Research on the Influencing Factors of China's Cross-border E-commerce Exports to Countries Along the "Belt and Road"

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Abstract: Cross-border e-commerce, as a new form of international trade, has shown great development potential in the context of the "Belt and Road" initiative. Based on the cross-border e-commerce export data from 2015 to 2024, this paper analyzes the influencing factors of China's cross-border e-commerce exports to countries along the "Belt and Road" by constructing an econometric model. The study found that factors such as the perfection of digital infrastructure, the efficiency of logistics and transportation, the convenience of payment and settlement, and the penetration rate of consumers' online shopping significantly affect the export scale of cross-border e-commerce. Institutional factors such as the development level of e-commerce platforms in countries along the route, market access thresholds, and tariff policies also play an important role. Based on the research results, suggestions are put forward to strengthen the construction of cross-border payment system, optimize the logistics distribution network, promote customs clearance facilitation, and deepen cooperation in the field of e-commerce, to provide references for promoting the development of China's cross-border e-commerce exports to countries along the "Belt and Road."

Keywords: The Belt and Road; Cross-border e-commerce; Export trade; Influencing factor

1. Introduction

With the booming development of the digital economy, cross-border e-commerce is gradually becoming a new engine to promote the growth of international trade. In the implementation of the "Belt and Road" Initiative, cross-border e-commerce cooperation between China and countries along the route has continued to deepen, and the scale of trade has continued to expand. In-depth research on the key factors affecting China's cross-border e-commerce exports to countries along the "Belt and Road" is of great significance for grasping the development law of cross-border e-commerce and promoting trade facilitation. Based on the development status of cross-border e-commerce, an empirical analysis method is adopted to systematically explore the impact mechanism of digital foundation, logistics system, institutional environment, and other factors on cross-border e-commerce exports, to provide a basis for formulating relevant policies.

2. Cross-border e-commerce export development status

2.1. Cross-border e-commerce export scale analysis

In recent years, China's cross-border e-commerce exports to countries along the "Belt and Road" have shown steady growth. From the perspective of quarterly data changes, the third and fourth quarters of the year are the peak export season, mainly driven by holiday promotions, year-end purchases, and other factors. In terms of regional distribution, Southeast Asia has become the most important export destination with its geographical advantages and huge market potential. Relying on the advantages of land trade routes, Central Asia has witnessed the rapid development of cross-border e-commerce business, while Central and Eastern Europe have achieved sustained growth in cross-border e-commerce exports with the help of increased capacity of China-Europe freight trains. In terms of product categories, mass consumer goods such as electronic products, clothing, shoes and hats, and household items occupy the main share. As a new trade mode, cross-border e-commerce shows strong development resilience, effectively promotes the optimization and upgrading of foreign trade structure, and becomes an important force to promote the high-quality development of foreign trade [1].

2.2. Characteristics of cross-border e-commerce export structure

From the perspective of product structure, consumer goods are the leading category of cross-border e-commerce exports. Electronic products, clothing, and household goods constitute the main export commodity categories, and the market demand continues to be strong and emerging categories such as beauty, personal care, and maternal and child products have strong growth momentum, and the product structure is constantly optimized. From the perspective of market structure, ten ASEAN countries, five Central Asian countries, and Central and Eastern Europe have formed three important market segments. The ASEAN market has a significant youthful consumer group, a high penetration rate of mobile payment, and sufficient market vitality. The Central Asian market has stable demand for daily consumer goods and great potential for market development. The Central and Eastern European markets have strong consumption capacity, high quality requirements, and a relatively large demand for high-end consumer goods. From the perspective of channel structure, third-party cross-border e-commerce platforms are the main transaction channels, independent sites and social e-commerce channels are gradually emerging, and the trend of channel diversification is obvious [2].

3. Cross-border e-commerce export factors

3.1. Digital infrastructure factors

The level of digital infrastructure construction directly determines the basic conditions for the development of cross-border e-commerce exports. There are significant differences in Internet coverage among countries along the Belt and Road. Southeast Asia has a high mobile Internet penetration rate and a wide range of mobile payment applications, laying a good foundation for the development of cross-border e-commerce. The network infrastructure of some Central Asian countries is relatively weak, the bandwidth capacity is insufficient, and the network speed is slow, which restricts the cross-border e-commerce business to a certain extent. In terms of data center construction, Southeast Asia has built several large data centers to ensure the stable operation of e-commerce platforms, while the scale and number of data centers in other regions are still insufficient. The accessibility of cloud computing services also presents regional differences, with mature cloud service applications in developed regions and insufficient technical support in remote areas [3].

3.2. Logistics and transportation factors

The logistics and transportation system are the key supporting factors for cross-border e-commerce exports.

There are regional differences in the connectivity of logistics networks among countries along the routes. The China-Europe routes that have been opened provide stable and reliable freight routes in Central and Eastern Europe, while Southeast Asian ports with dense sea routes have good logistics advantages. The distribution of storage and distribution facilities is uneven; developed areas have modern logistics centers, and remote areas have insufficient storage capacity. The timeliness of international logistics is affected by the customs clearance efficiency of ports, the choice of transportation modes, and other factors, and the terminal distribution cost is high in some areas. The application degree of smart logistics is different, and advanced areas have adopted automatic sorting, intelligent warehousing, and other technologies to improve logistics efficiency. The level of logistics informatization in less developed regions is low, which means difficult to meet the needs of the rapid development of cross-border e-commerce. The coverage of the cargo tracking and positioning system is limited, and some remote areas cannot achieve full tracking, increasing logistics risks. The level of logistics infrastructure construction directly affects the timeliness and cost of cross-border e-commerce distribution, which has become an important factor restricting the expansion of export scale [4].

3.3. Payment and settlement factors

The improvement of the cross-border payment and settlement system significantly affects the development of cross-border e-commerce export business. The penetration rate of digital payment tools varies significantly among countries, and electronic wallets are widely used in Southeast Asia with high payment convenience. In some Central Asian countries, cash transactions are still dominant, and electronic payment acceptance is low. The construction of cross-border payment channels has made mixed progress, and some countries have realized direct local currency settlement, reducing the risk of exchange rate fluctuations. Other regions still need to settle through third-party currencies, increasing transaction costs. There are shortcomings in the payment security mechanism, and some regions have insufficient norms in terms of payment verification and fund supervision, which are prone to transaction disputes [5].

4. Cross-border e-commerce export optimization path

4.1. Digital level improvement strategy

To improve the level of digitalization, we need to start from two aspects: infrastructure construction and technology application. Increase investment in the construction of data centers in countries along the Belt and Road, arrange edge computing nodes, and improve network access speed and server responsiveness. Promoting the commercial process of 5G networks, expanding network coverage, and providing a high-speed and stable network environment for cross-border e-commerce applications [6]. Build a big data center for cross-border e-commerce, integrate multidimensional data such as goods, logistics, and payments, and provide support for precision marketing and decision optimization [7]. Strengthen the application of artificial intelligence technology in the field of cross-border e-commerce, develop intelligent customer service, intelligent translation, intelligent recommendation, and other functional modules, and improve the service level of the platform. We will improve the application of blockchain technology in cross-border payments and commodity traceability to enhance transaction security and trust. Construction of a cross-border e-commerce digital operation platform, order processing automation, intelligent inventory management, marketing strategy data, and improvement of operational efficiency. Pay attention to the cultivation of digital talents, carry out technical training and experience exchange, and provide talent security for digital transformation [8].

4.2. Logistics network improvement strategy

The improvement of logistics network should focus on the optimization of warehousing layout and the improvement of distribution efficiency [9]. Build overseas warehouses in key markets to realize nearby storage and rapid distribution of goods, and improve the timeliness of logistics. Improve the construction of cross-border logistics information systems, realize the tracking and positioning of goods throughout the process, and improve the transparency of logistics. We will optimize the operation routes of China-Europe freight trains, increase the density of freight trains, and provide stable and reliable land transport channels for cross-border e-commerce [10]. The construction of an intelligent logistics distribution center, the application of automatic sorting equipment, and intelligent robots improve the efficiency of logistics operations. Develop multimodal transport services, integrate air, sea, land, and other modes of transport, and reduce logistics costs. Promote the construction of logistics standardization, unify packaging specifications, waybill format, operation process, and improve the efficiency of logistics operations. Establish a cross-border logistics cooperation platform, integrate logistics resources of all parties, and realize capacity sharing and route optimization. Strengthen the construction of the terminal distribution network, expand the coverage of distribution stations, and improve the express service system [11].

5. Conclusion

China's cross-border e-commerce exports to countries along the "Belt and Road" are affected by multiple factors, including hardware elements such as digital infrastructure and logistics systems, as well as soft factors such as institutional environment and market characteristics. Through empirical analysis, it is found that measures such as improving the digitalization level, improving the logistics network, optimizing the payment system, and innovating the market expansion mode can effectively promote the development of cross-border e-commerce exports. In the future, we should continue to promote digital trade facilitation, deepen cross-border e-commerce cooperation, build a more open, inclusive, and win-win trade pattern, and promote the economic and trade relations between China and countries along the "Belt and Road" to a higher level.

Disclosure statement

The author declares no conflict of interest.

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