross-border e-commerce Expand the scope of pilot comprehensive pilot zones for cross-border e-commerce

China has diligently aligned its regulatory policies on cross-border data flows with international digital norms. In 2021, China announced its accession to the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Digital Economy Partnership Agreement (DEPA), aimed at fortifying global digital economic and trade cooperation and facilitating seamless cross-border data flows. In January 2023, China unveiled the White Paper on Global Digital Governance, outlining its proposal to build a global security consensus and share the dividends of digital economy development <sup>[1]</sup>.

## 2.2. Economic environment

The economic environment encompasses state economic policies, the national economic development status, production mode, industrial structure, and relevant infrastructure. In 2022, China pursued seven key economic policies, collectively aimed at “driving forward,” ensuring “stability,” enforcing “standardization,” promoting “smooth” operations, fostering “new” initiatives, encouraging “vitality,” prioritizing “cooperation,” and ensuring “protection.” These policies were instrumental in actively responding to and mitigating the challenges faced by the Chinese economy amidst greater downward pressure under the pandemic <sup>[2]</sup>.

The national economy exhibited consistent growth, with per capita income on the rise. According to data from the National Bureau of Statistics, the gross domestic product (GDP) for 2022 reached 12,1020.7 billion yuan, reflecting a 3.0% year-on-year increase. Gross national income saw a 2.8% year-on-year increase, reaching 11,97215 billion yuan, while the per capita disposable income of Chinese residents reached 36,883 yuan, a 5.0% year-on-year increase. This growth in GDP was accompanied by steady development across various industries, an increase in residents' employment rates, and a rise in per capita income levels <sup>[3]</sup>.

In recent years, amid shifts in the global political and economic landscape and the accelerated development of digital technology, the significance of the digital economy has become increasingly pronounced. The "China Digital Economy Development Report (2023)" anticipates continued improvement in China's digital economy. By 2022, the scale of China's digital economy is projected to reach 50.2 trillion yuan, constituting 41.5% of the GDP. The digital economy is set to play a more stable and supportive role in the overall national economy.

Simultaneously, the scale of e-commerce transactions in China is on an upward trajectory, securing the top spot in the global online retail market. According to the "China Cross-Border E-commerce Market Data Report 2023 (Part 1)," the first half of 2023 witnessed a 15.49% year-on-year increase, with the cross-border e-commerce market reaching 8.2 trillion yuan. With the evolving consumption patterns in China and an expanding user base, the cross-border e-commerce sector is attracting more talents and practitioners. The domestic online retail market is also steadily growing, facilitating increased participation in "global buying and selling" by enterprises and users <sup>[4]</sup>.

As the online retail market continues to expand, efforts to enhance user stickiness and meet diverse user needs have prompted continuous improvements in the global e-commerce infrastructure of the retail industry. Various business formats, spanning from online to offline, are evolving to cater comprehensively to user demands.

### **2.3. Social environment**

As the online retail market continues its expansion and the mobile Internet deeply permeates society, the Internet industry witnesses a vast user base, with the number of online shopping users steadily growing. By June 2023, China's Internet user count had soared to 1.079 billion, marking an 11.09 million increase from December 2022, with an Internet penetration rate of 76.4%. In the realm of mobile network development, as of June 2023, China boasted 11.29 million total mobile phone base stations, including 2.937 million 5G base stations, constituting 26% of the overall base station count. The cumulative mobile Internet traffic reached 142.3 billion GB, reflecting a 14.6% year-on-year increase, while the landscape of mobile Internet applications flourished.

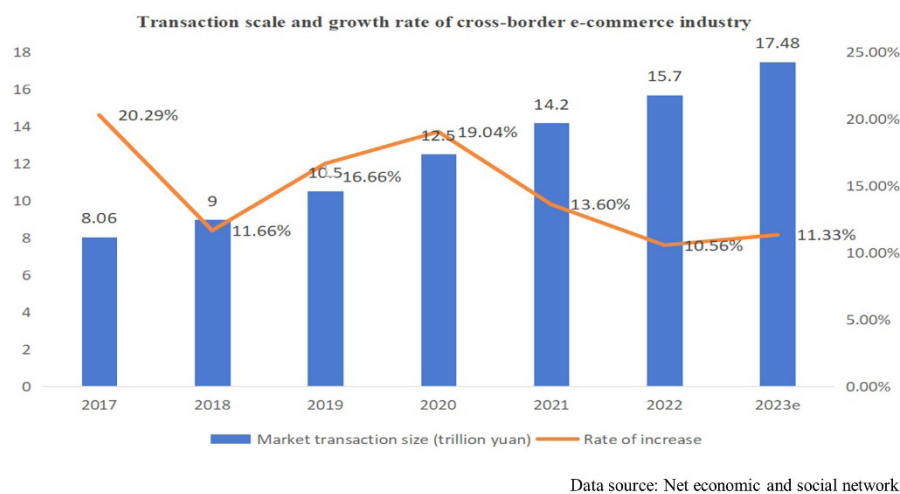
Analyzing the structure of online shopping users reveals that the 80–90 generation netizens exhibit a high online shopping use rate of 93%, and the consumption ratio among the 95 generation stands at 41.9%, surpassing other age groups and emerging as the cohort with the highest consumption potential.

Education levels per capita have steadily risen, alongside improvements in social and cultural standards, accelerated urbanization, a faster pace of life, and evolving consumption concepts. The pursuit of diversified, convenient, and efficient consumption patterns underscores a transformation and upgrading of the consumption structure. Higher education is on a steady trajectory, with a total of 529,300 colleges and universities of various types in China. The average length of schooling for the working-age population has reached 10.9 years, contributing to an improved per capita literacy level <sup>[5]</sup>.

In the first three quarters of 2023, due to the implementation of policies promoting consumption, the market's vitality significantly increased. New forms and hotspots of consumption emerged, indicating a stable

recovery of the consumer market. Sales performance remained robust, witnessing significant increases in both basic living goods and upgraded goods. Online consumption growth outpaced others, and the demand for service consumption continued to rise.

During the COVID-19 pandemic, the offline retail industry faced challenges due to lockdown measures in high-risk areas, whereas the online retail sector seized better development opportunities. The “micro shopping + live streaming/mini program” social shopping model spurred the rapid growth of community commerce during the pandemic. Post-pandemic, in the first three quarters of 2023, online retail sales of physical goods increased by 8.9% year-on-year, constituting 26.4% of total retail sales of social consumer goods (a 0.7% points increase from the same period last year). Notably, sales of food, clothing, and durable goods increased by 10.4%, 9.6%, and 8.5%, respectively. In the closely related postal express delivery industry, business volume and income increased by about 16.4% and 11% year-on-year, respectively (**Figure 1**).



**Figure 1.** Transaction scale and growth rate of the cross-border e-commerce industry

## 2.4. Technical environment

Cross-border e-commerce involves the intricate interplay of logistics, capital, and information flows [6]. Numerous enterprises in this domain grapple with challenges such as data analysis, precision marketing, logistics operations, after-sales service, and currency exchange. Thanks to the ongoing advancements in big data technology, artificial intelligence (AI), blockchain technology, and supply chain finance models, there has been significant progress in enhancing product selection efficiency, ensuring product quality, and improving users’ overall cross-border payment and after-sales service experience.

- (1) **Big data technology:** By linking and analyzing user search records, browsing history, purchase behavior, and comments, cross-border e-commerce enterprises leverage big data technology to identify target consumer groups and predict customer preferences [7]. The robust data storage, mining, and analysis capabilities of big data enable the capture and utilization of massive user data, creating clear user-profiles and three-dimensional consumer labels for targeted marketing and promotion.
- (2) **Artificial intelligence:** Generative AI analyzes extensive user data and preferences to provide intelligent product recommendations and selection suggestions for enterprises. It also matches more personalized marketing and promotion strategies with user profiles. In sales and after-sales interactions, AI serves as intelligent customer service, enhancing user satisfaction, improving overall

enterprise efficiency, and reducing operational costs.

- (3) Blockchain technology: Grounded in a consensus mechanism and utilizing mathematical principles, blockchain ensures the authenticity of linked data through a distributed ledger and joint maintenance by all participants. Each transaction includes a time stamp<sup>[8]</sup>, rendering it tamper-proof and traceable. This characteristic effectively strengthens quality assurance for cross-border e-commerce products and builds trust in cross-border payments.
- (4) Supply chain finance: By transforming the uncontrollable risks faced by individual enterprises into manageable risks across the entire supply chain, supply chain finance enables the effective integration of resources. Cross-border e-commerce enterprises leverage supply chain finance to access faster and less risky financing channels, minimizing risks in the process.

### **3. Analysis of development status and challenges**

#### **3.1. Development status**

##### **3.1.1. Expanding cross-border e-commerce market with slowing growth rate**

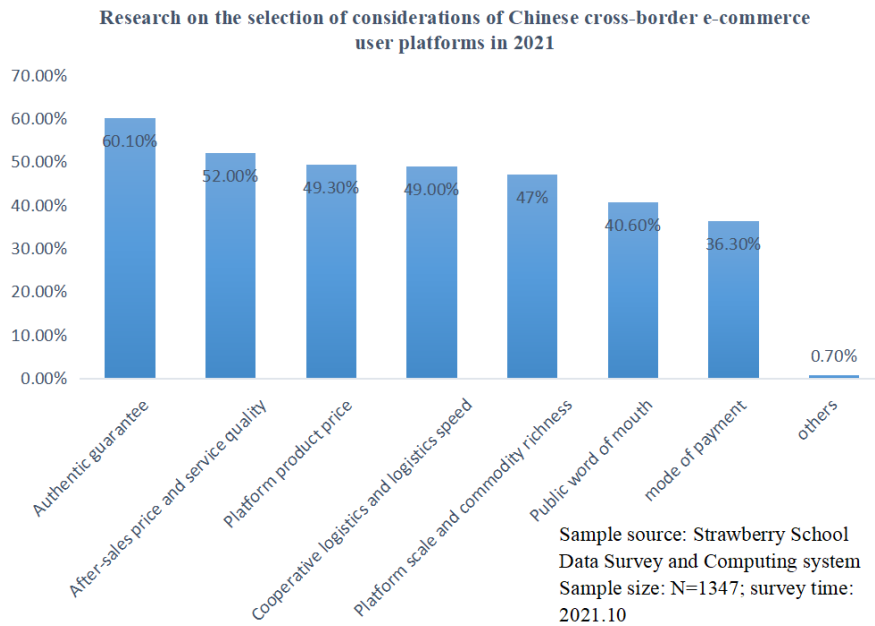
The global impact of the COVID-19 pandemic has heightened the downward pressure on world trade. However, China's cross-border e-commerce market has continued to expand, supported by the national "Belt and Road" strategy and the development of innovative cross-border e-commerce formats. In 2022, the transaction scale of China's cross-border e-commerce market reached 15.7 trillion yuan, indicating a 10.56% increase from the previous year. Projections for 2023 estimate a further growth to 17.48 trillion yuan, reflecting an 11.33% increase. While the market continues to expand, the growth rate has noticeably decelerated.

##### **3.1.2. Multilateralization of operation models to cater to diverse preferences**

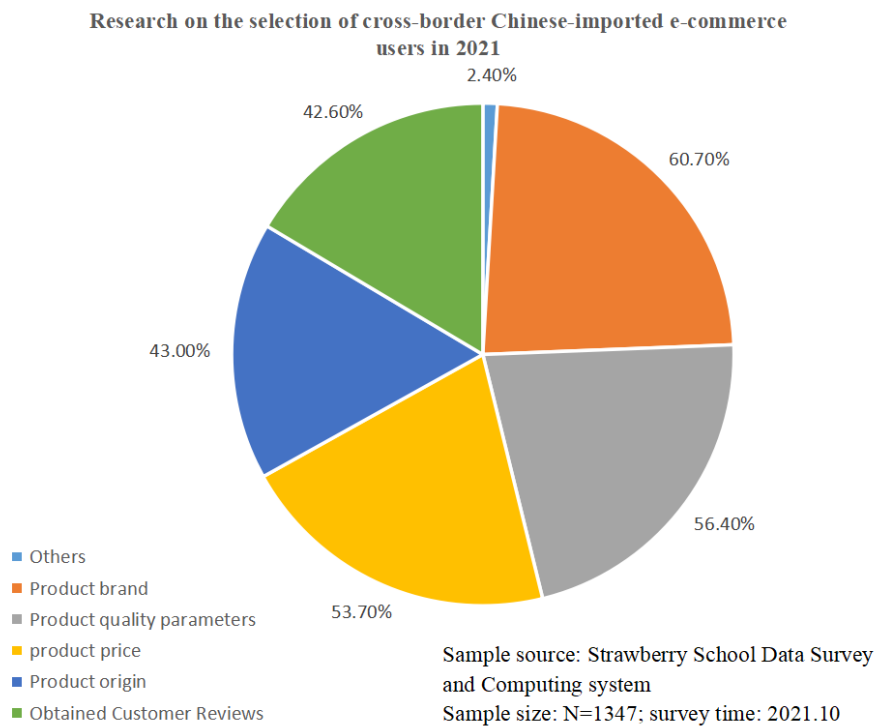
In the evolution of cross-border e-commerce transactions, the management of information flow, commodity flow, logistics, and capital flow has shifted from traditional bilateral structures to multilateralization<sup>[9]</sup>. China's domestic cross-border e-commerce has traversed three pivotal stages. Initially, it relied on large platforms like Amazon for transactions. The second stage involved building websites using the Software as a Service (SaaS) model. Presently, the trend is towards the "independent station" model, employing a Direct-to-Consumer (DTC) approach to reach overseas consumers. With stringent policies on many e-commerce platforms, independent stations have gained favor among sellers for their flexibility, detailed operation, and increased authority. This model allows sellers to collect firsthand consumer data, adapting to personalized needs. As of 2023, China has seen over 100,000 cross-border e-commerce entities, with more than 200,000 independent stations, and projections suggest the market to reach 557.9 billion US dollars by 2025.

##### **3.1.3. Upgraded consumer demands with a focus on product brands**

In response to changing consumer demands, the protection of genuine products tops the priority for 60.10% of cross-border e-commerce user platforms, followed by considerations of after-sales service quality and price. Notably, only a third of users prioritize price factors (**Figure 2**). Chinese cross-border e-commerce users exhibit an evolving consumer demand landscape, shifting away from a price-sensitive focus. When selecting products on imported cross-border e-commerce platforms, 60.7% of users consider the factor of "product brand," with over 50% also emphasizing "product quality parameters" and "product price" (**Figure 3**). This indicates a growing emphasis on brand factors and cost-performance considerations among Chinese import cross-border e-commerce users.



**Figure 2.** Research on the selection of considerations of Chinese cross-border e-commerce user platforms in 2021



**Figure 3.** Research on the selection of cross-border Chinese-imported e-commerce users in 2021

### 3.2. Problem analysis

Upon scrutinizing the aforementioned status quo, it becomes evident that China's cross-border e-commerce still grapples with certain issues impeding the industry's further development. In recent years, several factors have contributed to a significant slowdown in the growth rate of China's cross-border e-commerce. The growth appears somewhat feeble. Moreover, there is a noticeable influx of small and medium-sized enterprises entering the cross-border e-commerce arena. This surge has led to the diversification of commodities, varied presentation



formats, heightened differentiation strategies by enterprises, and escalating demands for personalized services. Consequently, the industry is experiencing intensified competition.

## **4. Development trend of cross-border e-commerce**

### **4.1. Branding**

Amidst shifts in the overseas consumption landscape, unbranded low-quality products are losing favor among consumers. The traditional spread arbitrage model may struggle to sustain a long-term virtuous circle in development. Consequently, the establishment of independent brands has become a key driver for cross-border e-commerce. From 2020 to 2022, the impact of the COVID-19 pandemic led to a shrinkage in users' consumption radius, emphasizing experience-driven and personalized shopping services. Now, with the pandemic behind us and daily life returning to normal, enterprises are no longer constrained in offline marketing activities. In response to this market shift, the previous mode of buying low, selling high, and surviving by volume or squeezing supplier loans is no longer aligned with current market demands. Enterprises must focus on enhancing brand awareness, building their own brands, and integrating online and offline development to offer offline service quality online and establish long-term customer relationships.

### **4.2. Decentralization**

In the dynamic era of the digital economy, traditional centralized e-commerce models are losing momentum. The rise of decentralized new e-commerce aligns with the trends of the social digital economy, shaping a new economic model for e-commerce. Technological progress and economic development have spurred a consumer shift towards higher quality of life and ultimate cost performance. Private e-commerce platforms that emphasize quality domestic goods and services are gaining favor among users. For instance, SHEIN, in contrast to platforms like Amazon, Wish, and eBay, employs an independent station model, focusing on content marketing, private traffic, and users to establish itself as a brand seller. The upgrading of the Internet has also driven the growth of live broadcast and graphic e-commerce, providing users with detailed and comprehensive product information. This immersive, impulsive, isolated, and individually evaluated consumption scenario can better induce consumer spending. Traditional e-commerce platform marketing is evolving, with more merchants adopting social media and influencer marketing to enhance brand influence and overall traffic transformation. Social media marketing, including live broadcasts and short videos, is proving more popular with users, yielding significant improvements in product exposure and conversion rates. Social media channels are emerging as important marketing platforms.

### **4.3. Digitalization and intellectualization**

Recent years have witnessed the pervasive influence of digital technologies such as big data, cloud computing, artificial intelligence, and blockchain on every facet of the cross-border e-commerce industry chain. These technologies have become crucial drivers for iterative innovation in the industry. Merchants and platforms leverage big data and cloud computing to analyze user profiles and order characteristics, providing more accurate personalized recommendations and services. The development and maturity of generative AI offer better product selection and marketing suggestions, while the widespread use of intelligent customer service enhances the overall shopping experience. Secure payment technology further reduces payment risks for consumers. The extensive application of digitalization and intellectualization in cross-border e-commerce opens up more development opportunities and room for innovation.

#### **4.4. Refinement and differentiation**

In addressing past challenges, such as logistics costs, platform commissions, advertising and marketing, human resources, and a focus on single categories, cross-border e-commerce is undergoing a transformative shift. Sellers are adopting a fine operational management concept, addressing these challenges through the “intensive cultivation” mode. Beyond regular tasks such as product selection, listing, and advertising, sellers optimize store products, content, and services through data analysis results to enhance user conversion rates. As customer needs become more diversified and personalized, cross-border e-commerce platforms are continuously expanding product categories, moving from a single or main product focus to overall category transformation and development. In-depth analysis of user behavior, shopping preferences, and feedback informs operational strategies that differentiate platforms, improve efficiency, and enhance competitiveness.

#### **5. Conclusion**

This paper extensively references numerous literature sources and research reports to gather the latest data supporting its content. Against the backdrop of the evolving landscape of cross-border e-commerce in China post-pandemic, the PEST model has been employed to analyze and explore the macro-environment influencing the development of cross-border e-commerce in China. The paper further forecasts the developmental trajectory of cross-border e-commerce. Armed with a comprehensive understanding of the macro environment and insights into the development trend, we are confident that China’s cross-border e-commerce is poised for a steadfast future. Continuous improvement and the prospect of better development await as the industry adapts to emerging trends and challenges.

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#### **Author contributions**

Z.P. conceived the idea of the study. L.Y. and X.C. analyzed the data and wrote the paper.

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