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Cross-Border E-Commerce Trade and Industrial Clusters: Evidence from China

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Abstract: Combining the theories of cross-border e-commerce trade, industrial cluster management, coordinated development, and sustainable development, this paper explores the problem of the coordinated development path of China's cross-border e-commerce trade and industrial clusters. The research purpose of this paper is to propose relevant suggestions to promote the sustainable coordinated development of cross-border e-commerce trade and industrial clusters by revealing the inherent scientific laws of the sustainable coordinated development of them. By using a literature survey method, structural equation method, and system analysis method, on the basis of constructing a model for the coordinated development of cross-border e-commerce trade and industrial clusters, this paper conducts in-depth empirical analysis combined with relevant research data and draws research conclusions. The research conclusions of this paper are as follows: (1) This paper verifies all the research hypotheses proposed. All the research hypotheses proposed in this paper are supported by valid data and have passed the empirical test. (2) Using data to scientifically prove that there is an obvious positive correlation between cross-border e-commerce trade and industrial clusters. (3) There is an obvious positive interaction between the main components of cross-border e-commerce trade and the main components of industrial clusters. Moreover, under the influence of the external environment, the two component systems can also promote the sustainable coordinated development of cross-border e-commerce trade and the sustainability of industrial clusters. (4) This paper puts forward countermeasures and suggestions to promote the sustainable coordinated development of cross-border e-commerce trade and industrial clusters.

Keywords: cross-border e-commerce; industrial clusters; collaborative paths; hypothesis testing

1. Introduction

According to data released by the General Administration of Customs of China, in 2021, China's cross-border e-commerce trade volume was RMB 1.98 trillion, an increase of 15%; of which cross-border e-commerce exports were RMB 1.44 trillion, an increase of 24.5%. In recent years, China's cross-border e-commerce trade volume has continued to grow steadily. At the same time, the industrial cluster-type development model has become the core industry feature of the development of cross-border e-commerce trade. In other words, the development of China's cross-border e-commerce trade requires the coordinated development of a series of industrial clusters of various types of enterprises, governments, universities, and related institutions. In particular, with the continuous development of China's "One Belt, One Road" initiative and the smooth implementation of the Regional Comprehensive Economic Partnership (RCEP) agreement, China's cross-border e-commerce trade volume will inevitably increase further, and the relationship between industrial clusters and cross-border e-commerce trade will have an impact on cross-border

e-commerce. The degree of influence of commerce and trade is also increasing rapidly. Cross-border e-commerce will be an effective way to upgrade industrial clusters, and industrial clusters will also provide industrial support for the development of cross-border e-commerce. The two are relatively independent with mutually influencing synergistic development relationships. That is to say, the coordinated development of cross-border e-commerce and industrial clusters is a systematic project to realize the transformation and upgrading of industrial clusters and foreign trade. Only on the basis of the coordinated development of the two can we effectively promote the sustainable development of China's cross-border e-commerce trade. Especially with the advent of the era of Industry 5.0, the market demand for "personalized customization" of cross-border e-commerce trade is expanding, and the technical level requirements for the development of related industrial clusters are increasing. Driven by the market demand for "personalized customization", the development of cross-border e-commerce trade will also put forward new development requirements for the technical application direction of industrial clusters. In this context, the sustainable coordinated development of industrial clusters and cross-border e-commerce trade has become the focus of more and more scholars.

It can be seen from reviewing the previous research literature of relevant scholars that there are very few papers directly aimed at the sustainable coordinated development of cross-border e-commerce and industrial clusters. In recent years, most scholars have mainly focused on the following three aspects.

(1) Research on the interactive relationship between international trade and industrial clusters.

Compared with domestic trade, the overall transaction process of international trade is more complex, the transaction cycle is longer, and the transaction risk is greater. There are more influencing factors, especially the impact of the international environment. In recent years, various international issues such as trade wars, military conflicts between local regions, and the COVID-19 epidemic have had a huge impact on the current global international trade [1,2]. Therefore, the development of international trade requires the full cooperation of upstream and downstream enterprises, as well as the cooperation of a series of subjects such as international logistics, international financial systems, banks, customs, and trade intermediary companies, which will induce the emergence of industrial clusters [3,4]. In particular, with the continuous improvement of the level of international trade liberalization, the degree of industrial agglomeration will also increase [5]. On the other hand, as the scale of a country's industrial clusters continues to expand, the country's cost of participating in international trade will be reduced, and the efficiency of international trade will also be improved. Thus, it would promote the country's comprehensive competitiveness in international trade [6,7]. That is to say, with the continuous improvement of the level of industrial clusters, the scale of international trade will also expand [8,9]. In particular, it should be pointed out that industrial clusters have a very vital role in promoting a country's export trade [10] and the industrial cluster has a certain import substitution effect on the import trade [11]. This is mainly due to the fact that a country will reduce the import trade scale of related products when a domestic industrial cluster is significant [12], because under the background of the development of industrial clusters, by optimizing the resource allocation required for the production of related enterprises and improving the degree of information sharing, enterprises can reduce the comprehensive costs of production, manpower and information, thereby improving their export competitiveness in the international market [13]. Additionally, industrial clusters have a certain import substitution effect on the import trade because the production capacity of the cluster industry has been greatly improved, and the production efficiency is also improved in the case of significant domestic industrial clusters [14], thus reducing the country's import trade scale of related products to a certain extent. It can be seen that there is a relatively in-depth interaction between international trade and industrial clusters. In particular, the interaction between the export trade and industrial clusters is more obvious. Moreover, the interaction between international trade and industrial clusters is also relatively complex.

In different environments, the interaction paths and directions between the two are also different [15].

(2) Research on the interactive relationship between e-commerce and industrial clusters.

E-commerce has a more significant role in promoting industrial clusters. In recent years, the popularity of information technology and the Internet infrastructure has increased, and e-commerce in countries around the world has developed rapidly [16]. The e-commerce trade volume of various countries is also expanding [17]. In the process of e-commerce transactions, in order to reduce the transaction links, reduce transaction costs, and realize more targeted transaction activities, related enterprises will also contribute to the development of industrial clusters [18]. A series of related entities such as related product manufacturers, logistics and trading platforms must produce a strong industrial cluster effect [19–21]. Only after the industrial cluster effect reaches a certain level, can the relevant elements and production costs necessary for the production of enterprises be reduced, which can also promote the rapid development of e-commerce activities [22]. Moreover, the development of e-commerce requires industrial clusters to provide a solid foundation for development [23]. Furthermore, since the development of this e-commerce development requires the high-quality integration of more information, technology, high-quality talents and other elements, such as technological resources, information resources, human resources, and funds, the relevant factors of production are aggregated to a certain extent. In the context of the obvious aggregation of social production factors, the phenomenon of social industrial clusters will also be formed. When a region's e-commerce develops to a certain level, the local industrial cluster will also form a larger agglomeration scale and effect [24]. It can be seen that the development of e-commerce drives the rapid clustering of a country's industries to a certain extent. On the contrary, industrial clusters also guarantee the rapid development of e-commerce to a large extent. Meanwhile, the interaction between e-commerce and industrial clusters is very sensitive and obvious; however, the specific interaction path between e-commerce and industrial clusters has not been convincingly discussed and researched among current scholars [25].

(3) Research on the interaction between cross-border e-commerce and industrial clusters.

The development of cross-border e-commerce will also affect the development of industrial clusters to a certain extent [26]. The development of cross-border e-commerce must be the result of the distribution of production factors among different countries or regions [27] and countries participating in cross-border e-commerce all participate in international trade cooperation and a division of labor by virtue of their own production factor advantages [28]. Therefore, a country will inevitably form a certain industrial agglomeration in the production of products that intensively use its own abundant factors and resources. When a country's industrial agglomeration reaches a certain level, the country's cross-border e-commerce export trade will form a certain comparative advantage and have a certain degree of international export trade competitiveness [29]. Therefore, that country will have an obvious advantage in the cross-border e-commerce export trade of such advantageous products [30,31]. It can be seen that there is a certain interactive relationship between the development of a country's cross-border e-commerce and industrial clusters. Colovic believes that the interaction between the cross-border e-commerce trade and industrial clusters is very complex, and there are great differences in the interaction between cross-border e-commerce trade and the related industrial clusters carried out in different countries [32]. Suleiman believes that the interaction between China's cross-border e-commerce trade and industrial clusters began in 2003 [33], which is when China's cross-border e-commerce trade began to flourish. In this context, the relationship between China's cross-border e-commerce trade and industrial clusters has only begun to emerge and until now, there have been no relevant scholars carrying out more in-depth and convincing research on the interaction between the cross-border e-commerce trade and industrial clusters [34]. Therefore, more scholarship is needed to explore the interaction between China's cross-border e-commerce trade and industrial clusters.

To sum up, although relevant scholars have carried out certain researches on e-commerce, industrial clusters and other issues, which have laid an important research foundation for subsequent scholars to carry out related researches, there are still certain deficiencies in the scholars' research that need to be improved: (1) The relevant theoretical research literature on cross-border e-commerce is relatively rare. (2) The research literature on the interaction between cross-border e-commerce and industrial clusters is also very rare. (3) There are relatively few relevant research literatures using empirical methods to study the impact of China's social and economic environment on the upgrading of industrial clusters. Based on the shortcomings of the previous scholars' research, this paper takes China as an example to explore the inherent laws of the interactive development of cross-border e-commerce and industrial clusters. At the same time, the industrial clusters studied in this paper mainly refer to the enterprises, specialized suppliers, service providers, financial institutions, and related industries that have competitive and cooperative relations in a specific area and are geographically concentrated and interrelated groups composed of manufacturers and other related institutions [35].

The research objectives of this paper are as follows: (a) The paper will reveal the interaction between the main components of the cross-border e-commerce trade and the main components of industrial clusters. (b) The paper will explore the role of the external environment on the coordinated development of a cross-border e-commerce trade and industrial clusters. (c) The paper will put forward countermeasures and suggestions to promote the sustainable coordinated development of the cross-border e-commerce trade and industrial clusters.

The contributions of this paper are as follows: (a) The theoretical research content of this paper can enrich the theoretical content of the research on the coordinated development of cross-border e-commerce and industrial clusters to a greater extent. (b) The research conclusions of this paper can provide an important reference for China to further develop its cross-border e-commerce trade activities and promote the upgrading of China's industrial clusters. (c) The application of the empirical research method in this paper further extends and expands the application field and scope of the research method. (d) This paper explores the relationship between the cross-border e-commerce trade and the sustainable coordinated development of industrial clusters in combination with external environmental factors, adding a new perspective for studying such issues.

The research structure of this paper is arranged as follows: First of all, the internal law of the sustainable coordinated development of cross-border e-commerce and industrial clusters is summarized. Secondly, it builds a theoretical model of the interaction between cross-border e-commerce and industrial clusters and puts forward specific assumptions for this study. Thirdly, on the basis of testing the reliability of the data, it carries out specific empirical analysis, including the degree of fit test and the analysis of the coordinated development path. Finally, this paper summarizes the research conclusions of this paper, and puts forward suggestions to promote the sustainable coordinated development of China's cross-border e-commerce and industrial clusters.

2. Mechanism of the Coordinated Development of Cross-Border E-Commerce and Industrial Clusters

2.1. Analysis of Components

Based on the research of relevant scholars, combined with cross-border e-commerce theory, industrial cluster theory and sustainable development theory, it can be concluded that there are four main subsystems in the sustainable interaction between cross-border e-commerce and industrial clusters, including a cross-border e-commerce subsystem, industrial cluster subsystem, production factor subsystem and external environment subsystem [36,37], as shown in Figure 1.
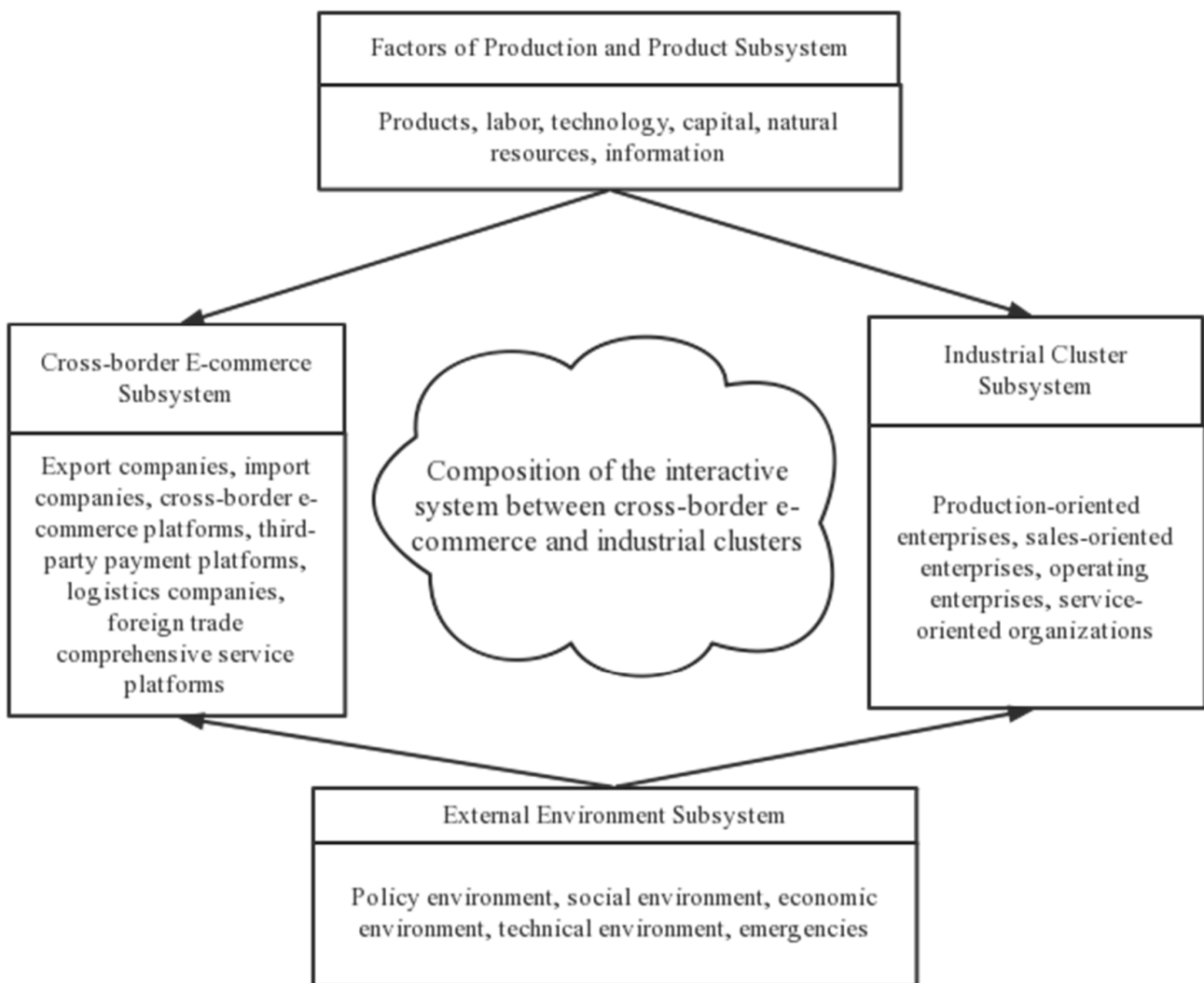
Figure 1. The composition of the interactive system between cross-border e-commerce and industrial clusters.

(1) Cross-border e-commerce subsystem.

Different from the traditional trade system, the composition of the cross-border e-commerce trade system has its own unique characteristics. In particular, the unique features that are closely integrated with internet technology are more obvious [38]. From the perspective of the specific cross-border e-commerce system composition, the cross-border e-commerce subsystem mainly includes cross-border e-commerce export enterprises, cross-border e-commerce import enterprises, cross-border e-commerce product manufacturers, and cross-border e-commerce trading platforms, third-party payment platforms, cross-border e-commerce logistics companies, overseas warehouses, bonded warehouses, cross-border e-commerce and foreign trade comprehensive service platforms, etc. These elements together constitute the cross-border e-commerce trade system [39,40]. In this subsystem, every component is indispensable. In the absence of any part, it is difficult to carry out continuous development and these contents together form a comprehensive trade system that cooperates and supports each component.

(2) Industrial cluster subsystem.

Industrial clusters refer to the geographically concentrated and interconnected enterprises, specialized suppliers, service providers, financial institutions, manufacturers of related industries and other related institutions that have competitive and cooperative relations in a specific area [41,42]. The depth and complexity of different industrial clus-

ters are also different. The industrial cluster represents a new form of spatial economic organization between the market and the hierarchy. The industrial cluster system mainly includes production-oriented enterprises, sales-oriented enterprises, operating enterprises, service-oriented organizations and other types of subjects [33]. These subjects together constitute the industrial cluster system. In this system, different subjects interact to form a unified organic whole. At the same time, all the components in the subsystem can ensure the sustainable development of the industrial cluster under the condition of coordinated development [43].

(3) Production factors and product subsystem.

The system mainly includes products and production factors. Among them, the product mainly refers to the key production products in the industrial cluster, or the target commodity in the cross-border e-commerce trade. The factors of production here mainly include information elements, technical elements, capital elements, labor elements, and natural resources elements [44,45]. These factors affect the development of industrial clusters and cross-border e-commerce trade to varying degrees. The above elements will also promote the sustainable development of the subsystem under the condition of a sufficient supply and reasonable configuration.

(4) External environment subsystem.

In the interactive system of cross-border e-commerce trade and industrial clusters, in addition to the cross-border e-commerce trade subsystem, industrial cluster subsystem, production factors and product subsystems and other subsystems, there is also an external environment subsystem. This is mainly because in the process of interaction between the cross-border e-commerce trade and industrial clusters, it will still be affected and acted upon by various factors in the external environment, and even play a boosting or restricting role [46]. Specifically, the external environment subsystem includes the policy environment, social environment, economic environment, technical environment, emergencies and so on. These environmental elements are not static but are in dynamic change [47]. Moreover, there are also great differences in the effect of these external environments on the cross-border e-commerce trade and industrial clusters [48]. It can be seen that the impact of the external environment on cross-border e-commerce trade and industrial clusters is a relatively complex relationship within a complex system.

2.2. Analysis of the Mechanism of Collaborative Development

By analyzing the constituent elements of cross-border e-commerce trade and industrial clusters, and combining the continuous interactive effect between the two, scholars have found that there is a sustainable synergistic development relationship between the cross-border e-commerce trade and industrial clusters [49]. Based on the research literature of relevant scholars [50], cross-border e-commerce trade theory, industrial economics theory, sustainable development theory, etc., this paper summarizes the inherent law of the coordinated development of cross-border e-commerce trade and industrial clusters. The specific situation is shown in Figure 2.

(1) Cross-border e-commerce trade has led to a new direction of change in industrial clusters.

Traditional industrial clusters are just a simple combination of some related industries; however, the transformation of industrial clusters stimulated by a cross-border e-commerce trade is a new development direction and feature. On the basis of traditional trade, the cross-border e-commerce trade further shortens the distance between the product manufacturers and final consumers and changes the channels and forms of traditional trade. In cross-border e-commerce trade, the buyers' needs of enterprises have undergone great changes, and the products traded have also undergone great changes. Therefore, many changes have taken place in the production mode, management mode, and operation mode of enterprises under the industrial cluster system. For example, in the cross-border e-commerce trade, there are many types of enterprises such as original equipment manufacturers (OEM) and original design manufacturers (ODM). In addition, cross-border e-commerce platforms

such as Amazon, eBay, and Wish have strong intellectual property protection for products sold on their platforms. Therefore, cross-border e-commerce export enterprises should also strengthen their own brand building to meet the rules and requirements of cross-border e-commerce platforms. It can be seen that the development of a cross-border e-commerce trade has continuously led the industrial cluster to undergo a new direction of change [51].
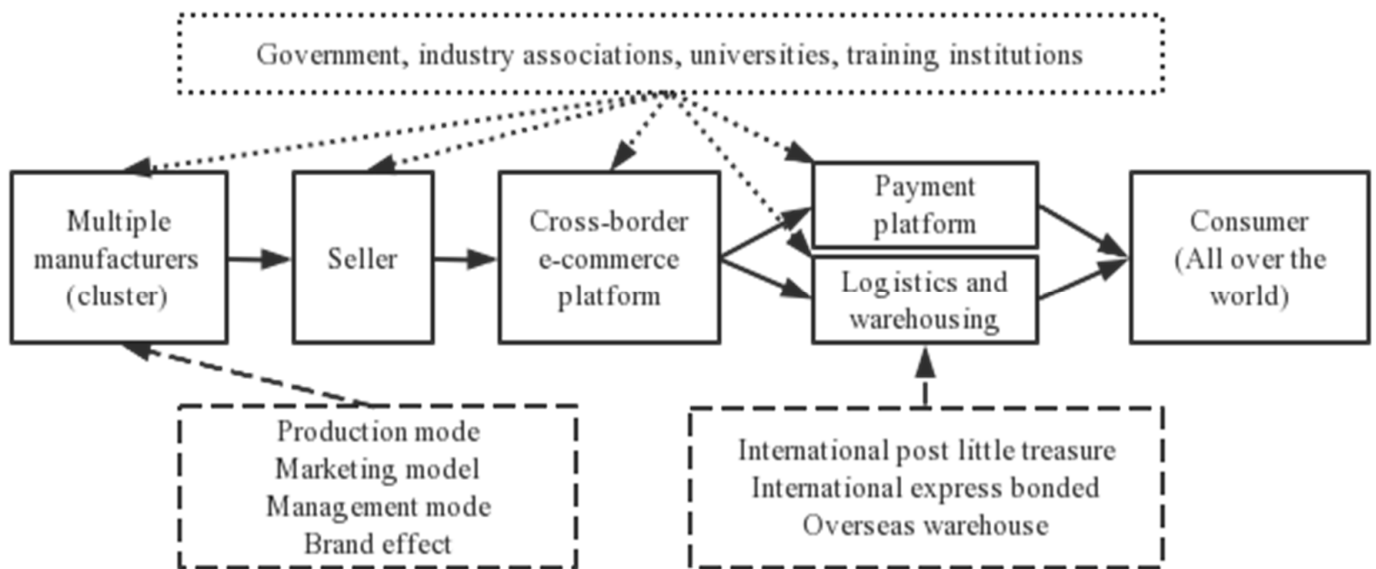

Figure 2. The coordinated development path of cross-border e-commerce and industrial clusters.

(2) Cross-border e-commerce trade can continuously expand the geographical scope of the influence of industrial clusters.

Cross-border e-commerce trade extends the geographic scope of the international trade sales market, and also expands the scale of consumer groups. Cross-border e-commerce ensures that consumers in every part of the world can participate in cross-border e-commerce trade activities through a cross-border e-commerce platform, internet technology and international express delivery. Therefore, especially for the industrial clusters of the exporting countries of the cross-border e-commerce trade, the influence scope of their industrial clusters has been further expanded. In other words, in the context of the cross-border e-commerce trade, industrial clusters not only affect the development of local industries and traditional international trade markets, but also affect all regional markets in the world that can participate in that cross-border e-commerce trade. It can be seen that the development of the cross-border e-commerce trade has indeed expanded the scope of influence of industrial clusters to a large extent, and this expansion of the scope of influence is also sustainable.

(3) Cross-border e-commerce trade can sustainably enhance the effectiveness of industrial clusters.

With the development of the cross-border e-commerce trade, many new global rules, new concepts and new technologies in the international trading market will penetrate into the industrial development of countries around the world. Especially for some cross-border e-commerce export trading countries, they must be keenly aware of market characteristics such as intellectual product protection rules, new product production technologies, and new consumer preferences in the international market. In this context, industrial clusters should also be adjusted accordingly to ensure that products meet the needs of the international market consumers and meet the rules of the cross-border e-commerce trade. It can be seen that the effectiveness of industrial clusters can not only play its role in traditional international trade, but also further strengthen its important effectiveness based on the cross-border e-commerce trade. This also means that the cross-border e-commerce trade has a significant role in sustainably promoting industrial clusters.

(4) Industrial clusters can sustainably stimulate the expansion of cross-border e-commerce export trade.

In the absence of industrial clusters, the comprehensive production capacity of the industry is significantly weaker. This is mainly due to the low utilization efficiency of related resources and the weak ability of industrial coordinated development. Once an industrial cluster is formed, enterprises with similar production products can carry out significant cooperation and resource sharing, which can optimize the allocation level of related resources, improve the logistics efficiency, and strengthen warehousing capacity. At the same time, enterprises in industrial clusters can also build technology alliances to enhance their technology research and development capabilities, improve their production efficiency, and reduce production costs. Under this background, the production capacity of enterprises in an industrial cluster will be greatly improved, and the international market competitiveness will naturally be effectively improved. Under the background of a strong product supply capacity, the ability to carry out cross-border e-commerce export trade will naturally be effectively improved, which can stimulate the continuous expansion of the cross-border e-commerce trade scale. It can be seen that industrial clusters can effectively stimulate the continuous expansion of the scale of a cross-border e-commerce export trade.

(5) The institutional environment regulates the sustainable coordinated development of cross-border e-commerce trade and industrial clusters.

In the process of a coordinated development of cross-border e-commerce trade and industrial clusters, it will also be regulated and influenced by the external institutional environment. The relevant institutional environment includes the relevant laws and regulations issued by the customs of various countries for cross-border e-commerce, the relevant tax system formulated by the government finance department for enterprises engaged in cross-border e-commerce trade, and the quality supervision of cross-border e-commerce products issued by the commodity quality supervision department—the cross-border e-commerce platform's restraint system for cross-border e-commerce buyers and sellers. These institutional environments will affect the coordinated development of the cross-border e-commerce trade and industrial clusters at different levels and with continuous improvement of the relevant institutional environment, the coordinated development of cross-border e-commerce trade and industrial clusters will be more efficient. Therefore, the relevant companies must be able to fully adapt to these external environments, so as to carry out cross-border e-commerce trade and industrial cluster activities in compliance with laws and regulations. Only after fully adapting to the external environment will the relevant institutional environment help promote the sustainable coordinated development of cross-border e-commerce and industrial clusters.

Compared with the sustainable coordinated development path in the coordinated development model of other entities and industrial clusters, the sustainable coordinated development of cross-border e-commerce trade and industrial clusters has its own distinctive features. The specific characteristics of the sustainable coordinated development of cross-border e-commerce trade and industrial clusters are shown in Figure 3.

(1) Extensive.

In the process of sustainably coordinated development of cross-border e-commerce trade and industrial clusters, cross-border e-commerce trade involves a wide range of commodity categories, trade cooperation areas, trade entities, trade platforms, and settlement channels, and this breadth continues to develop and expand. Therefore, the industrial clusters that develop in coordination with the cross-border e-commerce trade also show strong characteristics of extensive industries and products. In this context, the sustainable coordinated development of the cross-border e-commerce trade and industrial clusters has jointly formed the basic characteristics of extensiveness [52].
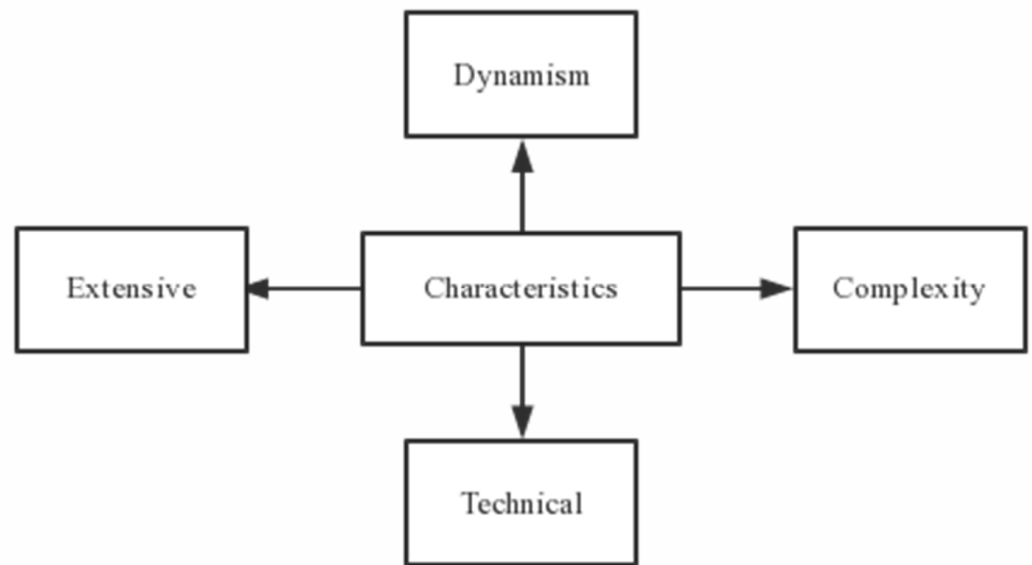
Figure 3. Characteristics of the sustainably coordinated development of cross-border e-commerce and industrial clusters.

(2) Dynamic.

In recent years, the cross-border e-commerce trade has developed into a sunrise industry in the world and its development is very rapid. Especially under the influence of the new crown epidemic, the global cross-border e-commerce trade volume have grown rapidly. Under the combined effect of factors such as cross-border e-commerce trade participants, the trade environment, trade settlement channels, and cross-border e-commerce platforms, the content of cross-border e-commerce trade in terms of trade volume and trade form has undergone dynamic changes. In order to achieve high-quality coordinated development and matching relationships, industrial clusters must also undergo certain changes. On this basis, the sustainable coordinated development of cross-border e-commerce trade and industrial clusters naturally presents obvious dynamic characteristics [53].

(3) Complexity.

Judging from the current situation of cross-border e-commerce trade development, companies or individuals from all countries in the world can participate in cross-border e-commerce trade based on access to the Internet. As a result, the sources, product categories, settlement channels, and logistics channels of cross-border e-commerce trade participants have become very complex. This determines the complexity of the cross-border e-commerce trade; however, in order to be able to match the supply and demand of various types of products, the industrial cluster also becomes very complex. Under the combined effect of the above-mentioned complex situations, the sustainable coordinated development of cross-border e-commerce trade and industrial clusters has also shown significant complexity [54].

(4) Technical.

Different from traditional international trade, activities such as trading platforms, product information transmission, trade settlement, and trade communication forms in cross-border e-commerce trade must be based on the sustainability support of the relevant information technology. At the same time, the development of industrial clusters is also inseparable from the support of a large number of information technologies, such as internet technology, artificial intelligence technology, and information management technology. Therefore, in the process of sustainably coordinated development of the cross-border e-commerce trade and industrial clusters, bilateral technologies must be integrated and matched in complexity, thus, technical characteristics are formed [55].

3. Theoretical Models, Hypotheses and Data Testing

3.1. Theoretical Models and Hypotheses

In this study, the empirical research will be carried out using the structural equation method. There are three reasons for choosing this research method: (1) The structural equation method has been widely used and recognized by scholars, and its research is very accurate and scientific [22]. (2) Many scholars have used the structural equation model to study the evolution relationship between dependent variables and independent variables. The application of this method is more common, and the research conclusions are more reliable [34]. (3) The characteristics of the dependent and independent variables in this paper are very consistent with the basic requirements of the structural equation method [40]. Therefore, this paper uses the structural equation method to carry out empirical research.

By combing the research literature and survey scales of scholars such as Amit [42], Evers [44], and Li [50], and based on the variable needs of the structural equation model, this paper summarizes the latent variables that affect the coordinated development of cross-border e-commerce trade and industrial clusters. These latent variables related to industrial clusters include the status of industrial clusters (A1), the level of service institutions in the industry (B1), the institutional environment and enterprise relations (B2), and the status of production factors (B3). The latent variables related to cross-border e-commerce trade include cross-border e-commerce status (A2), cross-border market and logistics (B4), the cross-border e-commerce trade system environment (B5), and international settlement (B6). Through the design of these latent variables, the scale and structural characteristics of each cross-border e-commerce trade subsystem and industrial cluster subsystem can be reflected to a large extent. At the same time, combined with the characteristics of latent variables and the structural equation model's requirement that the latent variables contain more than two measurable variables, this paper designs a multi-observed variable scale that affects the coordinated development of cross-border e-commerce trade and industrial clusters. The specific content of the observed variable scale is shown in Table 1. In order to ensure the rationality of the research questionnaire in this paper, this paper uses the Likert scale method to conduct research on 29 specific items. The answer to each item corresponds to 1 point, 2 points, 3 points, 4 points and 5 points, respectively. Among them, a score of 5 indicates a very good agreement, a score of 4 indicates a good agreement, a score of 3 indicates a good agreement, a score of 2 indicates a poor agreement, and a score of 1 indicates a very strong disagreement.

Table 1. Variables of the coordinated development of cross-border e-commerce and industrial clusters.

Items	Latent Variable	Latent Variable	Items
Educational service organization C1	Industry service organization level B1	Industry cluster status A1	Number of companies in the cluster C26
Economic services organization C2			
Industry council C3			
Scientific research organization C4			
Industrial division C5	Institutional environment and enterprise relations B2		
Business competition C6			
Industrial cooperation C7			
Production facilities C8			
Incentive regulation C9			GDP within a cluster C27
Environment system C10			
Manpower availabilityC11	Factors of production status B3		
Investment scale C12			
Raw material situation C13			

Table 1. *Cont.*

Items	Latent Variable	Latent Variable	Items
Market demand C14			
Cross-border marketing capabilities C15			
Cross-border sales C16	Cross-border market and logistics B4		Number of cross-border e-commerce entities C28
International logistics level C17			
International logistics price C18			
Cross-border e-commerce related regulations C19		Cross-border e-commerce situation A2	
Customs management system C20	Cross-border e-commerce trade institutional environment B5		
Port transportation regulations C21			
Number of free trade areas C22			Human resources related to cross-border e-commerce C29
International payment speed C23			
International payment platform C24	International settlement B6		
International payment procedure C25			

Based on the research summary of relevant scholars [19–23], this paper constructs a theoretical model of the sustainable collaborative development relationship between cross-border e-commerce trade and industrial clusters (as shown in Figure 4). Among them, the industrial cluster status subsystem includes the level elements of service institutions in the industry, the institutional environment and enterprise relationship elements, and the status of production factors. The cross-border e-commerce situation subsystem includes cross-border markets and logistics, and cross-border e-commerce trade, institutional environment and international settlement. There is a sustainable interaction between the industrial cluster subsystem and the cross-border e-commerce trade subsystem. At the same time, there is also a sustainable mutual relationship between the components that constitute the industrial cluster subsystem and the components that constitute the cross-border e-commerce trade subsystem. These elements work together in a complex system. In the process of interaction between these elements, under the joint action of internal kinetic energy, the external environment and other factors, the goal of sustainable coordinated development of the cross-border e-commerce trade and industrial clusters can finally be achieved.
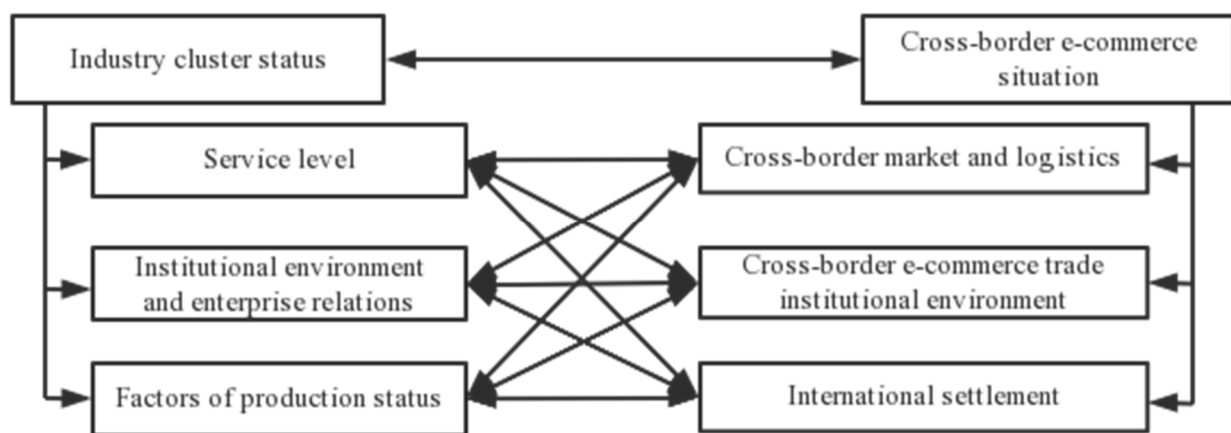

Figure 4. Theoretical model of sustainable coordinated development of cross-border e-commerce trade and industrial clusters.

Based on the construction of the previous theoretical model, in order to explore the sustainable coordinated development relationship between cross-border e-commerce trade

and industrial clusters in a more in-depth and targeted manner, this paper further combines the research literature of related scholars to put forward the research hypothesis. The specific assumptions and references are shown in Table 2.

Table 2. Research hypothesis and its references.

Category	Serial Number	Hypothetical Content	References
Industry cluster subsystem hypothesis	H1	The level of service in the industry has a positive impact on the status of industrial clusters	Trreola [4], Ottaviano [6]
	H2	The status of production factors has a positive impact on the status of industrial clusters	
	H3	Institutional environment and enterprise relationship have a positive impact on the status of industrial clusters	
Cross-border e-commerce subsystem hypothesis	H4	Cross-border market and logistics have a positive impact on cross-border e-commerce	Friesen [7], Tanaka [8], Kato [10]
	H5	International settlement has a positive impact on cross-border e-commerce	
	H6	The cross-border e-commerce trade system environment has a positive impact on cross-border e-commerce	
Complex synthetic system hypothesis	H7	The level of business service institutions and cross-border markets are positively correlated with logistics	Sun [14], Gefen [16], David [18], Koufaris [22], Chandra [23]
	H8	There is a positive correlation between the level of business service institutions and international settlement	
	H9	There is a positive correlation between the level of business service institutions and the institutional environment of cross-border e-commerce trade	
	H10	Factors of production conditions and cross-border markets are positively correlated with logistics	
	H11	There is a positive correlation between the status of production factors and international settlements	
	H12	The status of production factors is related to the institutional environment of cross-border e-commerce trade	
	H13	Institutional environment is positively correlated with corporate relations and cross-border markets and logistics	
	H14	Institutional environment is positively correlated with corporate relations and international settlement	
	H15	Institutional environment is related to corporate relations and cross-border e-commerce trade institutional environment	
	H16	Cross-border e-commerce trade is positively correlated with industrial clusters	

3.2. Data Testing

3.2.1. Data Collection and Processing

Before starting the large-scale questionnaire survey, this research first selected 3 cross-border e-commerce companies, distributed 30 survey questionnaires, analyzed the returned survey questionnaires, eliminated invalid questions and unreasonable content, and finally determined the questionnaire items for this paper.

In order to ensure the scientificity and validity of the research data in this paper, the research subjects selected for this research were mainly from the many representative cities in China that develop cross-border e-commerce trade, such as Shenzhen, Guangzhou, Hangzhou, Shanghai, Ningbo, Tianjin, Beijing, Dalian, Harbin and other places. From the perspective of the specific scale of the companies surveyed, 20% of the companies have an annual revenue of more than RMB 100 million, 40% of the companies have an annual revenue of RMB 10 million to RMB 100 million, and 40% of the companies have an annual revenue of less than RMB 100 million. The surveyed subjects included middle and senior leaders of cross-border e-commerce enterprises, cross-border e-commerce marketing specialists, cross-border e-commerce store sellers, cross-border e-commerce platform supervisors, personnel of relevant industry associations, and professors in related professional fields in colleges and universities. From the perspective of industrial clusters, the industries surveyed included toys, footwear, clothing, daily necessities, small household appliances, textiles, and lighting. It can be seen that the industries surveyed in this study were significantly representative.

The distribution forms of the survey questionnaires included face-to-face surveys, e-mail, and WeChat. A total of 532 survey questionnaires were distributed, with 503 questionnaires recovered, and invalid ones were excluded. Finally, 481 valid questionnaires were obtained, and the effective questionnaire rate was 90.41%.

3.2.2. Reliability and Validity Tests

In this study, the statistical software SPSS22.0 was used to test the reliability and validity of the survey sample data. In order to ensure the smooth development of the follow-up test, this paper first conducts an exploratory factor analysis, and combines the extracted factor structure to judge the validity of the scale, so as to select the item that is most suitable for explaining the latent variables. Furthermore, this paper will carry out the reliability test of the selected items.

After considering the research conclusions of previous scholars [39–42], we can know that when the Kaiser–Meyer–Olkin (KMO) value is less than 0.5, it is not suitable for factor analysis. This paper divides the scales into a cross-border e-commerce trade scale, industrial cluster scale and exogenous latent variable scale, and conducts the KMO test and Bartleet test for these three scales, respectively. The test results show that the KMO values of the three latent variables were all greater than 0.7, and the obvious probability *p* values were all 0.000, indicating that it was suitable for factor analysis. Then, the factors of the observed variables were extracted and the principal component analysis method was used, and the items with a factor loading greater than 0.5 were retained after processing by the maximum variance rotation method. After deleting items inconsistent with the previous setting and items with a factor loading less than 0.5, the reliability of the extracted common factors was checked. The specific factor loading matrix and reliability values are shown in Tables 3–5, respectively.

When the difference between the extracted common factor and the original factor is relatively small, it means that the overall validity of the scale is good [6]. In the factor extraction of this paper, the factor loading of the raw materials, market demand and international payment procedures were all less than 0.5. After removing these inappropriate items, a factor analysis was performed on the data again. The cumulative variance contribution rates of the three subscales were 71.932%, 70.281% and 72.904%, all greater than 70%. The Cronbach's α coefficients of the latent variables with the factor loading of the reserved items greater than 0.5 were greater than 0.7. The above data means that the questionnaire data in this paper had good reliability and validity. Therefore, the data investigated in this paper can be used for the empirical analysis that follows.

Table 3. Reliability and validity test results of industrial cluster subsystem.

Variable	Components			Number of Observed Variables	Cronbach's α
	1	2	3		
C1	0.814				
C2	0.592			4	0.853
C3	0.803				
C4	0.847				
C5		0.739			
C6		0.722			
C7		0.760		6	0.842
C8		0.613			
C9		0.608			
C10		0.672			
C11			0.787	2	0.809
C12			0.741		

Note: The data comes from factor extraction and reliability analysis of SPSS22.0 software. The extraction method was principal component analysis. The rotation method was the Kaiser standardized maximum variance method.

Table 4. Reliability and validity test results of cross-border e-commerce subsystem.

Variable	Components			Number of Observed Variables	Cronbach's α
	1	2	3		
C15	0.783				
C16	0.702			4	0.732
C17	0.755				
C18	0.691				
C19		0.602			
C20		0.693		4	0.728
C21		0.725			
C22		0.763			
C23			0.852	2	0.839
C24			0.831		

Note: The data comes from factor extraction and reliability analysis of SPSS22.0 software. The extraction method was principal component analysis. The rotation method was the Kaiser standardized maximum variance method.

Table 5. Reliability and validity test results of exogenous latent variables.

Variable	Components		Number of Observed Variables	Cronbach's α
	1	2		
C28	0.854		2	0.844
C29	0.839			
C26		0.891	2	0.850
C27		0.739		

Note: The data comes from factor extraction and reliability analysis of SPSS22.0 software. The extraction method was principal component analysis. The rotation method was the Kaiser standardized maximum variance method.

4. Empirical Analysis

4.1. Research Methods

The research methods and steps of this paper are as follows:

Step 1: Reliability and validity testing. The paper uses this method to test the reliability and validity of the relevant research data, so as to prove and ensure the scientificity and accuracy of the research data.

Step 2: Fit test. In order to judge whether the evaluation of the theoretical model and the collected data were suitable, this paper chooses the fit test method to test accordingly. Only after passing the test can follow-up related research be carried out.

Step 3: Structural equation method. This paper uses the structural equation method for regression analysis. The structural equation model includes two basic models, namely, the measurement model and the structural model. The regression path coefficient and the standardized regression path coefficient together represent a numerical value of the relationship between the latent variables and the degree of the relationship between the latent variables and observed variables. The structural model is mainly to analyze the relationship between latent variables. The size of the path coefficient in the model indicates the strength of the correlation between the latent variables.

4.2. Fit Test

Based on the research of relevant scholars, it can be known that the fitness index is an important criterion for evaluating whether the theoretical model is suitable for the collected data [43–45]. This indicator needs to judge the degree of consistency between the theoretical model and the sample data according to the fit of the structural equation model. Before judging the degree of fit, it is necessary to check whether there is a violation of the estimation in the model and whether the estimated value of each parameter is reasonable. A violation of estimation often has the following five situations: (1) Negative error variance occurs. (2) The correlation coefficient of standardized estimates is greater than 1. (3) The covariance matrix or correlation matrix is a non-positive definite matrix. (4) The standardized coefficient exceeds or is very close to 1. (5) There is a very large or extremely small standard error.

In the data study in this paper, the data did not exhibit a negative error variance. The covariance correlation coefficient in this paper is between -0.482 and 0.693, which are all less than 1, and there is no non-positive definite matrix. At the same time, the standardized estimates in this research all exceed 0.95, and there is no extreme standard error. It can be seen that, according to the above test situation, the model designed in this research does not violate the estimation phenomenon, so the overall fitness of the model can be tested.

During the fit test of the initial model, the value of $\frac{x^2}{df}$ was 4.990, GFI was 0.529, CFI was 0.903, PGFI was 0.431, NFI was 0.904, and IFI was 0.794. Only the CFI and NFI reached the reference standard, and the other fitting indices did not reach the reference standard. Therefore, the model needs to be further revised and improved.

Based on the AMOS revised index suggestion, the revised index between e11 (abundance of human resources in industrial clusters) and e12 (investment scale in industrial clusters) was the largest. Therefore, these two items should be amended first. It also shows that the assumption that there was no relationship between the abundance of human resources in the industrial cluster and the scale of investment is false. From a theoretical point of view, there is a certain positive correlation between human resource adequacy and investment scale in industrial clusters. Thus, the need to re-fit the model after establishing the relationship between e11 and e12. In the same way, e2 (brokerage service organization) and e3 (industry committee) were also revised, and the relationship between e2 and e3 was re-fitted. Then, two amendments were made to e9 (incentive regulation) and e10 (institutional environment), e17 (international logistics level) and e18 (international logistics price), e20 (customs management system) and e21 (port transportation regulation). The final revised model is basically close to the reference standard, see Table 6 for details.

By looking at the data in Table 6, it can be seen that the final correction results of the model all reach the adaptation standard or critical value. Therefore, it can be judged that the theoretical model proposed in this research can be adapted to the obtained data, and follow-up in-depth research can be carried out.

Table 6. Revised model fitting results.

Fit Metrics	Reference Standard	Test Result	Model Fit Judgment
$\frac{e^2}{df}$	<5	2.730	Yes
GFI	>0.9	0.952	Yes
RMSEA	<0.1	0.093	Yes
CFI	>0.9	0.948	Yes
NFI	>0.9	0.953	Yes
IFI	>0.9	0.998	Yes
PGFI	>0.5	0.783	Yes

Note: Data from AMOS 24.0 software analysis.

4.3. Collaborative Development Path Analysis

The data were analyzed using the structural equation method to obtain the corresponding empirical analysis results. In the structural equation method, the structural equation model includes two basic models, namely, the measurement model and the structural model [33]. The regression path coefficient and the standardized regression path coefficient can jointly represent the relationship between latent variables and the degree of relationship between latent variables and observed variables. The structural model is mainly to analyze the relationship between the latent variables. The size of the path coefficient in the model indicates the strength of the correlation between the latent variables [34]. Based on the results of the structural model path estimates in Table 7, it can be seen that the regression path coefficients of all hypotheses have reached an obvious level of 0.001.

Table 7. Path estimation results of the structural model.

Hypothesis	Path	Normalized Path Coefficients	Path Coefficient	S. E.	C. R.	P	Conclusion
H1	A1←B1	0.239	0.144	0.031	3.417	***	Support
H3	A1←B2	0.153	0.105	0.062	2.762	***	Support
H2	A1←B3	0.478	0.292	0.084	4.381	***	Support
H4	A2←B4	0.203	0.172	0.075	5.164	***	Support
H6	A2←B5	0.436	0.288	0.108	5.208	***	Support
H5	A2←B6	0.381	0.362	0.062	3.518	***	Support
H16	A2↔A1	0.472	0.293	0.042	4.299	***	Support
H7	B1↔B4	0.581	0.112	0.039	3.683	***	Support
H9	B1↔B5	0.569	0.098	0.047	4.872	***	Support
H8	B1↔B6	0.633	0.183	0.038	5.490	***	Support
H13	B2↔B4	0.704	0.199	0.037	3.682	***	Support
H15	B2↔B5	0.617	0.232	0.027	4.552	***	Support
H14	B2↔B6	0.663	0.386	0.037	5.803	***	Support
H10	B3↔B4	0.589	0.182	0.036	3.720	***	Support
H12	B3↔B5	0.604	0.315	0.041	5.639	***	Support
H11	B3↔B6	0.703	0.243	0.032	5.218	***	Support

Note: Data from AMOS 24.0 software analysis. *** represents the obvious level $p < 0.001$.

In the structural equation model, the measurement equation mainly describes the relationship between the latent variables and observed variables. To test whether the selected observed variables are scientifically accurate, and how well they explain the latent variables, we can find out the factors that have the most obvious impact on the latent variables, so as to propose countermeasures accordingly. As can be seen in Table 8, the specific results of the path hypothesis test between the latent variables of cross-border e-commerce and the coordinated development of industrial clusters. The path test results of the structural model show that there is an obvious positive relationship between the status of cross-border e-commerce trade and the status of industrial clusters, and there is also a strong path dependence between the components of the two subsystems. The path assumptions made in the theoretical research and analysis part of this paper have also been verified. Therefore, it is possible to formulate policies to promote the sustainable

coordinated development of cross-border e-commerce trade and industrial clusters based on the correlation path of the main components of the subsystem.

Table 8. Path inspection results.

Hypothesis	Result	Hypothesis	Result
H1	Pass	H2	Pass
H3	Pass	H4	Pass
H5	Pass	H6	Pass
H7	Pass	H8	Pass
H9	Pass	H10	Pass
H11	Pass	H12	Pass
H13	Pass	H14	Pass
H15	Pass	H16	Pass

Based on the data in Table 9, it can be judged that the selected observed variables can effectively reflect the status of latent variables. The details are as follows: (1) Industry committee (C3, standardized path coefficient is 0.815) was the most significant component of the latent variables of the business service organization level (B1). (2) Industrial cooperation (C7, the standardized path coefficient is 0.791) was the most significant element in the latent variables of the institutional environment and enterprise relations (B2). (3) Manpower sufficiency (C11, standardized path coefficient is 0.884) was the most significant component of the latent variable of the production factor status (B3). (4) The level of international logistics (C17, standardized path coefficient is 0.815) was the most significant component of the latent variables in cross-border market and logistics (B4). (5) Port transportation regulation (C21, the standardized path coefficient is 0.714) was the most significant component of the latent variable in the cross-border e-commerce trade institutional environment (B5). (6) The speed of international payment (C23, the standardized path coefficient is 0.825) was the most significant component of the latent variable of international settlement (B6). (7) The number of enterprises in the cluster (C26, the standardized path coefficient is 0.893) was the most significant component of the latent variable of the industrial cluster status (A1). (8) Human resources related to cross-border e-commerce (C29, the standardized path coefficient is 0.714) was the most significant component of the latent variables of cross-border e-commerce (A2).

Table 9. Measurement model path estimation results.

Path	Standardized Coefficient	Path Coefficient	S. E.	C. R.	P	Conclusion
C1←B1	0.807	0.884	0.052	10.483	***	Support
C2←B1	0.733	0.816	0.081	12.719	***	Support
C3←B1	0.815	1.000				Support
C4←B1	0.702	0.663	0.047	9.548	***	Support
C5←B2	0.737	0.757	0.092	10.429	***	Support
C6←B2	0.558	0.602	0.074	9.088	***	Support
C7←B2	0.791	1.000				Support
C8←B2	0.683	0.625	0.085	9.720	***	Support
C9←B2	0.732	0.783	0.099	11.593	***	Support
C10←B2	0.681	0.651	0.095	12.740	***	Support
C11←B3	0.884	1.000				Support
C12←B3	0.701	0.676	0.108	9.884	***	Support
C15←B4	0.673	0.610	0.074	11.739	***	Support
C16←B4	0.620	0.513	0.063	11.903	***	Support
C17←B4	0.815	1.000				Support

Table 9. *Cont.*

Path	Standardized Coefficient	Path Coefficient	S. E.	C. R.	P	Conclusion
C18←B4	0.771	0.891	0.074	12.885	***	Support
C19←B5	0.694	0.731	0.103	9.714	***	Support
C20←B5	0.615	0.698	0.085	8.903	***	Support
C21←B5	0.714	1.000				Support
C22←B5	0.709	0.890	0.093	8.430	***	Support
C23←B6	0.825	1.000				Support
C24←B6	0.739	0.940	0.087	10.719	***	Support
C26←A1	0.893	1.000				Support
C27←A1	0.856	0.962	0.094	9.439	***	Support
C28←A2	0.709	0.671	0.092	10.719	***	Support
C29←A2	0.714	1.000				Support

Note: Data from AMOS software analysis. *** represents the obvious level $p < 0.001$.

5. Conclusions and Countermeasures

5.1. Conclusions

Based on the empirical test results of the structural equation model in the previous study, it can be seen that there is an obvious positive correlation between the cross-border e-commerce subsystem and the industrial cluster subsystem, and that the specific standardized path coefficient is 0.472. At the same time, there is a strong correlation between the main components of the cross-border e-commerce trade subsystem and the industrial cluster subsystem. The specific standardized path coefficients are not equal to 0 at the 0.001 obvious level.

First of all, cross-border e-commerce trade and industrial clusters can promote the deep integration and sustainable coordinated development of the two through their own development as well as interactive development of their subsystems. This coordinated development can promote the transformation and upgrading of industrial clusters and the comprehensive construction of cross-border e-commerce. This is mainly because in the process of the interaction between the two subsystems, different constituent elements can achieve an automatic matching relationship with each other, and can also support and promote each other, so as to promote the mutual coordinated development of the two sides, ultimately helping to promote cross-border e-commerce trade and a sustainable coordinated development of industrial clusters.

Secondly, from the microscopic level, the constituent elements of the cross-border e-commerce trade and industrial cluster subsystems also have strong mutual effects. In Table 7, it can be seen that the degree of action between the related components: B1↔B6, B2↔B4, B2↔B5, B2↔B6, and B3↔B5, have strong path correlations, with standardized path coefficients all greater than 0.6. Therefore, it is the main realization path for the coordinated development of cross-border e-commerce trade and industrial clusters. However, B1↔B4, B1↔B5, and B3↔B4 also have obvious path relationships. The path coefficients are all less than 0.6. It is a realization path of the coordinated development of industrial clusters, but it mainly plays an auxiliary role.

To sum up, by summarizing the empirical research results in this paper, it can be judged that the two subsystems of China's cross-border e-commerce trade and industrial clusters can not only influence each other, but also sustainably coordinate their development. Therefore, in the process of promoting the coordinated development of cross-border e-commerce trade and industrial clusters, it is necessary to formulate targeted measures based on the constituent elements of the subsystems of both parties.

5.2. Suggestions

5.2.1. Improve the Relevant Government Management System and Encouragement Policy Guarantee

In order to continuously promote the sustainable coordinated development of cross-border e-commerce trade and industrial clusters, the relevant government management

departments should, on the one hand, comprehensively combine the development status of the cross-border e-commerce trade and industrial clusters, and formulate relevant management systems for the coordinated development of the two. A targeted supervision and management mechanism should also be developed for the respective development of cross-border e-commerce trade and industrial clusters. The relevant management departments can strengthen the relevant supervision mechanisms by adding management agencies and supplementing and improving the relevant management systems. On the other hand, the relevant government management departments can also take some encouraging safeguard measures to promote the sustainable coordinated development of cross-border e-commerce trade and industrial clusters. For example, increasing the tax incentives for relevant cluster enterprises, reducing export tariffs for cross-border e-commerce trade, and simplifying the import and export procedures for cross-border e-commerce trade. The active implementation of the above measures can promote the sustainable coordinated development of cross-border e-commerce trade and industrial clusters to a certain extent.

5.2.2. Promoting Innovation in Industrial Cluster Management

In view of the outdated and low-efficiency problems of China's previous industrial cluster development model, various industrial cluster management models closely related to cross-border e-commerce trade need to be further innovated and improved. From the perspective of the specific means of industrial cluster management innovation, various innovative activities such as organizational innovation, industrial structure innovation, technological innovation, operation model innovation, enterprise cooperation model innovation, enterprise strategy innovation, marketing innovation, and brand management innovation can be carried out. Adopting the above industrial cluster management innovation model can improve the management efficiency of industrial clusters, improve the cooperation momentum of the industrial clusters, and then help to promote the efficient operation of those industrial clusters. Therefore, in the context of the development of efficient industrial clusters, combined with the characteristics of cross-border e-commerce trade development, the sustainable coordinated development of cross-border e-commerce trade and industrial clusters can be effectively promoted to a large extent.

5.2.3. Strengthen the Atmosphere of Cross-Border E-Commerce Trade

In China, cross-border e-commerce trade is still a relatively new thing and the development time in China has been relatively short. There are still many enterprises or individuals who do not understand the development of cross-border e-commerce trade. Therefore, it is particularly important to increase the promotion of cross-border e-commerce trade in China and strengthen the atmosphere of cross-border e-commerce trade. In the process of strengthening the cross-border e-commerce trade atmosphere, the measures that relevant entities can take include strengthening the media publicity of cross-border e-commerce trade, increasing the scope of publicity for cross-border e-commerce talent recruitment, expanding the product sales market for cross-border e-commerce import trade, improving the influence of the B2B cross-border e-commerce export trade, and expanding the influence of the cross-border e-commerce trade by holding cross-border e-commerce competitions. The active implementation of the above-mentioned relevant measures can strengthen the atmosphere for China to carry out its cross-border e-commerce trade. Under the background that the cross-border e-commerce trade atmosphere has been effectively strengthened, the sustainable coordinated development of China's cross-border e-commerce trade and industrial clusters can be effectively promoted.

5.3. Limitations and Implications for Future Research
5.3.1. Limitations

There are still some deficiencies in this paper. First of all, this paper only considers the influence process of the external environment on the coordinated development of the cross-border e-commerce trade and industrial clusters, but this paper does not research

the influence process of other factors on the development of the two systems, such as government policy factors, cross-border e-commerce organizational change and technological change factors within the enterprise. Secondly, in this study, due to the relatively short time of China's development of a cross-border e-commerce trade, it is difficult to collect relevant data and the sample is relatively small. Third, during the research process, due to the limitations of the paper length, personal energy and other factors, this paper only uses the more traditional research methods such as a fit test and structural equation and does not use other relatively novel research methods. These studies are insufficient to be further improved.

5.3.2. Implications for Future Research

Based on the shortcomings of the above research, in the future research, the authors will focus on making up for the above research shortcomings. In the future research, we will further study the role of government policies, internal changes in cross-border e-commerce enterprises and other factors on the coordinated development of the cross-border e-commerce trade and industrial clusters. The data sample for the study will also be expanded to increase the credibility of the study's conclusions. It will also use more novel research methods to explore the synergistic and sustainable development relationship between cross-border e-commerce trade and industrial clusters. The above contents will be important research directions for scholars in the future.

Author Contributions: Conceptualization and discussion were elaborated by C.W. and D.L.; methodology and results were elaborated by J.W., T.L. and D.W.; theoretical background was elaborated by P.Z. and Y.Z. All authors have read and agreed to the published version of the manuscript.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available in the article.

Conflicts of Interest: The authors declare no conflict of interest.

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