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Value Chain View: Cross-Border E-Commerce and Traditional Trade

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Abstract. With the rapid development of global digital trade, Cross-Border E-Commerce (CBEC) is reshaping the international trade pattern with an average annual growth rate of 20% with its unique business model and technical empowerment. Based on the theoretical framework of value chain, this paper systematically analyzes the alternative impact and co-evolution path of CBEC on traditional foreign trade by combining typical cases such as TikTok live direct selling in Jiangsu Pajama Factory and Anker technology fragmentation order operation in Shenzhen. The research shows that CBEC can reduce the transaction cost by 15%-25% through disintermediation, improve the anti-risk ability by relying on flexible supply chain, and innovate the overseas warehouse mode to reduce the performance limitation to 1/30 of the traditional mode. By building a regional storage center, CBEC can realize the nearest delivery of orders, thus shorten the delivery cycle and optimize the shopping experience of consumers. Promote the transformation of international trade from "chain structure" to "network ecology". Although commodity trade still relies on traditional channels in the short term, in the long run, the integration mode of "mixed batch export + overseas warehouse pre-position" will become the mainstream development direction. This study not only reveals the subversive influence of digital technology on traditional industries but also provides a theoretical basis and practical path for the transformation of China's manufacturing to "China Zhizao".

Keywords: value chain restructuring, cross-border e-commerce, traditional foreign trade, transaction costs, delivery efficiency

1. Introduction

In recent years, the global trade environment has presented two significant features. On the one hand, digital technology represented by artificial intelligence and big data continues to penetrate the field of international trade, giving rise to new types of business such as cross-border live streaming with goods, social e-commerce, etc. On the other hand, the new crown epidemic has accelerated the process of global supply chain reconfiguration, and the traditional foreign trade system has exposed structural defects such as insufficient risk-resistant ability and lagging response speed. Consumers can obtain demand information on the Internet and conduct capital transactions through electronic transactions and third-party platform verification, thus realizing the convenience of foreign economic trade [1]. Taking Amazon as an example, its global logistics network reaches a swift and

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efficient cross-border logistics service precisely by setting up distribution centers in each continent [2]. Under this dual drive, CBEC, as an innovative trade form integrating information flow, capital flow and logistics, is gradually replacing the dominant position of traditional foreign trade. According to the General Administration of Customs statistics, in 2024 China's CBEC import and export total amounted to 2.3 trillion U.S. dollars, accounting for the proportion of the total value of foreign trade increased to 45%, of which the growth rate of the Business to Consumer (B2C) mode is as high as 67%. This disruptive change is not only reflected in the expansion of trade scale, but also deeply reconfigured by the global value chain division of labor system - traditional foreign trade relies on the multi-level distribution system is being dissolved by the Factory to Customer (F2C) model, the intermediary commissions accounted for from 12%-18% plummeted to less than 5%.

This study selects export data from the General Administration of Customs and financial reports of head cross-border platforms such as SHEIN and Temu from 2020-2024 as analysis samples, and constructs an evaluation model containing three dimensions: payment cost, logistics time efficiency, and marketing efficiency. By comparing the digital transformation practices of enterprises such as Jiangsu Nantong Pajama Factory and Shenzhen Anker Technology, people reveal the value chain reconstruction mechanism of CBEC on traditional foreign trade. The results show that CBEC enables SMEs to break through the scale barriers of traditional foreign trade and occupy a more favorable position in the global value chain by shortening the transaction chain, optimizing the allocation of resources and innovating the fulfillment mode. The innovation of this paper is that it is the first time to incorporate "order fragmentation" into the competitiveness analysis framework and quantitatively verify the improvement effect of overseas warehouse mode on fulfillment cost.

2. Key differences between traditional foreign trade and CBEC

2.1. Features of traditional foreign trade

Traditional foreign trade has long followed the four-tier distribution system of "factory-exporter-importer-retailer", and although this multi-level circulation structure can realize the advantages of scale collection, it also leads to high transaction costs. Traditional foreign trade enterprises usually have foreign characteristics of the centralized purchase of goods transported to our territory for market sales, or our territory has the competitive advantage of the international market of goods in the same way sales to the international market [3]. Zhejiang Shengli Textile Company, for example, exports to Europe cotton pajamas need to go through three intermediate links, each level of markup averaging 8%-12%, the final consumer to bear the cost of nearly 50% higher than the ex-factory price. More seriously is that the traditional foreign trade orders show significant seasonal fluctuations in characteristics. Yiwu Commodity City 2023 export data show that the bulk purchase of a single order amounting to more than 100,000 U.S. dollars accounted for 70%, but such orders are often concentrated in the two months before Christmas release, resulting in cyclical contradictions between idle production capacity of production enterprises and inventory backlog.

2.2. Features of CBEC

CBEC reconfigures the trade chain through digital means. CBEC refers to cross-border trade between different countries done through e-commerce. The company does not need to have any physical presence in the target host market. Transactions take place over the Internet on the company's own website or on sites within third-party marketplaces. These sites can be located in the

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home country or the host country [4]. Shein's "real-time data analysis-small order quick response-precise marketing" model has compressed the traditional clothing industry's six- to nine-month production cycle to seven days, and increased inventory turnover efficiency by 300%. A pajama factory in Nantong, Jiangsu Province reached North American consumers directly through TikTok live broadcasting, and after eliminating the middleman link, the profit margin of a single product jumped from 15% to 35%. This mode of innovation not only reduces transaction costs, but more importantly, empowers SMEs to dynamically respond to market demand. The success of Shenzhen Anker Technology confirms this: the company handles more than 500 orders from more than 200 countries on average per day, and has successfully shortened the iteration cycle of rechargeable treasure products to 1/5 of traditional enterprises through the data feedback from Amazon platform.

3. Impact analysis: how CBEC challenges traditional foreign trade

3.1. Rebuilding transaction costs

At the level of transaction costs, CBEC has reconfigured the value distribution pattern through disintermediation. Capabilities in Information Technology (IT), international marketing, and export operations collectively influence e-commerce strategies and financial performance through complex interactions. Furthermore, adopting third-party e-commerce platforms reduces the contribution of exporters' IT capabilities to their e-commerce financial returns [5]. In traditional foreign trade, exporters are required to undertake complex functions such as warehousing, logistics, and customs clearance, and these hidden costs usually account for 15-20% of the value of goods. The CBEC integrated service platform (e.g., Alibaba International Station) integrates service resources through digital tools, enabling SMEs to independently complete the process of customs clearance, foreign exchange settlement, tax rebates, etc. After a foreign trade company in Hangzhou adopted Alibaba's credit insurance service, the cost of a single transaction was reduced by 22%, and the number of days of capital turnover was shortened from 28 days to 12 days. Even more revolutionary is the application of blockchain technology. The cross-border trade traceability platform launched by Ant Chain makes the settlement time of letters of credit compressed from the traditional 5-7 working days to real-time confirmation, which significantly reduces the transaction risk premium.

3.2. Changing order patterns

The fragmentation of order structure has reconstructed the market competition paradigm. The rise in B2C import and export e-commerce mode has made the export of small-lot, personalized goods the norm. This requires foreign trade enterprises not only to have a keen market insight, but also need to flexibly adjust the logistics strategy, according to the characteristics of the goods and market demand, choose the most appropriate logistics channel, in order to provide one-stop, efficient service, so as to occupy a favorable position in the highly competitive import and export e-commerce market [6]. Traditional foreign trade relies on the large-volume order model can ensure production stability but also lead to enterprises into the "price war - thin profits - weak innovation" vicious cycle. CBEC to create a "long-tail market" provides a differentiated competitive space. Hefei, a clothing company for Europe and the United States fitness crowd development of yoga clothing category, through the Amazon platform to achieve annual sales of 15 million U.S. dollars. This "small batch, high-frequency, customized" order characteristics, forcing enterprises to establish a flexible supply chain system. Somfy Garment's transformation practice is quite representative, the enterprise initially only OEM shirts for ZARA, after the transformation of CBEC through Shopify to

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build an independent station, the use of Google Trends to analyze trends, and successfully incubated its own brand, the single product selling price from OEM 8 U.S. dollars to 35 U.S. dollars, the gross profit margin increased by 337%.

3.3. Faster fulfillment

The improvement of fulfillment time has reshaped the standard of consumer experience. Under the traditional shipping mode, it takes 60-90 days for Chinese goods to reach the European and American markets, during which the risks of exchange rate fluctuations and inventory backlog are difficult to control. Information sharing between CBEC enterprises and logistics providers is facilitated by innovations in the logistics system, enabling effective control of associated costs. This results in reduced sales costs and increased profits. Additionally, customer logistics experience is enhanced, aiding in the construction of a strong brand image for CBEC businesses [7]. The smart logistics hub created by Cainiao Network in conjunction with Belgium's Liège Airport has shortened the timeframe for cross-border parcels between China and Europe from 56 days to 5 days for traditional sea transportation. More groundbreaking is the popularization of overseas warehouse mode, Xi'an International Port Area to establish the "China-European liner + overseas warehouse" system, so that the delivery cycle of domestic new energy vehicles exported to Europe from 3 months compressed to 20 days. This leap in time not only enhances customer satisfaction, but more importantly, restructures the competitive dimension of enterprises-fast delivery capability has become a new core competitiveness.

4. Controversies and future evolution

4.1. Current conflicts

The rapid development of CBEC has also triggered a series of controversies. First is the industrial security issue caused by price competition. The pricing of Chinese sellers on the Amazon platform is generally 60% lower than that of traditional foreign trade channels, leading to a collective boycott of cross-border sales by the Guangdong Foshan Furniture Industry Association. This suspicion of price dumping not only triggers trade friction but also may disrupt the ecological balance of the domestic industry. The deeper conflict is reflected in the compliance level, CBEC platforms are often seen to take advantage of the differences in tax policies of various countries to arbitrage behavior.2024 The Office of the U.S. Trade Representative accused Temu of using the $800 tax-free quota to circumvent tariffs, and the European Union immediately introduced the Digital Services Act to require platforms to fulfill the obligation of withholding and paying VAT, and these regulatory tightening initiatives have brought uncertainty to the industry. The development of CBEC fortifies export trade resilience through trade chain shortening, cost reduction, and efficiency gains, bolstering economic risk tolerance. Foreign direct investment (FDI) exerts a positive moderating influence on this CBEC-driven resilience enhancement [8].

4.2. Future trends

Despite the controversy, the integration and development of CBEC and traditional foreign trade have become an inevitable trend. Both in the short and long term, CBEC has had a positive impact on China's international trade and economic growth. Therefore, in order to promote trade and economic growth, the government should continue to support CBEC [9]. In the short term, trade in commodities will still rely on traditional channels, 83% of China's steel exports in 2024 will be

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accomplished through traditional means, and grain trade will be almost entirely offline due to quarantine requirements. But in the field of consumer goods, CBEC has accounted for 34% of the market share, and shows an accelerated replacement trend. Alibaba International Station launched the "mixed export" solution is quite revealing, through the integration of 100 SMEs orders for customs clearance, not only to retain the scale of traditional foreign trade advantages, but also into the flexibility of CBEC. Hefei Rongshida Electrical Appliances adopted this model, the microwave oven exported to the United States to reduce the cost of a single ticket by 38%, shorten the customs clearance time limit of 5 days, and successfully open up the market for small and medium-sized retailers. The evolution of industrial clusters is fundamentally dependent on key information technologies, including Internet, artificial intelligence, and information management systems. Therefore, ongoing digital innovation will drive improvements in the structure of both CBEC and traditional foreign trade [10].

5. Conclusion

The impact of CBEC on traditional foreign trade is not a simple substitution but a structural transformation of the global trade system through digital means. Unlike traditional international trade which relies on multi-tier distribution systems such as factory exporter importer and retailer and faces issues like information asymmetry CBEC requires sustainable support from information technology in areas including trading platforms product information transfer trade settlement and communication forms. Based on value chain theory and empirical data analysis this study finds that the essence of CBEC lies in reconfiguring the value distribution mechanism of trade chains. The multi-tier distribution system relied on by traditional foreign trade generates high transaction costs due to information asymmetry while CBEC realizes disintermediation through platform integration enabling small and medium-sized enterprises to participate in global competition directly by bypassing traditional agents. For example, a pajama factory in Nantong Jiangsu Province compressed intermediate links from four to one through TikTok live direct marketing doubling the profit margin of a single product. Shenzhen Anker Technology shortened the iteration cycle of rechargeable products to one-fifth of that of traditional enterprises with the help of Amazon data insights. This innovative model not only reduces transaction costs but more importantly empowers SMEs to dynamically respond to market demands promoting the transformation of global value chains from "chain structures" to "networked ecologies".

It is worth noting that traditional foreign trade has not disappeared due to the rise of CBEC, but a fundamental functional differentiation has occurred. In the field of commodities constrained by economies of scale logistics cost rigidity and international contract systems crude oil grain and other categories still rely on traditional trade channels. In 2024 83% of China’s steel exports were still completed through traditional trade a pattern difficult to shake in the short term. However, in the field of consumer goods CBEC has shown overwhelming advantages. SHEIN’s "small-batch quick-response" model increased the inventory turnover efficiency of the clothing industry by 300%. Anker Technology relied on Amazon platform data mining to identify medical scenario demands and successfully opened up a new track for charging equipment. This "functional differentiation" essentially reflects the dissolution of digital technology on traditional industrial boundaries. Enterprises with data assets can optimize through algorithms to achieve the competitive advantage of "unlimited SKUs + limited costs" while traditional foreign trade enterprises need to differentiate their positioning to find room for survival.

CBEC has a dual effect on the reconstruction of global value chains. At the efficiency level through the compression of transaction chains and optimization of resource allocation global trade

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efficiency will be enhanced by 30-50%. The intelligent logistics hub created by Cainiao Network and Belgium's Liège Airport shortened the delivery time limit for cross-border parcels from 56 days to 5 days under traditional shipping. The "72-hour service" launched by Ssitong and Cainiao increased the inventory turnover rate of small and medium-sized enterprises by more than 10 times. This efficiency leap is reshaping the international division of labor patterns. Southeast Asia Central and Eastern Europe and other emerging markets rely on CBEC to rapidly integrate into the global value chain with Malaysia even replacing the United States as China's second-largest small parcel destination country. However, at the power structure level CBEC also brings new imbalances. CBEC platforms form new "digital gatekeepers" by virtue of their control over data rights leading to issues such as platform dependency. For example, Amazon's pricing strategy for Chinese sellers is essentially a secondary redistribution of profits in the value chain by the platform.

In the face of the opportunities and challenges brought by CBEC policymakers and enterprises need to adopt differentiated response strategies. Governments should focus on improving institutional supply. On the one hand, they should establish "digital trade pilot zones" to explore regulatory frameworks adapted to CBEC. On the other hand, they should promote institutional innovations such as "digital visas" to solve the problem of origin certification under the B2C model of CBEC. Enterprises need to choose development paths according to their own characteristics. Small and medium-sized enterprises should focus on "segmented scenarios + extreme cost-effectiveness" building independent stores through platforms like Shopify to avoid head-to-head competition with traditional foreign trade. Large-scale enterprises need to build "dual-cycle" capabilities using CBEC as a market detector and innovation incubator. Alibaba International Station's "mixed-batch export" model provides an example of this. By integrating the orders of 100 SMEs to form a scale effect the logistics cost per ticket is reduced by 38% and the customs clearance time limit is shortened by 5 days. This kind of integration practice combining "traditional advantages + digital innovation" may be the key path for China's manufacturing to break through the "low-end lock" of the value chain.

Although this study reveals the restructuring mechanism of CBEC on traditional foreign trade there are still two limitations. First due to data availability accurate measurements of substitution elasticity coefficients for different industries could not be made. Second, the impact of new technologies such as artificial intelligence and the metaverse was not sufficiently predicted. Future research can be deepened in three directions. First, constructing a "CBEC competitiveness index" to quantitatively assess the digital trade endowment of different countries. Second, carrying out cross-country comparative research to reveal institutional differences in CBEC development models between China the United States and Europe. Third, exploring the possibility of reconfiguring the governance of global value chains with Web3.0 technology. With the deep penetration of digital twins blockchain and other technologies in all aspects of cross-border trade CBEC is gradually transforming from a mere "efficiency accelerator" into a new type of infrastructure supporting the operation of next-generation international trade. This technology-driven change is redrawing the underlying contours of global trade.

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