

# Research on the Impact of "Belt and Road" Economic Cooperation on the Scale of Cross-border E-commerce Exports of Provinces along the Belt and Road in China

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## Abstract

As a major strategic measure of China's opening up, the Belt and Road Initiative plays an important role in shaping a new pattern of comprehensive opening up. In order to further investigate its impact on the scale of cross-border e-commerce export trade in provinces along the Belt and Road in China, this paper selects China's provincial panel data from 2008 to 2019 based on the theoretical framework of the "Belt and Road" affecting China's cross-border e-commerce export trade, and uses the PSM-DID method to test its effect. The empirical results show that: (1) the "Belt and Road" economic cooperation has significantly promoted the export trade of cross-border e-commerce in provinces along the route of China; (2) Compared with the "Belt and Road" region, the effect of the "Belt and Road" economic cooperation on the "Belt and Road" region is more obvious, and the enhancement effect on the southwest, northwest and northeast regions of the "Belt and Road" is gradually decreasing. Finally, according to the analysis results of this paper, suggestions are made for the development of cross-border e-commerce export trade in provinces along the "Belt and Road" from multiple perspectives.

## Keywords

Belt and Road; Cross-border E-commerce Export Trade; Provinces along the Route.

## 1. Introduction

Since the Belt and Road Initiative was proposed in 2013, this win-win policy will revitalize the economic and trade axis of the Silk Road[1], providing a broad platform for international economic and trade exchanges among countries along the "Belt and Road", and also bringing unprecedented opportunities for the economic development of provinces along the "Belt and Road" in China. At the same time, with the popularization of the Internet and the continuous improvement of the level of global informatization, the "Internet +" initiative has continuously promoted the combination of traditional trade and new technologies, allowing the rapid development of cross-border e-commerce, a new form of trade in China [2]. In accordance with General Secretary Xi Jinping's relevant instructions on the "Belt and Road", the Ministry of Commerce has included cross-border e-commerce in the "Belt and Road" issue, and "Silk Road E-commerce" has become a new channel and new highlight of China's economic and trade cooperation, providing a path for China's export enterprises to transform trade.

The "Belt and Road" economic cooperation has brought major opportunities for the development of provinces along the route in China and has a significant impact on all walks of life. The "Belt and Road" economic cooperation has been implemented for many years, which has significantly promoted the growth of China's overall exports to participating countries along the route[3], and has driven the further development of China's cross-border e-commerce, escorting China's cross-border e-commerce enterprises to "go global". Due to the

characteristics of cross-border e-commerce itself, the statistics of its data have become a problem, and it is difficult to accurately estimate the policy impact of the "Belt and Road" on it. However, in order to promote China's further comprehensive opening up and clear guidance to the construction of "Silk Road e-commerce", we need to answer the following questions: How much impact will the "Belt and Road" economic cooperation have on the scale of cross-border e-commerce exports of provinces along China? How does it act on China's cross-border e-commerce export trade? How to better play this macro policy to serve the further development of China's cross-border e-commerce export trade? The starting point of this research is to solve the above series of problems, so as to more intuitively understand the net benefits of the "Belt and Road" economic cooperation. The new crown pneumonia epidemic has caused a huge impact on traditional offline foreign trade, and the combination of traditional foreign trade enterprises and cross-border e-commerce will become a strong driving force for China's foreign trade enterprises to go against the current. Therefore, in today's context, studying the relationship between trade facilitation policies such as the "Belt and Road" economic cooperation and China's cross-border e-commerce export trade, and providing guidance for the improvement of the development level of cross-border e-commerce, will help China's cross-border e-commerce enterprises maximize the use of the "Belt and Road" dividend to promote the growth of cross-border e-commerce export trade, which is of great significance to ensure the steady development of China's foreign trade economy.

## 2. Literature Review

### 2.1. Research on the Influencing Factors of Cross-border E-commerce Export Trade

The export of cross-border e-commerce is affected by many factors, and scholars today mostly analyze it from the perspectives of policy, Internet and geography. First, policy factors. Zhu Pengyu[4]examined the influencing factors of cross-border e-commerce development based on China's interprovincial panel data from 2013 to 2020. The results of this study show that cross-border e-commerce policy and cross-border e-commerce infrastructure construction are important influencing factors affecting cross-border e-commerce in China. Based on the panel data of 34 cities in China from 2003 to 2018, Wen Huwei [5] analyzed the impact of China's cross-border e-commerce policy on China's export trade by using the synthetic control method, and the study concluded that the policy significantly promoted the export trade scale of pilot cities. Second, the Internet factor. Zhang Weinian[6]adopted the multiple regression method and proposed that Internet penetration rate is a key factor in the development of cross-border e-commerce. Thirdly, geographical factors. Ma Shuzhong et al. (2019) analyzed the impact of geographical distance on cross-border e-commerce based on the relevant data of cross-border e-commerce enterprises in China in 2017, and empirically concluded that cross-border e-commerce reduced transportation costs and the impact of unfamiliar effects on trade, so as to conclude that cross-border e-commerce exports are less negatively affected by geographical distance. Liang Huijun[7]uses the mediation effect model, based on cross-border e-commerce data between China and countries along the "Belt and Road", and empirically analyzes that cross-border e-commerce can drive bilateral trade growth by reducing the geographical distance between trading parties. Lendle et al[8]took eBay as the analysis object and found that the impact of distance factors on eBay was reduced by 65%, that is, cross-border e-commerce can greatly get rid of the impact of distance, which he believes comes from the reduction of search costs. Kim pointed out that cross-border e-commerce can avoid the influence of geographical factors by reducing physical barriers, cost barriers, and time barriers.

## 2.2. Research on the Impact of the "Belt and Road" on the Development of Provinces along the Route of China

In recent years, research on the impact of the "Belt and Road" on the development of provinces along China's routes has mainly focused on three aspects: economic development, tourism development, and other industry development. First, the impact on economic development. Guo Aijun[9] used China's provincial panel data from 2006 to 2016 to analyze the impact of the "Belt and Road" on the open economic development level of provinces along China's provinces based on PSM-DID empirical methods. The results show that the "Belt and Road" economic cooperation has promoted the open economic development of regions along China. Li Cangqi [10] used China's provincial panel data from 2000 to 2016 to study the relationship between the "Belt and Road" policy and the increase of fixed assets in various provinces in China based on the PSM-DID method. The study believes that the "Belt and Road" economic cooperation has failed to promote the increase of fixed assets in provinces along China. Second, the impact on the development of culture and tourism.

## 2.3. Literature Review

Literature combing shows that most of the literature on the economic effects of the "Belt and Road" focuses on the macro impact of the policy on China's cross-border e-commerce. At present, few scholars are based in China and pay attention to the impact of the "Belt and Road" policy on the cross-border e-commerce export trade of provinces, municipalities and autonomous regions along the "Belt and Road" in China. However, at present, some scholars have studied the net policy effect of the "Belt and Road" economic cooperation on the development of various industries in China from the provincial level, such as the economic development, cultural industry, tourism, tea, and insurance industry of the provinces along the route. Unfortunately, there is little literature that discusses the impact of BRI economic cooperation on its cross-border e-commerce export trade from a provincial perspective. This paper intends to systematically analyze the theoretical mechanism of the "Belt and Road" affecting the scale of cross-border e-commerce export trade, using the relevant data of 31 provinces in China for a total of 12 years before and after the "Belt and Road" policy from 2008 to 2019, based on the analysis ideas of quasi-natural experiments, to promote the scale of cross-border e-commerce export trade in 18 provinces along the route, and explore the impact path of its policy effects, so as to provide empirical evidence and policy suggestions for provinces along the route to seize the opportunities of the "Belt and Road" and vigorously develop cross-border e-commerce export trade.

## 3. The Theoretical Mechanism of the "Belt and Road" Affecting the Scale of China's Cross-border E-commerce Export Trade.

### 3.1. The "Belt and Road" Promotes Regional Economic Integration along the Route

Regional economic integration is one of the important trends in the development of today's world economic framework and an important embodiment of economic globalization. The Belt and Road Initiative is an important strategy for China to promote world globalization and regional economic integration. The impact of the implementation of this policy on the scale of cross-border e-commerce transactions in China is reflected in two aspects: economic dynamic effect and static effect.

#### 3.1.1. In Terms of Economic Dynamic Effects

The "Belt and Road" economic cooperation has brought a large market effect to China's cross-border e-commerce enterprises, which can also be said to be an economy of scale effect. One of the priorities of the "Belt and Road" cooperation, unimpeded trade, on the one hand, gradually

reduces the trade barriers between the countries along the route, and then allows the markets between the countries along the route to merge into a huge regional market. This expansion of market scope is conducive to cross-border e-commerce enterprises to continuously increase their production scale and form internal economies of scale, thereby effectively reducing the production cost of their unit export products, and ultimately enhancing the international competitiveness of cross-border e-commerce enterprises in countries along the Belt and Road to similar enterprises in non-member countries, and increasing the trade and export scale of cross-border e-commerce enterprises in countries along the "Belt and Road"; On the other hand, the reduction of trade barriers and the large market effect brought about by unimpeded trade have significantly reduced the price of China's cross-border e-commerce export products into foreign currency, which in turn has brought tangible benefits to China's cross-border e-commerce enterprises, increased the demand for residents along the route to purchase goods from China's cross-border e-commerce platforms, and thus increased the scale of China's cross-border e-commerce enterprises' trade exports.

### **3.1.2. In Terms of Economic Static Effects.**

First, the "Belt and Road" economic cooperation has brought trade creation effects to Chinese cross-border e-commerce enterprises along the route. Countries along the Belt and Road will reduce tariff and non-tariff barriers to each other and build a good business environment for countries in the region, so the export cost of cross-border e-commerce will be significantly reduced, and trade between countries along the Belt and Road will increase, so trade between countries has been created. Second, the Belt and Road economic cooperation has brought trade diversion effects to countries along the route. After the Belt and Road economic cooperation between member countries, some cross-border trade between member countries and non-members may be replaced by cross-border trade between member countries. If the trade to be replaced is inefficient or costly, it will improve the terms of trade for countries, and vice versa.

## **3.2. The Technology Gap Facilitates Cross-border Trade**

The technology gap theory was put forward by the American scholar Posner, which believes that the technological gap between countries will affect the availability of products, thereby making mutually beneficial trade possible.

There are certain differences in the economic development levels of countries along the "Belt and Road", especially some countries with relatively backward economic development levels compared with China, such as some ASEAN countries. The product research and development technology of such countries is in its infancy, and the technology of some of China's export products is far ahead of them. Therefore, relative to China, these countries are in a period of mastery or reaction lag. Their people have consumer demand for cross-border e-commerce products exported to China, but due to the technological gap between them and Chinese cross-border e-commerce enterprises, enterprises in these countries are temporarily unable to imitate China's export products, and then residents of economically backward countries along the route have greater import demand for some of China's cross-border e-commerce export products. As a catalyst, the reduction of import consumption costs brought by the "Belt and Road" economic cooperation and cross-border e-commerce export forms will effectively expand their consumer demand for China's cross-border e-commerce goods, thereby promoting the further expansion of China's cross-border e-commerce exports.

## **3.3. Take Advantage of the Introduction Period to Expand Trade**

The product life cycle theory was proposed by the American scholar Vernon, which believes that products have an introduction period, a growth period, a mature period and a decline period. It points out that at each stage of the product life cycle, the input costs required for production are different, and the comparative advantages of enterprises in various countries

will change dynamically, which will bring about FDI and international trade behavior of enterprises.

The "Belt and Road" economic cooperation has brought a broad market to China, including the markets of less developed countries, and China's cross-border e-commerce innovative enterprises can export cross-border e-commerce products to economically underdeveloped countries along the route by virtue of their position in the introduction period. At the same time, Chinese cross-border e-commerce enterprises can export their mature and declining products to countries along the "Belt and Road" in the mode of export or foreign direct investment, which not only fully promotes the transformation and upgrading of China's cross-border e-commerce enterprises and increases their market share; At the same time, it is conducive to China's digestion of excess production capacity and alleviating the pressure of excessive development of the secondary industry.

## 4. Conclusions and Policy Recommendations

### 4.1. Conclusion

First, overall, the implementation of the "Belt and Road" economic cooperation has significantly promoted the export trade scale of cross-border e-commerce in provinces along China. Through the empirical analysis of DID and PSM-DID, this paper concludes that the net effect of the "Belt and Road" economic cooperation policy is a positive promotion effect. With or without the addition of other control variables, the net effect of the policy on the provinces along the route was significant at the level of 1%. The empirical results pass the validity test of double differential tilt score matching, including parallel trend test, random generation experiment time test, and exclusion extreme region test. Therefore, this conclusion is robust.

Second, from the perspective of influencing factors, in addition to the impact of the "Belt and Road" economic cooperation on the cross-border e-commerce export trade of provinces along the "Belt and Road", the social and economic activity, the concentration degree of economic resources, the economic development degree of the provinces, the informatization level of each province and the stock of human capital can all have a significant positive impact on the scale of cross-border e-commerce export trade in the provinces along the "Belt and Road".

Third, from the perspective of different regions, the economic cooperation of the "Belt and Road" has shown different degrees of promotion to the provinces along the "21st Century Maritime Silk Road" and the "Silk Road Economic Belt". Although China's cross-border e-commerce has developed by leaps and bounds since the "Belt and Road" economic cooperation was proposed, it was "dragged down" by factors such as the lagging economic development of the regions along the route, and the implementation of the "Belt and Road" policy has not significantly increased the scale of cross-border e-commerce export trade in all provinces along the route. Through the heterogeneity analysis of the provinces along the "One Belt" and "One Road", this paper finds that the scale of cross-border e-commerce export trade in the provinces along the "Maritime Silk Road" is promoted by the "Belt and Road" economic cooperation, which is significant at the level of 1%. On the other hand, the "Belt and Road" economic cooperation has little impact on the overall promotion of cross-border e-commerce entry and exit of the "Silk Road Economic Belt" and the northeast region, and its policy effect is not significant, but the northwest region and southwest region are significant and positive effects at the level of 10% and 5% respectively, indicating that the "Belt and Road" economic cooperation has a significant role in promoting the northwest and southwest regions of the "Silk Road Economic Belt".

## 4.2. Policy Recommendations

Based on the research results of this paper, the countermeasures and suggestions for further promoting the scale of cross-border e-commerce export trade in provinces along China's "Belt and Road" are as follows:

Solidly promote economic cooperation along the Belt and Road. The "Belt and Road" economic cooperation has lasted for more than 8 years, and after the research and analysis of this article, this policy has made important contributions to promoting the development of cross-border e-commerce export trade in provinces along China. It is necessary to further promote the "Belt and Road" and give full play to its leading effect. There is still huge room for development in some provinces along the "Belt and Road", and these provinces can take advantage of the "Belt and Road" dividend. In addition, most of the countries along the "Belt and Road" are developing countries, and the GDP is still relatively low, but ensuring a high economic growth rate will provide China with a broad cross-border e-commerce export market in the long run.

Continue to promote trade facilitation. In the "Belt and Road" economic cooperation, policy communication, equipment connectivity and unimpeded trade have brought great trade facilitation to China's cross-border e-commerce export enterprises and countries along the route. "Policy communication" enhances cooperation between governments and avoids the barriers that companies create by being in different national systems. Infrastructure interconnection provides a strong transportation guarantee for countries along the export route of China's cross-border e-commerce enterprises. Equipment connectivity has promoted the construction of port equipment in various countries along the Belt and Road, and further improved the cross-border logistics environment along the "Belt and Road". Unimpeded trade has greatly improved the efficiency of cross-border e-commerce trade between countries, and reduced or even gradually reduced many barriers and obstacles in trade. Relevant departments should learn from this experience and promulgate more trade facilitation policies that are conducive to the export of our provinces. Strengthen the infrastructure construction of cross-border e-commerce. This paper shows that the level of informatization has a significant role in promoting the scale of China's cross-border e-commerce export trade. Considering the gap in the development of China's eastern and western regions, including the imbalance of information construction such as the Internet. Relevant government departments should increase the construction of infrastructure related to cross-border e-commerce such as the Internet, increase efforts to improve the level of informatization in various regions, and improve a solid material foundation for the development of cross-border e-commerce export trade.

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