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GRADUATION THESIS

on

China's border trade: characteristics and development trends

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ASSIGNMENT
FOR THE GRADUATION THESIS OF

Master's degree student Wang Xinru, group 24ЭЭВам1, full-time mode of study

1 The topic of the graduation thesis: "China's border trade: characteristics and development trends"

was approved by the university order

dated « ____ » _____ 20 ____ no. _____

2 The deadline for the Master's degree student to complete the graduation thesis is 15.06.2026.

3 The input data for the graduation thesis is the regulatory and legal framework, scientific literature and reference books, and Internet data.

4 The list of issues to be studied includes the concept, theory and significance of border trade; the development history of China's border trade; analysis of current situation of China's border trade; experience, challenges and policy recommendations.

5 The list of visuals contains tables and figures.

6 The date of setting the assignment is 8.10.2024.

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The assignment was accepted by Master's degree student _____ / Wang Xinru /
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Schedule for completing the graduation thesis

№ п/п	Content of the thesis	Deadline for completion	Due date, signature of the academic adviser
First year of study			
1	Substantiating of the research topic and methodology, subject and object of research	1.09.2024 – 31.10.2024	
2	Framing the scientific concept of research	1.11.2024 – 18.12.2024	
3	Collection of scientific literature for the thesis	19.12.2024 – 15.01.2025	
4	Substantiating the relevance, concept, and novelty of the research	16.01.2025 – 19.02.2025	
5	Framing of a detailed plan and layout of the research	20.02.2025 – 12.03.2025	
6	Studying new literature sources within the topic of the thesis	13.03.2025 – 26.03.2025	
7	Conducting theoretical research within the first chapter of the thesis	27.03.2025 – 30.04.2025	
8	Preparing the first chapter of the thesis	1.05.2025 – 30.06.2025	
Second year of study			
9	Conducting analytical research within the second chapter of the thesis	1.09.2025 – 22.10.2025	
10	Preparing the second chapter of the thesis	23.10.2025 – 24.12.2025	
11	Conducting analytical research within the third chapter of the thesis	25.12.2025 – 25.02.2026	
12	Preparing the third chapter of the thesis	26.02.2026 – 21.04.2026	
13	Preparing the introduction and conclusion	22.04.2026 – 12.05.2026	
14	Completing the graduation thesis	13.05.2026 – 27.05.2026	
15	Handing in the thesis for compliance control and antiplagiat	28.05.2026 – 11.06.2026	
16	Getting acquainted with the feedback and review	13.06.2026	
17	Presenting the written thesis	15.06.2026	

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Summary

The graduation thesis comprises 67 pages, 3 chapters, 3 figures, 30 tables, 63 sources.

CHINA, BORDER COUNTRIES, BORDER TRADE, TRADE STRUCTURE, TRANSFORMATION

Object of the study is China's border trade as a specific form of cross-border economic interaction.

Subject of the study is structural characteristics, commodity and geographical patterns of China's border trade in the contemporary period.

The research purpose is to study the distinctive features and key development trends of China's border trade.

The methodological framework of the paper is formed by system approach, analysis and synthesis, statistical and comparative methods. To display identified economic dependencies graphical method was applied.

The results of research include: the concept, theory and significance of border trade were introduced; the development history of China's border trade was studied; analysis of current situation of China's border trade was conducted; challenges faced by China's border trade were studied; policy recommendations for China's border trade were suggested.

The novelty of the study lies in an analysis of China's border trade that connects history, current bottlenecks, and policy solutions in a single framework.

The study contributes to trade theory by showing how border trade functions in the specific conditions of China's periphery.

The practical significance of work involves that the thesis provides foundational insights for future research on the evolving nature of bilateral trade and economic partnership in border regions. The results provide a basis for improving border trade policy. The study can be used to prioritize infrastructure projects and optimize the work of border economic cooperation. The findings are directly relevant for academic courses such as «World Economy», «International Economic Relations», and «Regional Economic Integration».

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Introduction

China's land border is 22,800 kilometers long, spans 9 provinces and regions. This frontier area has both geographical complexity, ethnic diversity and geographical particularity. It is the forefront of economic and trade exchanges and diplomatic interactions between China and neighboring countries. It is also the core node of the six major economic corridors of the Belt and Road, and it is a typical area with both border, less, poor and resource enrichment. As a unique form of international trade in frontier areas, border trade has sprouted from the ancient tea-horse Mutual market and the Silk Road, and has undergone four stages of modern development and modern evolution. It has developed from a simple exchange of small commodities to a comprehensive cross-border economic system covering goods, services, and investment. It has multiple economic, geographic, social, and diplomatic attributes. It is an important gripper for prosperous and prosperous people, stabilizing the border, and deepening good-neighborly cooperation.

From the theoretical level, border trade is based on classic international trade theories such as comparative advantages and element endowments, and integrates border effect theory and geo-economic theory to form a unique analytical framework, showing four characteristics such as geographic proximity and subject particularity; from the practical level, driven by the Belt and Road initiative, China's border trade has realized the transformation from open end to frontier. From 2015 to 2025, border small-scale trade has grown steadily, and the mutual market + landing processing model has been implemented and effective. Port infrastructure and cross-border connectivity capabilities continue to improve, Xinjiang, Guangxi, etc. The core provinces and regions have formed a characteristic development pattern. At present, border trade is still facing problems such as weak risk resistance, unbalanced commodity structure, uneven regional development, and imperfect cross-border cooperation mechanisms. The lack of unified standards for the delineation of border areas at the national level and the lack of continuity of border policies restrict its high-quality development.

Taking nine provinces and regions along the land border as research samples, this article systematically analyzes the development status, core issues and practical challenges

of China's border trade, and draws on international experience to propose an optimization path. It is not only a enrichment of the theory and practice of border trade, but also aims to promote the transformation of border trade from scale expansion to quality improvement, and help border areas make full use of two markets and two resources to strengthen their strategic value in the country's border opening, border governance and peripheral diplomacy.

Object of the study is China's border trade as a specific form of cross-border economic interaction.

Subject of the study is structural characteristics, commodity and geographical patterns of China's border trade in the contemporary period.

The research purpose is to study the distinctive features and key development trends of China's border trade.

To achieve these goals, this study proposes the following research tasks:

- to systematize the conceptual and theoretical foundations of border trade by reviewing definitions, typologies, and theoretical models;
- to study the historical evolution of China's border trade;
- to assess the current state and structural parameters of China's border trade, including its commodity composition, geographical distribution by border province and trading partner, trade volume dynamics, and the prevailing forms of transaction;
- to identify and categorize the systemic problems hindering the development of China's border trade;
- to analyze the contemporary external and internal challenges;
- to formulate evidence-based policy recommendations aimed at modernizing border trade infrastructure, streamlining cross-border procedures, deepening regional industrial cooperation.

The novelty of the study lies in an analysis of China's border trade that connects history, current bottlenecks, and policy solutions in a single framework.

The study contributes to trade theory by showing how border trade functions in the specific conditions of China's periphery.

The practical significance of work involves that the thesis provides foundational insights for future research on the evolving nature of bilateral trade and economic partnership in border regions. The results provide a basis for improving border trade policy. The study can be used to prioritize infrastructure projects and optimize the work of border economic cooperation. The findings are directly relevant for academic courses such as «World Economy», «International Economic Relations», and «Regional Economic Integration».

The work structure is determined by the purpose and tasks decided in the work. Chapter 1 lays the theoretical foundation – the concept, essence, and economic significance of border trade, and its role in developing peripheral regions. It traces the historical evolution of China's border trade through its key stages, from early forms to its emergence as an important instrument of regional policy. Chapter 2 provides a picture of contemporary development: scale, geographical structure, product mix, institutional environment, and new drivers. Chapter 3 consolidates accumulated experience and highlights the main external and internal challenges facing border trade (geopolitical risks, trade barriers, post-pandemic resilience). Building on this, it formulates practical, segment-specific policy recommendations.

Chapter 1 Introduction to China's border trade

1.1 The concept, theory and significance of border trade

Border trade is a special form of international trade unique to the border areas of neighboring countries [16]. It has a variety of economic, geographic, social and diplomatic attributes. Its history can be traced back to ancient society. This trade model originated from the complementary exchange of resources spontaneously carried out by border people to meet their daily needs-that is, through the circulation of cross-border materials to make up for the lack of scarce resources in their own countries. With the evolution of history, border trade has gradually developed into a systematic cross-border cooperation mechanism, not only promoting the optimal allocation of bilateral economic elements, but also through continuous humanistic economic and trade interaction, effectively enhancing the strategic mutual trust of neighboring countries, has become an important cornerstone for maintaining the prosperity and stability of border areas [58].

In a narrow sense, border trade is limited to small-scale mutual markets and commodity exchanges between border people and border enterprises in specific areas on both sides of the border; in a broad sense, modern border trade has expanded to include goods, services, investment, and a comprehensive cross-border economic cooperation system. Compared with general international trade, border trade has four characteristics: geographical proximity, subject particularity, policy preference and functional compounding. It is the micro-foundation of regional integration, the core driving force of border development, and an important link in good-neighborly diplomacy.

Specifically, there are two types of border trade.

The first is border small-scale trade, which refers to border provinces and regions approved by the competent national authorities (such as Xinjiang, Heilongjiang and Inner Mongolia, etc.). Standardized commodity trading activities carried out at designated ports by enterprises with foreign trade qualifications and legal commercial entities in border areas adjacent to the country. Because of its large-scale transactions and standardized operating procedures, this form of trade has been included in the customs statistics system

and has become an important indicator for monitoring the economic and trade development of border areas, especially in the northwest, northeast and southwest border areas of our country. It is widely applicable.

The second type is border-to-city trade, which is a limited duty-free trade carried out by border residents in government-designated trading places. According to the policy, border residents can enjoy a tax exemption of RMB 8,000 for a single transaction per day, and the excess amount must be paid import taxes and fees in accordance with the regulations [2]. Through facilitation measures such as simplifying customs clearance processes and implementing tax incentives, such trade has effectively solved the daily production and life needs of the people at the border, and has played an important role in promoting the improvement of people's livelihood and maintaining the economic stability of the frontier. It has become an important practical path for the implementation of the strategy of enriching the people and rejuvenating the border [16].

Theory of Comparative Advantage.

The theory of comparative advantage (also known as the theory of relative cost) is the basic theory that has long guided the international division of labor and clarified the generation of foreign trade. As an important development of the theory of the division of labor in international trade, its core significance lies in revealing that the differences in production technology conditions of various countries constitute the fundamental drivers of international trade.

It can be traced back to Adam Smith's theory of absolute advantage. Adam Smith pointed out in *Research on the Nature and Causes of National Wealth* that every country should develop its best production sector, produce products with absolute advantages to reduce production costs, and then absolute benefits can be obtained through free trade. He believes that the international geographical division of labor can promote the improvement of labor productivity in various countries. If each country makes full use of its own superior production conditions, conducts specialized production and exports its products, it will make the most effective use of national resources, labor and capital, and all countries can make a profit, thereby increasing national wealth.

After the theory of comparative advantage was systematically expounded by the

classical British economist David Ricardo, the opportunity cost indicator was creatively introduced to quantify the international differences in labor productivity, which is manifested in the number of alternative commodities that need to be abandoned to produce a particular commodity. When a country presents a lower opportunity cost in the production of a particular commodity, it establishes its comparative advantage in that field. This discovery broke through the limitations of traditional trade theory and provided a more explanatory theoretical framework for the international division of labor. This theory advocates that participating countries in international trade should follow the decision-making principle of choosing the best from the best, choosing the worst from the worst, focusing on the development and export of industries with significant comparative advantages, while importing commodities with relative disadvantages in their own countries. This specialized division of labor model can not only improve the efficiency of global resource allocation, but also maximize the economic interests of participating countries through international market exchanges [53].

The Factor Endowment Theory (H-O theory).

The factor endowment theory (H-O theory), as an important breakthrough in the international trade theory system, was jointly constructed by the economist Heckscher and his disciple Olin. This theory emphasizes the decisive role of structural differences in resource endowments of various countries in the form of international trade. Its core point is to explain that the comparative advantage of commodity production is not only derived from differences in labor productivity, but also closely related to the transnational distribution characteristics of factors of production such as capital reserves, technical conditions, and land resources and their cost of use.

The allocation efficiency of these elements together shapes the international competitiveness of products. Following the principle of abundance elements first to carry out specialized production-that is, focusing on the development and export of products with abundant supply of domestic elements, while importing commodities that rely on scarce elements, can effectively enhance the comprehensive income of participating countries in international trade. This international division of labor model based on differences in element endowments not only realizes the cross-border optimal allocation of

factors of production, but also strengthens the mutually beneficial attributes of trade cooperation through industrial complementary [63].

Demand similarity theory.

Demand similarity theory (also known as overlapping demand theory) by Swedish scholar S. B. Linde was founded in 1961. The theory re-deconstructs the drivers of international trade from the consumer side and puts forward three core arguments: first, the production decision-making of enterprises is rooted in the domestic market, and international exchange is essentially an extension of the domestic market; secondly, there is a strong correlation between the level of national income and the consumption structure. High-income economies tend to pursue refined products with high technology intensity and high added value, while low- and middle-income countries focus on meeting basic living needs. It is derived that countries with convergent income levels are prone to similar consumption tendencies; finally, it is revealed that when the overlap of the consumption structures of the two countries increases, it will lead to significant. With the gravitational effect of trade, this demand coupling not only expands the scale of bilateral trade, but also shapes the structure and geographical flow of trade commodities in a deeper way.

The Geo-Economics Theory.

With the end of the bipolar pattern after World War II, economic factors are regarded as the primary factor in dealing with national relations between countries. The competition model between countries has also shifted from military confrontation and political relationship games to soft competition based on economic interests and economic relations. Geo-economics was first proposed by the French scholar Jacques Boudwell, and the American scholar Edward Lukwater (1990) defined the connotation of Geo-economics for the first time, laying the theoretical foundation for the birth of this discipline [29; 30]. As a special stage of development of the regional economy, the Geo-economy has a more mature form of expression. It is a regional economic unit with two or more geographical locations adjacent or spatially connected to maximize each other's economic interests. Based on traditional economic ties, a close division of industry and labor is carried out in accordance with comparative advantages. At present, the academic community has not formed a unified definition of the concept of Geo-economy.

The Border Effect Theory.

If the amount of trade between two regions within a country is several times the amount of trade between one of the two regions and a neighboring country, it means that there is a border effect between the two countries. The border effect theory believes that when the border areas of adjacent two countries are opened to each other, the border effect generated is a positive effect, and the size of the effect is positively correlated with the degree of openness. The stronger the positive effect, the larger the scale of border economic and trade; when the border areas of adjacent two countries are not open to each other, the border effect generated is a negative effect, at this time the factors of production between the two countries basically do not flow with each other, and the two are barrier areas to each other [3232]. The border effect of the two countries is mainly affected by the political relations, economic and trade relations, related policies, culture, concepts and other factors of the two countries. Empirical studies have shown that the intensity of this positive incentive is significantly positively correlated with the level of opening up to the outside world: when the positive incentive effect continues to increase, the contribution to regional economic growth is significantly increased; and when the negative effect dominates, it will intensify the regional development block [8]. In the context of the continuous development of globalization, it is difficult for any country or region to achieve national competitiveness improvement through a closed development path. The current international economic pattern requires neighboring countries to establish a high-frequency interaction model and carry out frequent economic, trade and cultural exchanges. In this context, effectively playing the role of positive border incentives has become the core element of the national trade strategy. It not only conforms to the law of globalization development, but also a strategic path choice to achieve regional coordinated development.

1.2 The development history of China's border trade

The border trade between China's border areas and neighboring countries has a long history. Archaeological discoveries have confirmed that as early as the 5th century BC,

before Zhang Qian sent an envoy to the Western regions [39], the border areas had economic and trade exchanges with neighboring countries. The development context can be divided into three stages: ancient, modern and modern. Among them, modern border trade has gone through many rounds of development and evolution, gradually forming the current development pattern.

In ancient times, border trade mainly developed gradually in the three directions of northeast, northwest and southwest, and unique trade forms and channels were formed in each region.

The border trade in the northeast region began with the exchange of customs between Han and Hungary. During the period of the Dun Shan, Han and Hungary set up mutual markets in officially designated areas to carry out commodity exchanges, and private trade was able to develop rapidly, and a fur road to Europe was formed in the future. The Tang Dynasty adopted a policy of balancing trade and military for the northern border cities, and the Han and nomads exchanged tea, silk fabrics, etc. for livestock. During the Song, Liao, Jin and Yuan Dynasties, important border states and counties set up marketplaces to carry out mutual markets. Trade was presided over by officials, and merchants needed vouchers to trade. Private trade also emerged. During the Kublai Khan period, the northern border trade was encouraged through a tax exemption policy. The Ming Dynasty used the trade between Gong City and Chama City as the main form of trade. The Qing Dynasty banned Mongolia, Northwest, and northeast. Han merchants went deep into the grassland to form commercial bazaars. In 1689, the Treaty of Nebuchadnezzar opened the Sino-Russian tax-free or low-tax border trade. In 1728, the Treaty of Chaktu established Chaktu as a mutual market point, which became the core area of Sino-Russian border trade in the next two centuries.

The border trade in the Northwest region is centered on the Silk Road. As early as the 4th century BC, Chinese silk was exported to India and Europe. Zhang Qian sent an envoy to the Western regions to officially open up the Silk Road, which has become an important channel for border trade between China and western countries. During the Sui and Tang Dynasties, the Northwest commercial road became more and more prosperous. Pei Ju traveled to Ganzhou, Liangzhou and other places many times to attract Western

caravans. The Tang Dynasty operated the Western regions on a far larger scale than the Han Dynasty, and the Silk Road became more accessible. After Genghis Khan unified Hebei in the 13th century, the Yuan Dynasty set up posts to encourage trade, re-opened the blocked Silk Road, and trade on the western border reached its peak. It also deepened China's economic and trade ties with countries in Central and West Asia.

The border trade in the southwest region is centered on the tea-horse trade market. It took shape in the 5th century AD. The Tang Dynasty was formally formed and the Song Dynasty became a custom. Tea has become a major product between the Central Plains and Tibet. It is not only an economic and trade commodity, but also an important means to maintain the stability of the Southwest. It not only brought tea benefits to the imperial court, but also met the needs of war horses. The tea-horse policy of the Ming and Qing Dynasties was given a distinct political purpose. During the Qing Dynasty, Indian tea entered Tibet, the southwest tea market was affected, and the tea-horse tea market began to decline. The ancient tea-horse road formed on this basis, as an important branch of the Southwest Silk Road, became an important channel for border trade between ancient China and neighboring countries in the southwest. Silk, porcelain, tea, etc. from the Central Plains were exchanged with gems, pearls, ivory, etc. from Southeast Asia and South Asia through the ancient road [46].

The Qing government signed a series of unequal treaties, China became a semi-colonial and semi-feudal society, and border trade became a tool of economic aggression by capitalist powers. From 1842 to 1946, China signed nearly 20 unequal treaties with the British, Russian, French and other powers. As of 1911, it was forced to open 82 trade ports, including Heihe, Manzhouli and other border ports. The great powers dumped a large number of cheap commodities to China through border trade, while plundering domestic resources. China not only lost its territory and border trade market borders, but also gradually lost its autonomy in customs duties and commodity management.

During this period, border trade became an important way for the great powers to traffic in opium. Tsarist Russia, the United Kingdom, and France imported opium to China through the borders of Xinjiang, Yunnan, Tibet, and Guangxi. Yunnan, Guangxi and other border areas have become key areas for opium cultivation, agricultural production has

been destroyed, and people's poverty has increased. In addition, the dumping of commodities by the great powers has seriously squeezed the national handicraft industry in China's border areas, destroyed the self-sufficient feudal natural economy, and also promoted the development of the commodity economy; in order to plunder raw materials, the great powers have also built factories, mines, and commercial ports in the border areas, making China gradually a supplier of raw materials.

China's modern border economic and trade cooperation.

New China was established in 1949, and border trade ended the era of semi-colonial rule and started a new development under the socialist system. It has gone through four stages of development for more than 70 years:

Stage of steady development (early 1950s – early 1960s): after the establishment of New China, the national economy was on the verge of collapse, and it was blocked and embargoed by capitalist countries. China took the lead in carrying out border trade with neighboring socialist countries. China and the Soviet Union signed a trade agreement in 1950, and border trade gradually expanded from Xinjiang to Heilongjiang and Inner Mongolia; China and Mongolia have carried out trade exchanges since 1947, and their development accelerated after signing a cooperation agreement in 1962; China and North Korea opened border trade in 1948, and developed rapidly after signing the agreement in 1958; China and Vietnam signed a border trade protocol in 1954, and signed a provincial trade agreement in 1960, and Gui Yunnan's border trade with Vietnam has developed significantly. At the same time, China has also made some progress in border trade with Laos, Myanmar and other countries, with small border trade and border people's mutual markets as the main forms of trade.

The basic stagnation stage (early 1960s – late 1970s): affected by three consecutive domestic natural disasters, border conflicts and ten years of turmoil and other factors, border trade has basically stagnated. The Tibetan rebellion in 1959 led to the interruption of border trade between China and India and other countries. The border conflict between China and India in 1962 further closed border ports. The border conflict between China and the Soviet Union in 1969 basically interrupted border trade between China and the Soviet Union and China and Mongolia. The left-leaning mistake also caused the national

economy and foreign trade to almost stagnate. At this stage, only border trade in a few regions such as China, North Korea, China, Pakistan, and Vietnam has maintained a certain development.

The stage of comprehensive resumption of development (1980s – 2012): in 1984, the State Council promulgated the Interim Administrative Measures for Border Small-scale Trade, and border trade began to fully resume development. As of 1992, the country opened 216 border trade ports and 292 border-civilian mutual markets. The volume of imports and exports has grown rapidly, forming a border trade boundless development pattern, and the content of trade has also expanded from commodity trading to economic, technological, tourism and other all-round cooperation. Since the second half of 1993, affected by the economic transformation of China and the United States, the decline in the reputation of Chinese commodities, and the introduction of restrictive measures by neighboring countries, border trade has fallen into a trough. After the introduction of standardized policies by both China and the United States, it has gradually entered an orderly stage of development. The implementation of the Western Great Development Strategy in 2000 further promoted the opening up of markets between the western border areas and neighboring countries, and promoted the healthy development of western border trade cooperation.

The great development stage of the new period (the 18th National Congress of the Party to the present): In 2013, the Belt and Road initiative injected new impetus into border trade cooperation. In 2015, the country proposed two-way opening up from east to west and expanded opening up along the border. In 2016, the State Council issued a border trade support policy, and announced a list of 72 national-level ports along the border, 5 key development and opening pilot areas and other key areas along the border. Relying on the Belt and Road initiative to deepen cooperation with neighboring countries, the nine coastal provinces' total imports and exports of goods in 2019 reached US\$312.732 billion, which is 9.13 times that of 2000 and 21.71 times that of 1990. The provinces along the border have formed a clear development positioning, and Xinjiang, Tibet, Yunnan, etc. have become open windows and radiation centers for different regions. Under the dual domestic and international cycle pattern, the outline of the 14th Five-Year Plan clearly proposes

measures to expand the scale of trade with neighboring countries, improve the open platform for border development, and promote the prosperity of the border and the people. It provides important guidelines for the innovative development and high-quality development of border trade, and promotes China's border economic and trade cooperation into a new period of development [46].

As a key functional sector in an export-oriented economic system, border trade has formed a multi-dimensional support system in the dimensions of improving people's livelihood in border areas, building security barriers in border areas, and connecting cross-border facilities by promoting economic and cultural interaction and the construction of regional cooperation networks [58]. Its strategic value continues to be highlighted in the new era of border governance. Wang Jin and others [47] pointed out that the positive impact of border trade is not only manifested at the economic level, but also plays an important role at the political and diplomatic level. Through border trade exchanges, not only has the political mutual trust between countries been enhanced, but also the recognition of the Belt and Road initiative by all parties has been enhanced. In the future, the development of border trade should seize the favorable opportunity for the promotion of the Belt and Road initiative and the adjustment of port economic policies, give full play to its geographical advantages, and make rational use of policy dividends to cultivate and develop trade subjects, thereby expanding the scale of border trade between the two sides. Zhao Ruifeng [33; 59; 61] believes that the development of border trade can not only drive the economic development of border areas, but also help attract domestic and foreign enterprises to invest and promote the social stability and economic development of border areas.

Existing research shows that the academic research on the influencing factors of border trade development is discussed from the perspective of theoretical analysis. Scholars believe that it mainly includes natural geographical factors, trade facilitation factors, and political factors. Fang Bing [6] and Yu Jimei [57] believe that border trade is affected by the remote geographical location, relatively poor climate and environment, which has led to the slow development of local industries and the limited development radius of border trade. Liu Yushi [28] believes that the main driving force affecting trade in

border areas is transportation, and GDP per capita is the second driving force. At the same time, there are also differences in the engines of neighboring countries in the border areas. Li Jiemei and others [18; 50] believe that the transportation accessibility and international trade facilitation index of frontier cities are also important influencing factors. Song Wensi [42] pointed out that at present, the economic foundation of the border area is still weak, and the structure of import and export commodities is not diversified enough. It can be seen that economic constraints are one of the key reasons hindering the prosperity of border trade. In the study of countries along the Belt and Road, Yifan L. [56] found that distance is no longer a factor hindering trade, and trade inefficiency has a great impact on trade, and trade tariff barriers between the two countries should be reduced.

From a macro perspective, Yang Xue [55; 60] believes that the current border trade system between China and Central Asian countries has a lag in market standardization. More than 75 % of traded commodities are concentrated in raw material-based products. This kind of unified trade form and structural imbalance not only restricts the implementation of the national strategic layout, but also hinders the further expansion of the regional market. Heij Christian's [17] empirical research shows that although the improvement of cross-border logistics efficiency has stimulated the growth of trade demand, the sensitivity threshold of end consumers to transportation timeliness and logistics costs is still at a high level. Liang Jiao [24] pointed out that although China's cross-border e-commerce small-scale trade has shown a large-scale expansion trend, it faces three development bottlenecks: low added value of commodities, weak digitization of port logistics, and insufficient reserves of composite professionals. In addition, Wang Xiaoyue [40; 48] further confirmed that traditional trade habits have formed institutional inertia in Xinjiang's border trade practice, which not only restricts the process of export structure optimization, but also leads to insufficient momentum for the development of cross-border e-commerce. Liu Shuangshuang's [27] follow-up research found that the participation of border groups has continued to weaken, and the border area has gradually evolved into a commodity transit hub, and the negative externality of the channel economy model has become more and more prominent. Qin Xiujuan's [38] comparative research emphasizes that Guangxi has failed to rely on its geographical advantages to build a

production and processing-based border trade system, but has instead formed a transit model of commodities from neighboring provinces that relies on low-value-added customs declaration services. Liu Rongqun's [26] industrial and commercial data show that this situation has caused the registration of border trade enterprises in coastal areas to plummet by 40 %, and the policy of cultivating export-oriented industries has encountered difficulties in implementation. Lin Chunying [25] proposed a transformation path, suggesting that border cities use mutual market trade as the basic carrier to promote the ecological transformation of the channel economy to a port economy that integrates processing trade and re-export trade. This strategic shift has become a must-answer question for regional industrial upgrading.

Chapter 2 Analysis of current situation of China's border trade

2.1 Current development of border trade

Border trade is the most distinctive and advantageous part of the foreign trade of frontier provinces and regions, and it is the product and important support for our country to promote border opening. Border trade can strengthen economic ties between neighboring countries, enhance cultural understanding, strengthen social communication, and cultivate friendly relations between neighbors [54].

Our country's border trade mainly includes two forms of border small-scale trade and border-to-market trade. Among them, border small-scale trade is the main body of border trade. It is large-scale, involves a wide range of commodities, and has obvious characteristics of enterprise operation. It occupies a dominant position in the foreign trade of border areas; border-to-market trade is mainly aimed at residents in border areas, mainly to meet the daily needs of daily life. The scale of transactions is relatively small and the proportion is not high, but it has a unique role in promoting the income of border people, prospering the economy of border areas, and enhancing civil exchanges with neighboring countries. In recent years, the trade between border people and each other has gradually been standardized and developed on a large scale, which complements the small-scale trade at the border, and together constitute an all-round and multi-level pattern of opening up along the border in our country (figure 1).

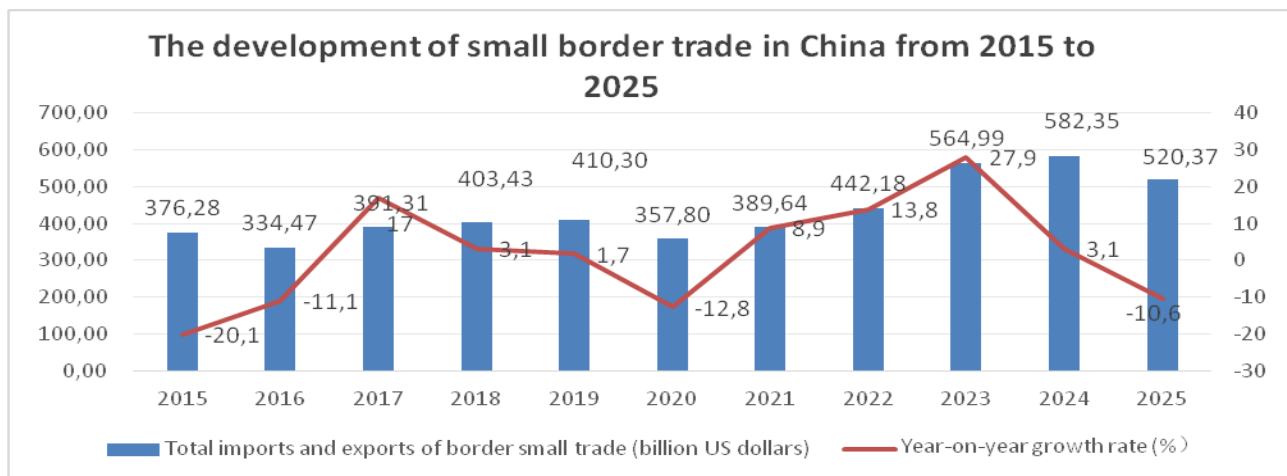


Figure 1 – The development of small border trade in China from 2015 to 2025 [4]

As shown in the figure 1, from 2015 to 2025, China's border small-scale trade has achieved steady development, and the overall growth trend has been shown. The trade volume has increased from US\$337.628 billion in 2015 to US\$52.037 billion in 2025, with an average annual growth rate of 3.30 %, which is lower than the average annual growth rate of 4.85 % of the country's total imports and exports during the same period.

Judging from the year-on-year growth rate, most years have maintained positive growth, and the four years of 2015, 2016, 2020, and 2025 have shown negative growth. Since 2015, world trade has been sluggish, China's economy has entered a new normal, and border small trade has shown negative growth for two consecutive years; the new crown pneumonia epidemic broke out in 2019, and the role of border areas as security barriers has been highlighted. The state has taken measures such as closing border crossings to ensure the safety of people's lives, which directly led to the negative growth of border small trade in 2020; in 2025, affected by multiple factors such as weak global economic recovery and geopolitical conflicts, the volume of border small trade fell by 10.6 % year-on-year [51]. This fully reflects the typical characteristics of border small-scale trade, that is, it is more sensitive to the international economic situation, geographical environment and national policies, and its risk resistance is weaker than that of the country's foreign trade as a whole.

From the perspective of scale, the proportion of small border trade in the country's total imports and exports is relatively stable. It has remained at around 1 % for many years. In 2021, the proportion affected by the rapid growth of the country's foreign trade once fell to a phased low of 0.65 %. From 2023 to 2024, it rebounded to a historical high of 0.95 % with the rebound of border trade, and fell back to 0.82 % in 2025. It has always been a characteristic supplementary sector of the country's foreign trade. In terms of trade balance, our country's border small-scale trade has been in the stage of trade surplus for a long time. This is mainly determined by the differences in the level of economic development and industrial structure between our country and neighboring countries. The export of our country's manufacturing superior products to neighboring countries supports the pattern of continuous surpluses and has also become an important driving force to drive the economic development of the border regions and deepen bilateral economic and

trade cooperation (table 1).

Table 1 – Small scale trade in China by country and province [4]

Year	Top 5 Trading partner	Border small trade volume (billion U.S. dollars)	Proportion of total border small trade	Top 5 trade frontier provinces and regions	Border small trade volume (billion U.S. dollars)	Proportion of total border small trade
2015	Vietnam	176.49	46.90 %	Guangxi	170.00	45.18 %
	Kazakhstan	62.83	16.70 %	Xinjiang	96.21	25.57 %
	Kyrgyzstan	43.19	11.48 %	Heilongjiang	34.88	9.27 %
	Russia	29.70	7.89 %	Inner Mongolia	30.86	8.20 %
	Myanmar	20.63	5.48 %	Yunnan	24.91	6.62 %
	Total	332.84	88.46 %	Total	356.86	94.84 %
2025	Kyrgyzstan	145.31	27.92 %	Xinjiang	291.99	56.11 %
	Vietnam	123.09	23.65 %	Guangxi	115.13	22.12 %
	Kazakhstan	122.84	23.61 %	Heilongjiang	40.52	7.79 %
	Russia	57.11	10.98 %	Inner Mongolia	34.81	6.69 %
	Mongolia	23.26	4.47 %	Yunnan	31.11	5.98 %
	Total	471.61	90.63 %	Total	513.56	98.69 %

From the perspective of national markets, Kyrgyzstan, Vietnam, Kazakhstan, and Russia have always been the main target countries of our border trade. As shown in Table 1, our border micro-trade with the above-mentioned four countries has increased from US331.221 billion in 2015 to US444.835 billion in 2025, accounting for more than 80 % of total border micro-trade. From the perspective of provinces and regions, Guangxi Zhuang Autonomous Region, Xinjiang Uygur Autonomous Region, Heilongjiang Province, and Inner Mongolia Autonomous Region are the main provinces carrying out border trade. The total proportion has been maintained at about 90 % all year round. The border trade of the Xinjiang Uygur Autonomous Region has developed rapidly, accounting for more than half of the country's border trade in 2025; the proportion of the Guangxi Zhuang Autonomous Region in the country's border trade has shown a downward trend, but it has still occupied the second place for many years. The development of border trade between the Inner Mongolia Autonomous Region and Heilongjiang Province is relatively stable. Judging from the proportion of border trade in the province's import and export trade, Xinjiang's border trade accounts for about 40 % of Xinjiang's import and export trade, indicating that border trade is an important way of Xinjiang's foreign trade. In 2025,

although Tibet's border trade accounted for less than 1 % of the country's border trade, it accounted for 33.33 % of the region's import and export trade, indicating that border trade is a very important part of Tibet's foreign trade [20].

From 2020 to 2025, China's border-people trade with each other will stabilize first, then increase, and steadily improve its quality. In 2019, the import and export volume was 9.723 billion US dollars, but it fell to 8.056 billion US dollars in 2020, and it is expected to reach 13.890 billion US dollars in 2025. The regions are concentrated in Gui and Yunnan. In 2025, Guangxi's imports and exports will be 3.719 billion US dollars, with landing processing of 2.025 billion US dollars; Yunnan will be about 1.667–1.806 billion US dollars; Inner Mongolia will be 170 million US dollars, with landing processing exceeding 95 %; Xinjiang's imports will increase by 68.5 % year-on-year, with landing processing exceeding 90 %; Heilongjiang will be about 0.35–0.42 billion US dollars. The mutual market + landing processing model in various places has driven trade upgrading and increased income of border people, and has become an important gripper for the prosperous border people [49].

To further illustrate the steady development of border small-scale trade, this paper lists the total trade volume and major import and export commodities between China and its 14 land neighboring countries from 2021 to 2025, as shown in Tables 2–24.

Table 2 – Major goods imported by China from Afghanistan from 2021 to 2025 [4]

Product code	Product label	China imports from Afghanistan				
		2021	2022	2023	2024	2025
total	All product	21220	-	-	2234	-
71	Natural or cultured pearls, gemstones or semi-precious stones, precious metals, precious metal-filled and their products; imitation jewelry; coins.	21220	-	-	-	-
25	Salt; sulfur; soil and stone; gypsum, lime and cement	-	-	-	2234	-

Table 3 – Major goods exported by China to Afghanistan from 2021 to 2025 [4]

Product code	Product label	China exports to Afghanistan				
		2021	2022	2023	2024	2025
total	All product	5060953	-	1164825	13840208	22454248
39	Plastics and their products	382692	-	43350	2146557	405163
64	Footwear, gaiters and similar articles and parts thereof	1645092	-	587215	769716	103862
84	Nuclear reactors, boilers, machinery, equipment and parts	22010	-	31800	1780344	14527978
85	Electrical machines, electrical equipment and their parts; tape recorders and sound players, television image and sound recording and playback equipment and their parts and accessories.	158565	-	156360	1373045	1502802
62	Non-knitted or non-crocheted garments and accessories	1176427	-	221500	189890	62660

China's imports from Afghanistan during the period 2021–2025 remained narrowly concentrated in a limited set of primary commodities, reflecting the agrarian and extractive profile of the Afghan economy. China's exports to Afghanistan over the same interval exhibited a highly diversified and manufacturing-intensive composition, characteristic of China's role as a supplier of processed industrial goods to low- and middle-income markets.

Table 4 – Major goods imported from China from Myanmar from 2021 to 2025 [4]

Product code	Product label	China imports from Myanmar				
		2021	2022	2023	2024	2025
total	All product	1447735986	1763796983	2441525325	666981835	1453812137
31	fertilizer	55266349	37371170	81992540	41623500	124020762
29	organic chemicals	43063505	78804488	140510110	69858323	88207375
27	Mineral fuels, mineral oils and their distilled products; bituminous substances; mineral waxes	41072722	75369250	97071989	72673599	83404798
22	Beverages, alcohol and vinegar	50546608	43546780	53870078	58699766	71326764
84	Nuclear reactors, boilers, machinery, equipment and parts	85858931	58134332	88453102	59704062	68455254

Table 5 – Major goods exported from China to Myanmar from 2021 to 2025 [4]

Product code	Product label	China exports to Myanmar				
		2021	2022	2023	2024	2025
total	All product	750388328	636071598	1002566353	666981835	802472446
28	Inorganic chemicals; organic and inorganic compounds of precious metals, rare earth metals, radioactive elements and their isotopes.	501163491	502111499	1379027914	754282225	825999726
26	Ore sand, slag and ash	686698354	776045446	531733877	262476365	334087112
44	Wood and wood products; charcoal	54401988	118584903	167331363	158040737	87684779
71	Natural or cultured pearls, gemstones or semi-precious stones, precious metals, precious metal-filled and their products; imitation jewelry; coins.	54184846	108003578	88689949	65641655	65946315
25	Salt; sulfur; soil and stone; gypsum, lime and cement	19502766	7834112	22026869	22684457	42185116

China's imports from Myanmar during the 2021–2025 period remained predominantly resource-intensive and agriculturally based, mirroring Myanmar's comparative advantage in primary commodities. China's export profile to Myanmar over the same years reflected a highly diversified manufacturing base, supplying both intermediate inputs and finished consumer goods to an economy experiencing uneven industrial recovery and ongoing political turmoil. Dominant export headings encompassed electrical machinery and mechanical appliances, with a particular concentration in power generation equipment, telecommunications apparatus, and industrial machinery.

Table 6 – Major goods imported by China from North Korea from 2021 to 2025 [4]

Product code	Product label	China imports from North Korea				
		2021	2022	2023	2024	2025
total	All product	15940042	16517756	17110272	91196528	44911742
26	Ore sand, slag and ash	-	-	65880	12336091	24791966
27	Mineral fuels, mineral oils and their distilled products; bituminous substances; mineral waxes	15940042	16517756	16627970	18147151	17462530
28	Inorganic chemicals; organic and inorganic compounds of precious metals, rare earth metals, radioactive elements and their isotopes.	-	-	179119	314325	482757
95	Toys, games, sporting goods and their parts and accessories	-	-	30810	503225	1443679
11	Milling industry products; malt; starch; inulin; gluten	-	-	82437	339434	-

Table 7 – Major goods exported by China to North Korea from 2021 to 2025 [4]

Product code	Product label	China exports to North Korea				
		2021	2022	2023	2024	2025
total	All product	67585	57659363	105022243	91196528	204442587
39	Plastics and their products	2580	15355025	13548218	12469357	26684975
10	cereals	-	11258711	57136168	9733042	8977766
40	Rubber and its products	-	2329343	3200727	6529320	8216898
44	Wood and wood products; charcoal	-	2142972	2053968	5394332	9598771
15	Animal, plant, or microbial oils, fats, and their decomposition products; refined edible oils; animal and plant waxes.	-	1004075	2161440	11251656	17831519

China's imports from the Democratic People's Republic of Korea during this period were profoundly constrained, first by the near-total closure of the shared border throughout 2021 and early 2022, and subsequently by the durable architecture of sectoral sanctions prohibiting the entry of coal, iron, lead, seafood, and textiles into the Chinese market. China's exports to North Korea mirrored the same frontier dynamics, collapsing in 2021 before staging a partial recovery from mid-2022 onward, always within the bounds of sanctions-mandated ceilings on key commodities.

Table 8 – Major goods imported by China from India from 2021 to 2025 [4]

Product code	Product label	China imports from India				
		2021	2022	2023	2024	2025
total	All product	15632	1450	1096	70	-
12	Oilseed kernels and fruits; miscellaneous kernels and fruits; industrial or medicinal plants; rice straw, stalks and fodder.	15632	-	-	-	-
82	Base metal tools, utensils, spittoons, forks and their parts	-	1450	1096	-	-
39	Plastics and their products	-	-	-	70	-

China's import profile from India over the 2021–2025 interval was shaped by a sustained post-2020 downturn in bilateral economic sentiment and selective trade restrictions, yet it retained a pronounced concentration in industrial raw materials and intermediate goods. Iron ore and its concentrates represented the single most valuable

import category, experiencing a sharp surge in 2021–early 2022 as Chinese steel mills diversified sourcing away from traditional suppliers, before a combination of Indian export duties, rising domestic steel demand, and logistical shifts caused a structural decline in subsequent years.

Table 9 – Major goods imported by China from Laos in 2021–2025 [4]

Product code	Product label	China imports from Laos				
		2021	2022	2023	2024	2025
total	All product	83634	10444389	10814399	30767011	67881097
25	Salt; sulfur; soil and stone; gypsum, lime and cement	-	44869	22877	1190935	2810847
26	Ore sand, slag and ash	-	605150	960090	707240	2522491
27	Mineral fuels, mineral oils and their distilled products; bituminous substances; mineral waxes	-	2103809	4952729	3358366	1595582
28	Inorganic chemicals; organic and inorganic compounds of precious metals, rare earth metals, radioactive elements and their isotopes.	-	42955	34092	-	57231352
44	Wood and wood products; charcoal	83634	6769484	1743072	76330	-
8	Edible fruits and nuts; peels of melons or citrus fruits	-	102556	3101539	61434	1897475

Table 10 – Major goods exported by China to Laos in 2021–2025 [4]

Product code	Product label	China exports to Laos				
		2021	2022	2023	2024	2025
total	All product	11004809	17575427	25300881	30767011	30056215
84	Nuclear reactors, boilers, machinery, equipment and parts	6421442	7805704	9838285	13725147	9132087
85	Electrical machines, electrical equipment and their parts; tape recorders and sound players, television image and sound recording and playback equipment and their parts and accessories.	1224012	2784811	1066318	1278621	2803565
87	Vehicles and their parts and accessories, except for railway and tramway vehicles.	212554	564423	1056818	1313901	761019
19	Products made from grains, flours, starches, or dairy products; cakes and pastries	109197	215241	1006691	1808986	1642994
39	Plastics and their products	856931	355393	110705	202706	558834

China’s imports from Laos during the 2021–2025 interval underwent a significant structural reorientation, driven by the inauguration of the China-Laos railway and intensified investment in the Lao extractive and agricultural sectors. The most remarkable development was the rapid ascent of mineral fertilizers. Agricultural commodities remained foundational. China’s export profile to Laos over the same period mirrored its logistical integration with the Lao economy and the expansion of Chinese-financed infrastructure projects along the Boten–Vientiane Economic Corridor. Mechanical and electrical machinery dominated the export basket.

Table 11 – Major import and export goods between China and Mongolia in 2021–2025 [4]

Product code	Product label	China imports from Mongolia				
		2021	2022	2023	2024	2025
total	All product	1630792924	2791972157	3557379625	495612749	1806276159
25	Salt; sulfur; soil and stone; gypsum, lime and cement	24169422	13858072	45053291	45711772	56980140
26	Ore sand, slag and ash	442073984	217549962	287465348	279947096	276187781
27	Mineral fuels, mineral oils and their distilled products; bituminous substances; mineral waxes	1083188863	2536334878	3086812133	2161192705	1386676884
2	Meat and offal	8844246	3420214	32347097	16961306	3455009
12	Oilseed kernels and fruits; miscellaneous kernels and fruits; industrial or medicinal plants; rice straw, stalks and fodder.	2831368	875356	16987740	9729948	5572823
74	Copper and its products	5566692	5926608	5254231	6680538	7258000
Product code	Product label	China exports to Mongolia				
		2021	2022	2023	2024	2025
total	All product	254743311	360980875	416727352	495612749	519592949
84	Nuclear reactors, boilers, machinery, equipment and parts	38145462	30835374	56052415	80084234	76778550
87	Vehicles and their parts and accessories, except for railway and tramway vehicles.	17189369	22818474	40930032	46140798	28115334
39	Plastics and their products	18231862	29070395	29331972	34146256	41248363
72	steel	36127654	55496805	58980980	10474129	20052014
73	steel products	16349789	53119259	30563337	32298769	58279808

China's imports from Mongolia during this period were overwhelmingly dominated by a narrow band of mineral fuels and metal ores, reinforcing Mongolia's structural role as a raw material hinterland for the Chinese economy. China's export basket to Mongolia over the same interval exhibited a highly diversified, manufacturing-intensive composition, serving the consumption, construction, and mining-related demands of the Mongolian economy.

Table 12 – Major goods imported by China from Nepal in 2021–2025 [4]

Product code	Product label	China imports from Nepal				
		2021	2022	2023	2024	2025
total	All product	-	115065	11764592	486948842	8689288
83	Base metal miscellaneous articles	-	70257	5273633	3682322	3064085
44	Wood and wood products; charcoal	-	-	1030114	1677014	604784
48	Paper and paperboard; pulp, paper or paperboard products	-	15550	247010	515838	442716
55	Chemical fiber short fiber	-	-	1054111	1386947	1558684
57	Carpets and other floor coverings made of textile materials	-	5183	1317550	707274	542636

Table 13 – Major goods exported by China to Nepal in 2021–2025 [4]

Product code	Product label	China exports to Nepal				
		2021	2022	2023	2024	2025
total	All product	261616180	223167115	364801460	486948842	386666299
61	Knitted or crocheted garments and clothing accessories	77533331	50687248	98562932	136129926	97104705
62	Non-knitted or non-crocheted garments and accessories	49149348	44153746	81359039	89815458	72010915
64	Footwear, gaiters and similar articles and parts thereof	32704690	25297609	28759532	36902818	31524432

China's imports from Nepal over this interval remained exceedingly modest in value and narrowly circumscribed in product range, emblematic of Nepal's constrained export capacities and the logistical challenges posed by Himalayan overland trade. China's export profile to Nepal over the same years exhibited a highly diversified, manufacturing-intensive composition, reinforcing China's position as Nepal's largest single source of imported goods. Electrical machinery and telecommunications equipment led the export basket, encompassing smartphones, transmission apparatus, and power transformation equipment linked to hydropower and grid expansion projects

Table 14 – Major goods imported by China from Pakistan in 2021–2025 [4]

Product code	Product label	China imports from Pakistan				
		2021	2022	2023	2024	2025
total	All product	-	-	90984	265257989	12095
3	Fish, crustaceans, mollusks and other aquatic invertebrates	-	-	80682	-	-
44	Wood and wood products; charcoal	-	-	1572	-	-
57	Carpets and other floor coverings made of textile materials	-	-	8730	-	-
8	Edible fruits and nuts; peels of melons or citrus fruits	-	-	-	6160	-
25	Salt; sulfur; soil and stone; gypsum, lime and cement	-	-	-	47694	-
68	Products made of stone, gypsum, cement, asbestos, mica and similar materials	-	-	-	-	2095
71	Natural or cultured pearls, gemstones or semi-precious stones, precious metals, precious metal-filled and their products; imitation jewelry; coins.	-	-	-	-	10000

Table 15 – Major goods exported by China to Pakistan in 2021–2025 [4]

Product code	Product label	China exports to Pakistan				
		2021	2022	2023	2024	2025
total	All product	40297043	322261179	333159631	265257989	98555131
61	Knitted or crocheted garments and clothing accessories	25150476	96375337	75292475	44925012	10992532
85	Electrical machines, electrical equipment and their parts; tape recorders and sound players, television image and sound recording and playback equipment and their parts and accessories.	3030309	21579126	44193422	50800604	29165961
62	Non-knitted or non-crocheted garments and accessories	1919035	31179089	23083392	16100215	8387472
54	Chemical fiber filaments; chemical fiber textile materials, including flat strips and similar products.	1201513	51666307	36392418	17231472	1615406
84	Nuclear reactors, boilers, machinery, equipment and parts	1009233	18548748	13993198	17538664	7080837

China's imports from Pakistan during this period remained heavily concentrated in a narrow range of primary and lightly processed goods, with a persistent and pronounced reliance on the textile and agri-food sectors. China's export profile to Pakistan over the

same interval exhibited a highly diversified, manufacturing-intensive composition, characteristic of China's role as Pakistan's largest single import partner and the principal external supplier of both capital goods and industrial inputs.

Table 16 – Major goods imported by China from Vietnam in 2021–2025 [4]

Product code	Product label	China imports from Vietnam				
		2021	2022	2023	2024	2025
total	All product	680908248	354646829	309863985	14664578082	3383221687
8	Edible fruits and nuts; peels of melons or citrus fruits	196452858	101653389	98511938	60766722	56604906
44	Wood and wood products; charcoal	170109548	116121560	83840346	88379063	48894361
26	Ore sand, slag and ash	121304064	26263669	18355164	34068168	73441919
20	Products made from vegetables, fruits, nuts or other parts of plants	12734003	17181913	16595005	14749817	17867605
7	Edible vegetables, roots and tubers	7518080	3442552	26384200	7516063	20973361

Table 17 – Major goods exported by China to Vietnam in 2021–2025 [4]

Product code	Product label	China exports to Vietnam				
		2021	2022	2023	2024	2025
total	All product	16431831983	11217087607	11586780282	14664578082	11975599285
84	Nuclear reactors, boilers, machinery, equipment and parts	1948318964	1090241738	1077486160	1786422834	1748791641
85	Electrical machines, electrical equipment and their parts; tape recorders and sound players, television image and sound recording and playback equipment and their parts and accessories.	1502879377	1006329954	1012834179	1471075322	1162185123
62	Non-knitted or non-crocheted garments and accessories	1244287312	912948362	870192466	914939031	724780899
61	Knitted or crocheted garments and clothing accessories	808195110	839730168	1002905367	1023150919	812426528
60	Knitted and crocheted fabrics	777466069	759920946	661788444	432565597	381957750

China's imports from Vietnam over this interval were dominated by high-technology manufactures and integrated supply-chain goods, confirming Vietnam's role as a critical node in East Asian production networks oriented toward the Chinese market. Electrical machinery and electronic equipment constituted the preponderant import category. China's export profile to Vietnam during the 2021–2025 period reflected its upstream position in the regional division of labour, with the export basket overwhelmingly dominated by industrial inputs and capital goods feeding Vietnam's export-oriented manufacturing machine. Electrical machinery and electronic integrated circuits ranked as the single largest export category, comprising semiconductors, printed circuits, mobile phone parts, and unassembled display components dispatched to Vietnamese assembly lines before re-export to third markets or re-import into China.

Table 18 – Major goods imported by China from Kazakhstan in 2021–2025 [4]

Product code	Product label	China imports from Kazakhstan				
		2021	2022	2023	2024	2025
total	All product	35353956	66711233	34188302	15314285139	17206111
12	Oilseed kernels and fruits; miscellaneous kernels and fruits; industrial or medicinal plants; rice straw, stalks and fodder.	1898252	5352393	12937634	4774763	3707327
15	Animal, plant, or microbial oils, fats, and their decomposition products; refined edible oils; animal and plant waxes.	-	30857393	13733349	523975	8951809
17	Sugar and sugary foods	506113	234211	93582	102700	-
23	Food industry residues and waste; formulated animal feed	361305	13386264	722970	-	1959605
25	Salt; sulfur; soil and stone; gypsum, lime and cement	1646681	572945	-	205615	91152

Table 19 – Major goods exported by China to Kazakhstan in 2021–2025 [4]

Product code	Product label	China exports to Kazakhstan				
		2021	2022	2023	2024	2025
total	All product	6768651823	7928325858	13914254085	15314285139	12266945904
62	Non-knitted or non-crocheted garments and accessories	1281287130	2207812163	3476311199	3025599989	2285549310
64	Footwear, gaiters and similar articles and parts thereof	1130091715	990685735	1549348462	1319117404	880398445
85	Electrical machines, electrical equipment and their parts; tape recorders and sound players, television image and sound recording and playback equipment and their parts and accessories.	806144984	695050878	1106841173	1311722949	946450944
95	Toys, games, sporting goods and their parts and accessories	461226117	561197817	987519144	819210487	582519925
84	Nuclear reactors, boilers, machinery, equipment and parts	355978544	331314246	575138702	907892097	865424756

China's imports from Kazakhstan over this period were overwhelmingly dominated by energy, metals, and mineral products, reinforcing Kazakhstan's strategic role as a land-based supplier of critical raw materials to the Chinese economy. China's export profile to Kazakhstan during the same period exhibited a highly diversified, manufacturing-intensive composition, reflecting Kazakhstan's dependence on Chinese industrial and consumer goods across multiple sectors.

Table 20 – Major goods imported by China from Kyrgyzstan in 2021–2025 [4]

Product code	Product label	China imports from Kyrgyzstan				
		2021	2022	2023	2024	2025
total	All product	6484673	6154876	4446120	14431103603	4087162
27	Mineral fuels, mineral oils and their distilled products; bituminous substances; mineral waxes	4784	3287416	1833355	1837430	2034248
26	Ore sand, slag and ash	-	533799	275345	2193981	2022860
41	Raw hides (excluding furs) and leather	6387571	2161386	1860438	463776	-
12	Oilseed kernels and fruits; miscellaneous kernels and fruits; industrial or medicinal plants; rice straw, stalks and fodder.	11322	-	6660	-	-
8	Edible fruits and nuts; peels of melons or citrus fruits	-	-	470272	846034	-

Table 21 – Major goods exported by China to Kyrgyzstan in 2021–2025 [4]

Product code	Product label	China exports to Kyrgyzstan				
		2021	2022	2023	2024	2025
total	All product	4975705512	12409279538	14543529422	14431103603	14527016715
62	Non-knitted or non-crocheted garments and accessories	2532134405	4418186562	3766729212	2809898861	2540561935
61	Knitted or crocheted garments and clothing accessories	777997433	1921052334	2438840966	2470246176	2278497752
64	Footwear, gaiters and similar articles and parts thereof	330478842	1682835887	1427846599	1030609280	1201896200
85	Electrical machines, electrical equipment and their parts; tape recorders and sound players, television image and sound recording and playback equipment and their parts and accessories.	316240398	636287564	1023292156	1134096672	836162873
84	Nuclear reactors, boilers, machinery, equipment and parts	94220250	445029779	737751046	889384366	976876476

China's imports from Kyrgyzstan were overwhelmingly dominated by primary products, most notably ores and concentrates of precious metals (with gold playing a central role), copper ores and concentrates, raw hides and skins, wool, and a smaller range of agricultural goods such as dried leguminous vegetables. In contrast, China's exports to Kyrgyzstan consisted almost entirely of manufactured goods, including machinery and mechanical appliances, electrical equipment, vehicles and their components, textiles, apparel, footwear, and chemical products, reflecting a clear inter-industry complementarity between the two economies.

Table 22 – Major Goods Imported by China from Tajikistan in 2021–2025 [4]

Product code	Product label	China imports from Tajikistan				
		2021	2022	2023	2024	2025
total	All product	-	4050	1287	1430	17
26	Ore sand, slag and ash	-	4050	1287	-	-
25	Salt; sulfur; soil and stone; gypsum, lime and cement	-	-	-	1430	17

Table 23 – Major goods exported by China to Tajikistan in 2021–2025 [4]

Product code	Product label	China exports to Tajikistan				
		2021	2022	2023	2024	2025
total	All product	697741901	1250314147	2430121586	2126590913	1783942826
62	Non-knitted or non-crocheted garments and accessories	113426433	178120061	191491167	160334194	147539177
64	Footwear, gaiters and similar articles and parts thereof	87655343	152189287	316049043	239274840	168681025
87	Vehicles and their parts and accessories, except for railway and tramway vehicles.	64170431	106689059	238611669	257335111	209243584

Between 2021 and 2025, China's imports from Tajikistan remained heavily concentrated in a narrow range of primary commodities, chiefly unwrought aluminum and aluminum products, ores and concentrates of zinc, lead, and precious metals, raw cotton fiber, and dried fruits. By contrast, China's exports to Tajikistan were dominated by manufactured goods, including machinery and mechanical appliances, electrical machinery and equipment, vehicles and parts, iron and steel products, textiles, clothing, and chemical products, illustrating a persistent pattern of inter-industry trade between an industrializing exporter and a resource-based economy.

Table 24 – Major goods imported and exported between China and Russia in 2021–2025 [4]

Product code	Product label	China imports from Russia				
		2021	2022	2023	2024	2025
total	All product	3176610264	2761488681	2695501754	3219668529	2241474459
44	Wood and wood products; charcoal	1457604759	805532102	697801505	628877213	534892184
31	fertilizer	483937245	659997178	462138138	454005910	875850525
27	Mineral fuels, mineral oils and their distilled products; bituminous substances; mineral waxes	388674379	558314092	541282269	456543000	379247258
26	Ore sand, slag and ash	413890840	223122355	234863694	167619098	99352426
12	Oilseed kernels and fruits; miscellaneous kernels and fruits; industrial or medicinal plants; rice straw, stalks and fodder.	214858979	299997918	585407524	262855763	197243660
Product code	Product label	China exports to Russia				
		2021	2022	2023	2024	2025
total	All product	1644211268	1981033677	2689165240	3219668529	3469768557
64	Footwear, gaiters and similar articles and parts thereof	381288927	353997347	473595816	521398456	396992145
7	Edible vegetables, roots and tubers	224410911	224264092	208526765	233438651	290179122
84	Nuclear reactors, boilers, machinery, equipment and parts	145341857	227382348	332943403	429244490	469053833
87	Vehicles and their parts and accessories, except for railway and tramway vehicles.	59370664	137642656	265158991	244323821	229361015
85	Electrical machines, electrical equipment and their parts; tape recorders and sound players, television image and sound recording and playback equipment and their parts and accessories.	54495979	76991807	131801590	181067575	195280373

Between 2021 and 2025, China's imports from Russia were overwhelmingly dominated by energy carriers – most notably crude oil, pipeline natural gas, and coal –

alongside ferrous and non-ferrous metals, timber and wood products, and a growing share of agricultural commodities such as soybeans, fish, and vegetable oils. In parallel, China's exports to Russia consisted primarily of machinery and mechanical appliances, electrical machinery and equipment, vehicles and spare parts, plastics and articles thereof, textiles, footwear, and chemical products, reflecting a pronounced resource-manufacturing complementarity between the two economies.

A comparison of the main import and export commodity structures between China and its 14 land neighbors from 2021 to 2025 reveals that my country's border trade has formed a stable structure dominated by imports of resource-based products and supplemented by exports of light industrial and electromechanical products. The stable operation and scale improvement of this trade structure are inseparable from the continuous improvement of border ports and cross-border infrastructure. The following section will analyze the construction of border infrastructure and port channels.

The improvement of infrastructure is an important foundation for the long-term stable development of the regional economy, and its multiplier effect promotes the promotion of infrastructure everywhere. China's border areas have been caught in a vicious circle of weak infrastructure and economic lag due to their own lagging development and neighboring countries are mostly underdeveloped economies. The Belt and Road initiative has broken this dilemma. As a bridgehead for interconnection, the border areas promote the interconnection of cross-border facilities and strengthen the hardware support for economic and trade cooperation [1].

Transportation facilities such as cross-border roads are an important carrier of international logistics, which can reduce transportation costs, weaken the boundary effect, and form industrial agglomeration. With the advancement of the Belt and Road, cross-border transportation facilities have been rapidly implemented: in 2015, the first and third phases of the Tower-China Highway opened to traffic to enhance the level of China-Tower connectivity; in 2018, the Shuangxi Highway [52] was completed, shortening the transportation time and cost from Khorgos to Almaty [4], and opening up a new channel for cross-border logistics in the northwest; in 2020 [15], the second phase of the Karakoram Highway and the Vientiane-Vangrong section of the China-Laos Expressway

opened to traffic successively, respectively deepening China-Pakistan economic and trade cooperation and helping China-Laos cooperation to improve quality. The construction of cross—border bridges and cableways continues to advance. The Heihe-Blagoveshchensk Cross-Heilongjiang Bridge in China and Russia will open to traffic in 2022 to solve the problem of customs clearance at the Heihe port throughout the year [34]; the first international cross-border cableway in China and Russia will start in 2019, which will facilitate the transportation of personnel [11].

China's energy demand continues to grow, focusing on deepening energy infrastructure cooperation with neighboring countries in Russia and Central Asia, and accelerating the interconnection of cross-border energy facilities under the Belt and Road initiative. Multi-point landing of cross-border oil and gas pipelines: the second line of the China-Russia crude oil pipeline was completed in 2017 [37] and the China-Myanmar crude oil pipeline was put into operation; the China-Myanmar natural gas pipeline was supplied with gas in 2013, and the No. 1 tunnel of the China-Central Asia natural gas pipeline Line D was completed in 2020 [36]. In 2019, the China-Russia Eastern Line natural gas pipeline was put into operation [14], and the Russian Amur natural gas processing plant was put into use in 2021 to realize the diversification of energy imports and drive the development of border industries. Cross-border power cooperation has achieved outstanding results. The first cross-border transmission line between China and Russia was put into operation in 1992. In 2022, the tenth anniversary of the operation of the Heihe back-to-back converter station will achieve a win-win situation. In 2019, the Amur-Heihe oil storage, transportation and refining complex was put into operation, innovating the cross-border energy cooperation model.

The continuous improvement of the service capacity of China's border ports is reflected in the long-term linear growth trend of freight traffic and passenger traffic at border ports as a whole.

Since 2015, the overall cargo volume at China's border ports has shown an increasing trend. It was only 0.98 billion tons in 2015 and reached 161 million tons in 2018. Since 2019, due to the impact of the new crown pneumonia epidemic, the cargo volume at border ports has declined significantly. In 2021, it was only 0.97 billion tons,

which is lower than the 2015 level. Judging from the composition of the cargo volume of border ports, the road cargo volume of China's border ports has long been higher than that of railway cargo. Road ports are the main way for goods to enter and exit the border areas. After 2019, due to the prevention and control of the new crown pneumonia epidemic, road transportation has been more strictly controlled, and the volume of railway freight has increased. In recent years, the continuous expansion and increase of China-Europe trains, as well as the opening and operation of cross-border channels such as China-Laos railways, are also important reasons for the increase in freight traffic at border railway ports [13]. After the optimization of the epidemic prevention and control policy in 2023, the cargo volume of border ports has achieved a rapid recovery. In 2025, the cargo volume of border ports across the country will reach 220 million tons, a record high, of which the proportion of freight volume at railway ports has increased to 52.3 %. The supporting role of railway channels on border trade continues to be prominent (table 25).

Table 25 – Flow Data of Border Ports in China [4]

Year	Cargo volume at border ports (100 million tons)			Passenger traffic at border crossings (10,000 passengers)		
	Highway port	Railway port	Total	Highway port	Railway port	Total
2015	0.62	0.36	0.98	1386.06	71.59	1457.65
2016	0.81	0.43	1.24	3951.52	69.45	4020.97
2017	1.12	0.50	1.61	5012.66	64.29	5076.95
2018	1.10	0.51	1.61	5575.59	1235.62	6811.21
2019	0.66	0.49	1.16	5953.54	142.92	6096.46
2020	0.63	1.04	1.68	956.32	29.87	986.18
2021	0.36	0.60	0.97	349.21	15.87	365.09
2022	0.28	0.65	0.93	126.34	8.92	135.26
2023	0.72	0.88	1.60	3215.67	189.45	3405.12
2024	0.91	1.02	1.93	5892.34	312.78	6205.12
2025	1.05	1.15	2.20	6789.56	368.21	7157.77

Judging from the passenger traffic at border ports, it was 14.5765 million passengers in 2015, exceeded 40 million passengers in 2016, exceeded 50 million passengers in 2017, and reached its highest value of 68.1121 million passengers in 2018, indicating that border ports play an important role in strengthening people's exchanges and integration in neighboring countries. Since 2019, affected by the new crown pneumonia epidemic, the

border ports have been under strict control, and the passenger traffic at the border ports has declined significantly. In 2022, it was only 1.3526 million passengers, a record low. With the optimization of epidemic prevention and control policies, passenger traffic at border ports has achieved a V-shaped rebound, returning to 34.0512 million passengers in 2023 and reaching 71.5777 million passengers in 2025, surpassing the historical peak in 2018, and the function of personnel exchanges at border ports has been fully restored.

The data show that China's border ports have played an important role in promoting the circulation of goods and personnel. At the same time, it can be seen that as a special spatial node, border ports are extremely vulnerable to external factors such as public health events and the international situation, and their economic operation is in a weak and stable state (figure 2).

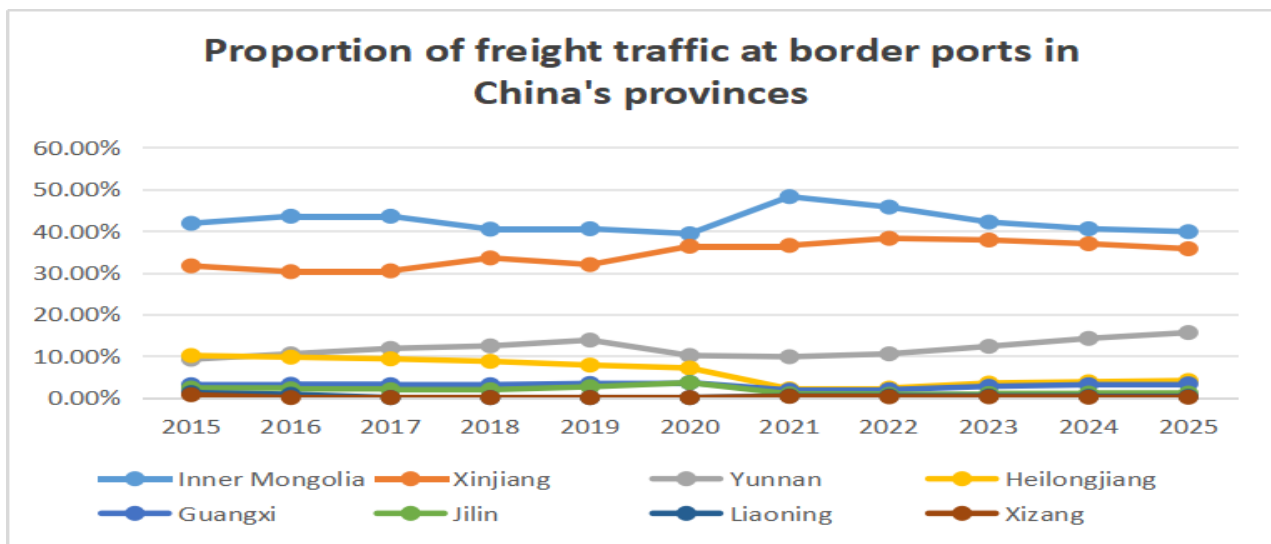


Figure 2 – Proportion of freight traffic at border ports in China's provinces [4]

As shown in the figure 2, among the 8 provinces (districts) along the border, Inner Mongolia has the highest proportion of freight traffic at border ports, which is stable at more than 40 % all year round, followed by Xinjiang. The freight volume at border ports fluctuates basically at 30 %. The total freight volume at border ports in the two provinces accounts for between 70 % and 80 %.The proportion of freight traffic at Yunnan border ports has steadily increased, from 9.2 % in 2015 to 15.6 % in 2025. The opening and operation of cross-border channels such as the China-Laos Railway has further driven the

growth of freight at Yunnan ports (figure 3).

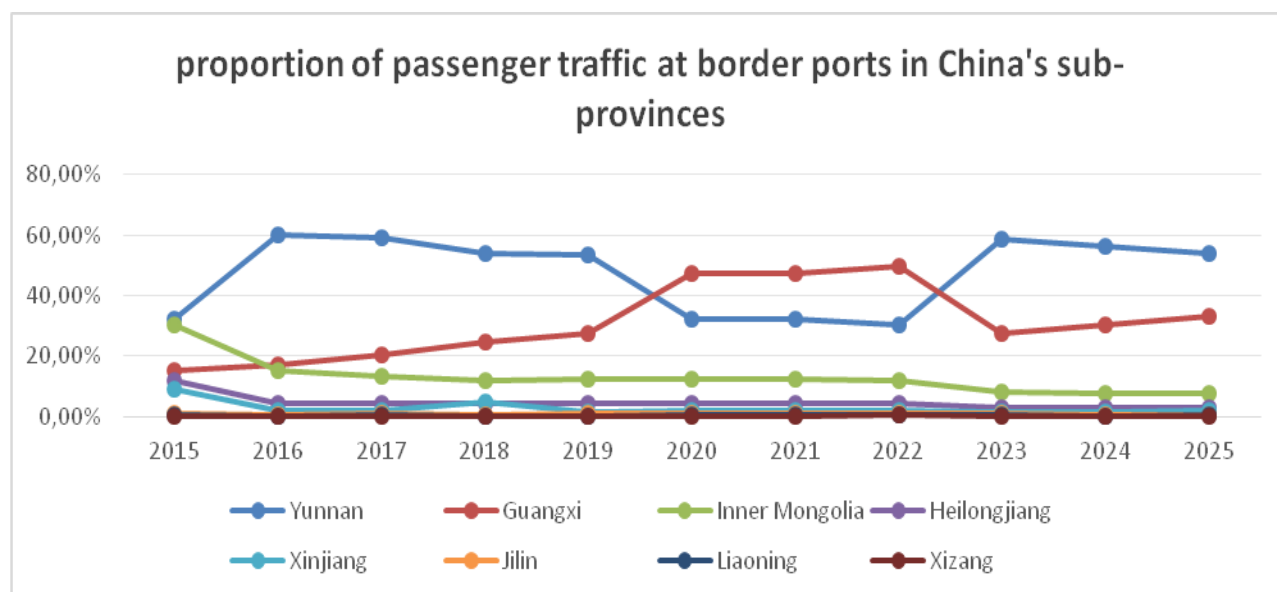


Figure 3 – Proportion of passenger traffic at border ports in China's sub-provinces [4]

Judging from the regional pattern, the freight traffic at the northern border ports accounts for a relatively high proportion, and the passenger traffic at the southern border ports accounts for a relatively high proportion, showing the development pattern of north goods and south people.

As shown in the figure 3, among the eight provinces (districts) along the border, the proportion of passenger traffic at Yunnan border ports has continued to rise. Since 2016, it has remained at more than 50 % for a long time, reaching 60.2 % in the highest year; the proportion of passenger traffic at Guangxi border ports has shown a trend of increasing year by year, from 15 % in 2015 to 33.1 % in 2025, and the total passenger traffic at Yunnan and Guangxi border ports accounts for about 80 %. After the optimization of the epidemic prevention and control policy in 2023, the passenger and cargo volume of border ports has fully recovered, the pattern of north goods and south people has been further consolidated, the scale of freight at northern ports has continued to expand, and the function of personnel exchanges at southern ports has fully recovered.

The data show that the northern border crossing has the main function of cargo access, and the southern border crossing has the main function of personnel exchange. This is related to the selection of data and the situation of neighboring countries: because

the China Port Yearbook only publishes the cargo volume data of the port, and there is no trade volume data of the port, the northern border port imports a large amount of coal, ore and other natural resources, and the cargo volume must be relatively high. Most of the countries adjacent to the northern border crossings are sparsely populated. The Russian Far East covers an area of about 6.9 million square kilometers, accounting for 40.6 % of the total area of Russia. The population in 2023 is about 7.866 million, accounting for only 5.5 % of the total population of Russia (Li Xiaoling et al., 2025) [23], Mongolia's total population in 2023 is only 3.4811 million, so the base of personnel exchanges is small. The southwest region faces the ten ASEAN countries to the outside world, with a total population of about 670 million people in 2023. As the main channels for economic and trade exchanges and personnel flows between China and ASEAN countries, the Yunnan and Guangxi border ports will inevitably account for a large proportion of the passenger traffic at the country's border ports. From 2023 to 2025, with the continuous deepening of border trade and personnel exchanges, the spatial pattern of north goods and south people will continue to strengthen, and the service capabilities of border ports and the level of regional collaborative development will continue to improve.

Judging from the practice of border economic and trade development in various countries, the degree of government participation and cooperation directly affects the effectiveness of development and is also an important driving force for border economic and trade cooperation. It mainly promotes development through the formulation of policies and regulations, the signing of cooperation documents, and the provision of support for factors of production. Among them, the formulation and implementation of policies and regulations are necessary measures to regulate trade order and ensure the healthy development of cooperation [62].

Since the reform and opening up of the People's Republic of China, a series of policies and regulations have been introduced to regulate border economic and trade exchanges and promote its sustainable and healthy development. Since 2012, the State Council has successively established national key development and opening pilot zones in nine border cities and counties, and jointly established two cross-border economic cooperation zones with Kazakhstan and Laos; in 2015, the three ministries and

commissions issued the vision and actions of the Belt and Road to clarify the opening positioning of border provinces and regions; in 2018, the first batch of border tourism pilot zones in Manzhouli and Fangchenggang were established; in 2019, the first border pilot free trade zones were established in Gui, Yunnan and Hei provinces and regions; in 2020, the Ministry of Commerce and other departments launched ten measures to deal with the epidemic and support the development of border trade. In addition, the state has also introduced special development and opening-up policies for different border areas, and relevant economic and trade cooperation policies have also been formulated by the border provinces, regions and local governments [45].

Under the guidance of China's institutional arrangements and policies, China's border trade has achieved remarkable results since it embarked on the transformation of standardization, modernization and internationalization in the 1990s: from 1992 to 2020, the total amount of border small-scale trade increased by 18 times; in 2019, the import and export of border-to-market trade was nearly 70 billion yuan. Although the volume is small, it has driven the participation of border people and increased the income of border people, which has become a typical poverty alleviation in the border areas. In the new era, the innovative model of border trade + landing processing formed in policy guidance and practical exploration has become an effective path for the high-level development of border trade and injected new impetus into the economic development of the frontier. The Belt and Road initiative has reshaped the geographic space pattern of China's opening up to the outside world, turning inland border areas from the tip of opening up to the forefront, and border economic and trade cooperation has also become a key way and basic measure for border areas to participate in the construction of the Belt and Road, deepen cross-border trade cooperation, and integrate services into the new development pattern.

2.2 Outstanding problems in the development of China's border trade

From 2015 to 2025, China's border small trade imports maintained a resource-oriented structure, with a spatial pattern of strong north, weak south; west up, east down

(table 26).

Table 26 – Import of resource commodities (2015–2025) [4]

	Cumulative Import (billion USD)	Proportion	Core Provinces	Structural Features
Mineral Products	404.91	56.62 %	Inner Mongolia, Yunnan, Xinjiang	Inner Mongolia accounted for 81.36% in 2025; Guangxi dropped to 1.19%
Wood Products	168.98	23.61 %	Inner Mongolia, Heilongjiang	The two provinces accounted for 91.69%
Chemical Products	77.27	10.17 %	Yunnan, Heilongjiang, Inner Mongolia	Relatively dispersed distribution

Key trends: mineral products became the dominant import, with a rising share in western provinces and a continuous decline in eastern and southern provinces.

Wood products showed a dual-core pattern in Inner Mongolia and Heilongjiang.

Regional concentration of resource imports further increased.

Manufacturing Raw Materials. Imports of manufacturing raw materials were small in scale and highly volatile, presenting a one strong, one weak spatial structure centered on Yunnan (table 27).

Table 27 – Import of manufacturing raw materials (2015–2025) [4]

	Cumulative Import (billion USD)	Proportion	Core Province	Trend
Plastics & Rubber	114.31	62.57 %	Yunnan (41.42 %)	Peaked in 2017, declined afterward
Base Metals	88.29	36.27 %	Yunnan (41.02 %)	High fluctuation, limited stability
Building Materials & Ceramics	2.70	1.16 %	Yunnan (86.77 %)	Minimal market demand

Key trends: Yunnan dominated all subcategories; other provinces were marginalized. Most categories trended downward after 2017, with no stable recovery. Imports of high-value-added goods were extremely scarce, showing a dual-core dominance of Guangxi and Heilongjiang, with a sharp decline in Northeast China (table 28).

Table 28 – Import of high-value-added commodities (2015–2025) [4]

	Cumulative Import (million USD)	Proportion	Core Regions	Structural Features
Mechanical & Electrical	1,102.40	90.17 %	Guangxi, Heilongjiang (96.10 %)	Guangxi remained large; Heilongjiang fell by over 99 %
Transportation Equipment	55.26	4.52 %	Inner Mongolia, Heilongjiang (98.52 %)	Highly concentrated
Optical Instruments	33.02	2.70 %	Inner Mongolia, Liaoning (89.31 %)	Small but relatively stable

Key trends: high-value-added imports were negligible and highly concentrated. Most border provinces showed zero or minimal imports, forming structural faults. Exports were still dominated by traditional manufacturing raw materials, with north–south differentiation and category substitution (table 29).

Table 29 – Export of manufacturing raw materials (2015–2025) [4]

	Building Materials	Proportion	Core Provinces	Trend
Textiles	126.63	67.20 %	Xinjiang, Guangxi	Continued shrinking; Guangxi down 70.08 %
Base Metals	30.83	16.20 %	Xinjiang (89.3 %)	Rapid growth, up 1.85 times
Plastics & Rubber	15.57	8.20 %	Guangxi (52.3 %), Xinjiang (36.8 %)	Xinjiang up; Guangxi down
Building Materials	15.00	8.40 %	Guangxi (70.2 %), Xinjiang (27.5 %)	Basically stable

Key trends: textiles declined while base metals rose, showing structural substitution.

Xinjiang and Guangxi formed a dual-core pattern. Exports presented a pattern of northwest leadership, southwest supplementation (table 30).

Table 30 – Export of consumer & resource goods (2015–2025) [4]

	Cumulative Export (billion USD)	Proportion	Core Regions	Trend
Mechanical & Electrical	50.46	75.78 %	Guangxi, Xinjiang	Stable growth; Xinjiang up 2.1 times
Transportation Equipment	11.40	17.12 %	Xinjiang	Steady expansion
Optical Instruments	3.83	5.74 %	Xinjiang, Guangxi	Fluctuating but recovering
Weapons	0.01	0.18 %	—	Negligible

Key trends: electromechanical products became the main driver of export

upgrading. Guangxi and Xinjiang together accounted for over 85 %. Yunnan, Heilongjiang, and Inner Mongolia showed potential in niche fields.

From 2015 to 2025, the small-scale trade in China's eight border provinces and regions will show the characteristics of imports are mainly resource-based commodities, manufacturing raw materials and mechanical and electrical commodities have a lower proportion; exports are mainly manufacturing raw materials, consumer goods and resource commodities are polarized, and the transformation trend of high value-added commodities has further deepened. This structural change is not only directly affected by the upgrading of port facilities, the improvement of customs clearance efficiency and the improvement of border processing industry conditions, but also closely related to the continuous regulation of the country's border opening-up policy and border trade support policy. In addition, the multilateral cooperation mechanism between China and neighboring countries has been continuously improved, and the depth and breadth of regional economic and trade cooperation have been continuously expanded [43]. From the levels of trade rules, market docking, and category complementarity, the optimization and evolution of the commodity structure of border small-scale trade has been further promoted, and the transformation of border small-scale trade from scale expansion to quality improvement has been promoted.

Combined with the previous systematic analysis of China's border trade development environment and trends in the structure of import and export commodities, at this stage, in the process of high-quality development of China's border trade, although relying on policy support and infrastructure improvement to achieve steady growth, the commodity structure has also shown a positive trend of transformation to high value-added, but constrained by multiple factors such as the external environment, internal structure, and regional layout, there are still many core problems that need to be solved urgently. This part will focus on the three core dimensions of insufficient trade development resilience, low risk resistance and growth efficiency, unbalanced commodity structure optimization, significant structural shortcomings at the import and export ends, and the solidification of the regional development pattern. Synergy and balance need to be improved urgently, combined with actual trade data to analyze the reality of China's border trade development dilemmas, and lay the foundation for follow-up targeted development

countermeasures.

Although China's border trade has maintained an overall growth trend, compared with the national level of foreign trade development, its growth momentum has slowed and its scale is low. Its sensitivity to external shocks such as global economic, geopolitical, and public health events is much higher than that of the country's foreign trade. The stability of development is insufficient, and the trade subject and market structure are single, which further exacerbates the development risks. As a whole, it is still positioned as a complementary and characteristic sector in the national foreign trade system, and it has not become the core growth engine for the opening up of border areas to the outside world.

Judging from the growth rate and scale ratio, the efficiency of border trade growth is significantly low, and the gap with the national foreign trade development continues to widen. From 2015 to 2025, China's total border micro-trade increased from US\$337.628 billion to US\$552.037 billion, a cumulative increase of 38.29 %, with a compound annual growth rate of only 3.30 %, which is much lower than the historical high growth rate of 1995–2022 of 19.78 %, and it is also significantly lower than the average annual growth rate of 4.85 % of the country's total imports and exports during the same period, with a growth gap of 1.55 percentage points. In terms of scale, border small-scale trade has never been able to break through the bottleneck of 1 % of the country's total imports and exports. Affected by the rapid growth of the country's foreign trade in 2021, the proportion once fell to a phased low of 0.65 %. In 2023–2024, although border trade rebounded to a historical high of 0.95 %, it fell again to 0.82 % in 2025 due to external factors. It is in a complementary position for a long time and has limited use for economic growth in border areas.

From the point of view of risk resistance, the development of border trade has shown obvious characteristics of weak stability, and has suffered significant negative growth due to external shocks many times, while the country's foreign trade has been able to maintain resilient growth under similar shocks. From 2015 to 2025, border small trade showed negative growth for a total of four years. From 2015 to 2016, it was affected by the downturn in world trade and the entry of China's economy into a new normal. In 2020, due to the impact of the new crown pneumonia epidemic, port controls were tightened, and

the scale of trade fell sharply. In 2025, due to the weak global economic recovery and the impact of geopolitical conflicts, the trade volume fell by 10.6 % year-on-year, which directly reduced the overall growth rate of the decade; and the country's foreign trade continued to maintain positive growth during the most severe period of the epidemic in 2020, with risk resistance and development. Resilience is much higher than border trade. At the same time, although border-people-to-market trade is an important part of border trade, the import and export volume in 2025 is expected to be only US13.89 billion. The overall scale is much lower than that of border small-scale trade, which has limited support for the overall growth of border trade. The single trade dynamic structure further exacerbates the instability of development.

Judging from the trade subject and market structure, there is a problem of weak subject and market concentration in border trade, which further reduces the ability to resist risks. Border trade enterprises in the border areas are mainly small, medium and micro enterprises, lack the leadership of large leading enterprises, and have limited capital, technology and market development capabilities, making it difficult to adapt to changes and competition in the international market; on the other hand, the trade market is overly concentrated in Kyrgyzstan, Vietnam, Kazakhstan, and Russia. From 2015 to 2025, China and the above-mentioned four countries accounted for more than 80 % of small border trade, and the market concentration is high. Once the economic situation and trade policies of the target market are adjusted, it will directly affect the overall development of border trade.

In the context of the promotion of the Belt and Road initiative, although China's border trade commodity structure has shown a positive trend of transformation to high value-added and diversification, and the scale of import and export of high value-added commodities such as mechanical and electrical has increased, the overall optimization process is lagging behind, and there are significant structural shortcomings at both ends of the import and export. The traditional trade model of importing resources and exporting primary manufactured products has not yet been rid of, and the improvement of trade quality and efficiency is limited by structural imbalances, which has become the core internal factor restricting the high-quality development of border trade [43].

Import side: highly resource-dependent, high-end category imports are seriously scarce.

From 2015 to 2025, China's nine land border provinces and regions' small-scale trade imports showed obvious resource-dependent characteristics, and the proportion of resource-based commodity imports remained high. The scale of imports of manufacturing raw materials and mechanical and electrical high value-added commodities was very small, and the regional fluctuations were severe. The import structure has insufficient support for industrial upgrading in coastal areas.

The import of resource commodities accounts for more than 80 %, and the regional pattern is highly solidified. As the core categories of resource imports, mineral products and wood products, the cumulative imports from 2015 to 2025 reached US 440.491 billion and US 116.898 billion, respectively, accounting for 56.62 % and 23.61 % of the total imports of resource commodities. The total proportion of the two reached 80.23 %. The import structure is overly dependent on the resource endowments of neighboring countries and is vulnerable to international resource prices and export policies of neighboring countries. At the same time, resource imports have shown a pattern of strong in the north and weak in the south, westward and eastward retreat. The proportion of mineral products imported from Inner Mongolia in the total imports of the three western provinces and regions (Inner Mongolia, Yunnan, Xinjiang) has increased from 28.15 % in 2015 to 81.36 % in 2025, while Guangxi's mineral products imports have fallen from 8.32 % in 2015 to 1.19 % in 2025. The proportion of imports from eastern and southern provinces and regions has continued to shrink, and the regional gap has continued to widen.

The import of raw materials for manufacturing is small in scale and fluctuates greatly, showing a pattern of one strong and one weak. From 2015 to 2025, the cumulative imports of raw materials for manufacturing in the eight land border provinces and regions were only US22.287 billion, of which plastics and rubber were the core categories. The cumulative imports were US11.431 billion, accounting for 62.57 %, but this category continued to decline after reaching a high of US 212 million in 2017, and it will only be US 00.89 billion in 2025. In terms of regional distribution, only Yunnan is the core import province and region. Its cumulative imports of plastics and rubber account for 41.42 % of

this category, and the cumulative imports of base metals and their products account for 41.02 % of this category, while the cumulative imports of Liaoning and Tibet are less than 0.01 billion U.S. dollars. Xinjiang and Jilin have been at a very low level or even zero imports all year round, and the marginalization trend is significant.

Imports of electromechanical high value-added commodities are almost scarce, and regional faults are serious. From 2015 to 2025, the cumulative import volume of electromechanical and high value-added commodities was only US3311 million, of which electromechanical accounted for US1102.3995 million, transportation equipment accounted for US55.2609 million, optical equipment was only US3302,300, and there was no import record of weapons, materials and parts. The regional pattern is highly concentrated in Guangxi and Heilongjiang, with the combined proportion of the two reaching 96.10 %. Guangxi has always maintained its scale advantage, while Heilongjiang's imports have fallen from US3305,700 in 2015 to US,0.32 million in 2025, a decrease of more than 99 %; Liaoning, Tibet, Jilin, Xinjiang and other provinces and regions have imported a lot in most years, and there are very few imports of subdivided categories such as optical instruments and transportation equipment, making it difficult to support the upgrading of manufacturing and the optimization of industrial structure in the coastal areas.

Export side: traditional categories still dominate, and high value-added transformation regions are unbalanced

From 2015 to 2025, although China's border small-scale trade exports will transition to high value-added, traditional manufacturing raw materials such as textiles will still dominate. The export of high value-added commodities is only concentrated in a few provinces and regions, and the development of the remaining provinces and regions is lagging behind. And the export of consumer goods and resource commodities fluctuates greatly, and the stability and sustainability of the export structure are insufficient.

The proportion of raw materials in traditional manufacturing industry remains high, and some categories continue to shrink. Manufacturing raw material commodities are still the core of exports. From 2015 to 2025, the cumulative export volume reached US1186.023 billion. Among them, the cumulative export volume of textiles was

US1126.628 billion, accounting for 67.2 %. It is still the largest export category, but it accounted for a decline of 4.7 percentage points compared to the previous period, and some provinces and regions shrank significantly. Guangxi's textile exports fell from US8859 million in 2015 to US2257 million in 2025, a decrease of 70.08 %. Although base metals and their products have maintained rapid growth, with a total export of US330.825 billion, accounting for 16.2 %, only Xinjiang has become the absolute leader. Its exports have increased from US3387 million in 2015 to US1.101 billion in 2025, an increase of 1.85 times, accounting for 89.3 % of base metal exports in the country's border provinces and regions, and the rest of the provinces and regions accounted for less than 3 %.

The export of high-value-added commodities is dual-core and independent, and the global transformation is lagging behind. From 2015 to 2025, the cumulative export volume of high value-added commodities such as electromechanical, transportation machinery, and optical instruments reached US665.876 billion, an increase of 40.4 % over the previous period, becoming the core driving force for structural optimization, but the regional pattern is highly concentrated in Guangxi and Xinjiang. The cumulative export volume of the two was US228.863 billion and US227.157 billion, respectively, accounting for a total of 85.03 %, with a significant core position. As the second tier, Yunnan and Heilongjiang have exports of only US44.91 billion and US22.85 billion. The exports of Inner Mongolia, Liaoning and Tibet are all within US11 billion, and Jilin has accumulated only US0.47 billion. The export of high-value-added commodities in most provinces and regions lacks a stable growth trend, and some sub-categories have not formed effective exports. The transformation dividend is only concentrated in a few provinces and regions, and the pattern of global linkage transformation has not yet been formed.

Exports of consumer goods and resource commodities fluctuate greatly, and there is a single category. Although the exports of consumer goods and resource commodities have formed a pattern of northwest-led and southwest-supplemented, some categories have fluctuated significantly due to market demand and the policies of neighboring countries. For example, Guangxi's plant commodity exports accounted for 67.61 % in 2022, and fell to 39.27 % in 2025, a decrease of more than 28 percentage points; pearl commodities reached a peak of US0.55 billion in 2023, and fell to US0.48 billion in 2025. At the same

time, the exports of consumer goods are mainly shoes and hats (accounting for 48.1 %) and miscellaneous goods (accounting for 37.7 %), and the exports of resource commodities are mainly plants (accounting for 70.7 %). The single category lacks diversified support, which further reduces the risk resistance of export trade.

China's land border trade spans 9 provinces (districts) and 44 border prefecture-level cities. Different provinces and regions have formed their own distinctive development models relying on resource endowments and geographical advantages. However, due to geographical conditions, industrial foundation, policy implementation, port supporting and other factors [7], the regional pattern of border trade development is highly solidified, the gap between core provinces and marginal provinces and regions continues to widen, and the cross-regional collaborative linkage mechanism is missing. The complementarity of the port functional pattern of north goods and South people has not been fully explored, and regional imbalances have become an important factor restricting the high-quality development of border trade in the whole region [20].

The scale of trade has gathered at the core and shrank at the edges, and the gap has continued to widen. From 2015 to 2025, the four provinces and regions of Guangxi, Xinjiang, Inner Mongolia and Heilongjiang have always been the core provinces and regions of border trade. The total trade volume has remained at about 90 % of the country all year round, and the pattern has undergone significant changes: Xinjiang has developed rapidly, accounting for 56.11 % in 2025 from 25.57 % in 2015, accounting for half of the country's border trade volume; Guangxi's share has fallen from 45.18 % in 2015 to 22.12 % in 2025, still Ranked second; the proportion of Inner Mongolia and Heilongjiang fell from 8.20 % and 9.27 % to 6.69 % and 7.79 %, respectively, with relatively stable development. However, the scale of trade in marginal provinces and regions such as Tibet, Jilin, Liaoning, and Gansu is very small. In 2025, Tibet's border trade will account for less than 1 % of the country, but it will account for 33.33 % of the region's import and export trade, reflecting that the foreign trade of marginal provinces and regions is overly dependent on border trade, but the overall scale is difficult to increase, and the import and export of some categories are almost shrinking, and the trend of marginalization is becoming more and more significant [31].

The trade format and industrial support are uneven, and a virtuous circle has formed in the core provinces and regions. Relying on policy support and complete port facilities, the core provinces and regions have actively explored the innovative model of border-people mutual market + landing processing to promote the integration and development of trade and industry. In 2025, the landing processing of imported goods from Guangxi border-people mutual market reached US2.025 billion, a year-on-year increase of 34.8 %, benefiting 1.823 million border-people; Inner Mongolia and Xinjiang mutual market + landing processing mode accounted for more than 95 %, and the Tacheng Baktu port accounted for more than 80 % of Xinjiang's border-people mutual market imports, forming a trade-driven industry, industry-supported trade. However, the marginal provinces and regions are still stuck in the traditional channel trade stage. For example, the total amount of trade between Heilongjiang and the people's mutual market in 2025 will only be US0.35–0.42 billion. The industrial base is weak, the landing processing capacity is insufficient, and the added value of trade is low. It is difficult to achieve the coordinated development of trade and industry, and the development gap with the core provinces and regions has further widened.

The port function of north goods and south people is solidified, and cross-regional linkage is insufficient. From 2015 to 2025, China's border ports will form a distinctive pattern of north goods and south people: the ports of Inner Mongolia and Xinjiang in the north will be dominated by freight. In 2025, Mongolia's freight volume will account for more than 40 % of the country, and Xinjiang will account for about 30%. The total of the two will reach 70 % – 80 %, and the proportion of freight at railway ports will increase to 52.3 %, becoming the core of freight in the north; the ports of Yunnan and Guangxi in the south will be dominated by passenger transportation. In 2025, Yunnan's passenger traffic will account for more than 50 %, and Guangxi will account for 33.1 %, the total of the two. Reaching about 80 %, the passenger traffic at the country's border ports will reach 71.5777 million passengers in 2025, surpassing the historical peak in 2018. However, the functional complementarity of north-south ports has not been fully explored, the logistics and personnel exchange network of cross-regional ports has not yet been established, and there is homogenized competition at ports in the same region. For example, Yunnan

Mohan, Ruili, and Monkey Bridge ports are mainly based on trade with Myanmar and the old. There is a lack of clear functional positioning and industrial division of labor, insufficient integration of port resources, and difficult to exert agglomeration and radiation effects.

The policy support area is uneven, and the ability to gather elements varies significantly. The national policy platform for opening up along the border is mainly concentrated in the core provinces and regions. In the list of key areas along the border announced by the State Council in 2016, there are 72 national-level ports along the border, 5 key development and opening pilot areas, 28 border cities, 17 border economic cooperation zones, and 1 cross-border economic cooperation zone, most of which are distributed in Xinjiang, Guangxi, Yunnan, and Heilongjiang; however, the number of policy platforms in marginal provinces and regions such as Jilin, Liaoning, Tibet, and Gansu is too small and the support is weak, making it difficult to attract capital, technology, talents and other elements to gather, and the lack of motivation for border trade development has further widened the relationship with core provinces and regions.

Chapter 3 Experience, challenges and policy recommendations

3.1 Challenges faced by China's border trade

Border trade is an important carrier of regional economic integration. Various regions of the world combine geographical characteristics, resource endowments and cooperative relations with neighboring countries to form a differentiated development model. Among them, the practice of the European Union, ASEAN, and the North American Free Trade Area has accumulated mature and learnable experience [10]. This chapter combs the practical paths of typical regions from the four core dimensions of policy coordination, business format integration, facility connectivity, and mechanism guarantee, and provides a reference for the high-quality development of China's border trade. Each dimension consists of no more than 3 subdivided points to condense the core of experience.

The development of mature border trade is based on policy coordination between countries. Through unified rules, tax incentives, and gradient support, institutional barriers are broken and trade elements are freely flowing.

Unify trade rules and eliminate institutional barriers: Relying on agreements such as the Maastricht Treaty, the European Union has abolished border controls between member states, realized the four major free flows of goods, people, capital, and services, unified the value-added tax system and product quality standards, and fundamentally eliminated institutional barriers to border trade, forming a zero barrier cross-border trade environment [35].

Implement differentiated tax incentives to reduce transaction costs: ASEAN has formulated special tax policies for border people and mutual markets to relax tax exemptions and restrictions on commodity types. For example, the daily transaction tax exemptions for border people on the Thai-Lao and Thai-Myanmar borders reach 10,000 baht, covering agricultural products, daily necessities and other categories; The North American Free Trade Area implements rules of origin for border processing trade, and tariff exemptions can be enjoyed if the processing value-added meets the standards, and

the deep binding of industry and trade is promoted.

Gradient financial support to narrow regional gaps: the European Union has established a European Regional Development Fund to support the infrastructure and industrial development of border areas with lagging economies in Central and Eastern Europe through financial transfer payments; ASEAN has granted a transition period of tariff relief to underdeveloped member states and established special funds for border trade to adapt to the differences in the level of economic development in the region and ensure the landing and fairness of policies.

Global border trade has transformed from the traditional commodity exchange to trade + industry. Through the integration with processing and manufacturing, tourism, and logistics, new kinetic energy has been cultivated to enhance the added value and sustainability of trade.

Trade + processing and manufacturing to create a closed loop of cross-border industries: The European Union, Germany, Poland and France have set up cross-border industrial parks in the western border to achieve industrial synergy relying on complementary resources-Poland and Spain provide labor and land, Germany and France export technology and funds, focusing on the development of auto parts, machinery and equipment processing, products are directly supplied to the regional market through border trade, forming an industrial closed loop of border processing + cross-border sales.

Trade + cross-border tourism to activate the vitality of consumer-oriented trade: ASEAN has created a golden triangle of cross-border tourism (Chiang Mai, Thailand, Luang Prabang, Laos, Yangon, Myanmar), exempted each other from border tourist visas, opened cross-border tourism dedicated lines, and relied on tourism to drive trade in characteristic commodities, such as latex products, woodcarving, jade, etc., through scenic spots and mutual market sales, to achieve the two-way empowerment of tourism drainage and trade income [45].

Trade + modern logistics, build strong trade hardware support: The United States, Canada and Mexico have built large-scale cross-border logistics hubs in border cities such as San Diego, Vancouver, and Tijuana to realize the integrated operation of warehousing, sorting, and distribution, unify cross-border logistics standards, and realize one

declaration, one inspection, and one release through the electronic port system, greatly improving logistics efficiency and reducing logistics costs for border trade.

The efficient development of border trade is inseparable from the integrated support of cross-border transportation, ports, and energy infrastructure. By improving the hardware network, the border effect will be weakened and the convenience of trade will be enhanced.

Build a global cross-border transportation network: The European Union has implemented the Trans-European Transportation Network plan to build a cross-border transportation system covering roads, railways and water transportation, such as the European high-speed rail and the Rhine cross-border water transportation channel, to achieve the rapid circulation of goods and people in border areas; ASEAN promotes projects such as the China-Thailand Railway and the China-Thailand Railway to open up land transportation channels in Southeast Asia and connect China's southwest border with ASEAN countries.

Promote port standardization and modernization: The European Union realizes the integrated operation of ports between member states, eliminates inspection links, and realizes seamless docking; ASEAN modernizes core ports such as Langshan and Moding, improves inspection and logistics supporting facilities, and builds electronic ports to realize the electronic customs clearance process and significantly shorten the customs clearance time.

Promote the interconnection of cross-border energy facilities: the European Union has built a cross-border oil and gas pipeline and power transmission network to not only ensure the energy supply of member states, but also promote cross-border trade in energy products; the United States, Canada and Mexico realize the mutual supply of cross-border electricity and oil and gas resources, relying on the interconnection of energy facilities, cultivate new growth points for cross-border energy trade, and enrich the categories of border trade.

In the context of the in-depth promotion of the Belt and Road initiative and the improvement of the level of opening up along the border, although China's border trade has achieved steady growth, it is constrained by the four core factors of the complex and

changeable international environment, the weak domestic development foundation, the imperfect cross-border cooperation mechanism, and the weak competitiveness of trade subjects. High-quality development still faces many real challenges. This part focuses on the analysis of the four major dimensions. Each dimension consists of no more than 3 subdivided points, accurately analyzes the core of the challenge, and lays a realistic foundation for subsequent optimization suggestions.

At present, the global economic recovery is weak, the geopolitical landscape is deeply adjusted, and trade protectionism is on the rise. The external uncertainty of China's border trade development has increased significantly, and various risks are superimposed on each other, restricting the stable development of trade.

The global economic recovery is weak, and demand in the surrounding markets is shrinking: Affected by the new crown epidemic and geographical conflicts, the economic growth of most countries around China is under pressure, the income level of residents has declined, and market demand has continued to shrink. For example, Russia and Central Asian countries have been affected by energy price fluctuations and Western sanctions, and their demand for imports of Chinese mechanical, electrical and light industrial products has declined; the economic recovery of some countries in Southeast Asia has been slow, and the growth of imports of agricultural products and processed products has been limited, which has directly led to insufficient motivation for border trade exports.

The geopolitical conflict has intensified and the uncertainty of trade development has increased: the geopolitical game on the China-India border has led to restrictions on port opening and trade cooperation; the Russia-Ukraine conflict has affected the security of logistics channels between China and Russia and Central Asia, driving up the cost of energy and resource imports; some Western countries promote the Indo-Pacific Strategy, interfering with China's border trade cooperation with Southeast Asian and South Asian countries, further exacerbating geographical risks and restricting the expansion of border trade [5].

Trade protectionism has risen, and trade barriers in neighboring countries have increased: in order to protect local industries, neighboring countries have introduced trade protection policies, such as some countries in Southeast Asia have implemented anti-

dumping investigations and increased import tariffs on Chinese agricultural products; Russia and Central Asian countries have implemented import quota restrictions on mechanical and electrical products; South Asian countries have restricted Chinese commodity imports through cumbersome customs clearance procedures and strict market access standards, increasing transaction costs and reducing the competitiveness of Chinese commodities.

Most of China's border areas are border, less, and poor agglomeration areas, with prominent shortcomings in industrial infrastructure, infrastructure, and human resources, resulting in insufficient domestic support for the development of border trade, making it difficult to form a sustainable endogenous growth driver [43].

The industrial foundation is weak and the degree of trade and industrial integration is low: the border areas are dominated by traditional industries such as agriculture and resource extraction, the development of manufacturing is lagging behind, the industrial structure is single, and there is a lack of high value-added processing industries. Most regions are still stuck in the traditional model of resource import and primary product export. The border-people mutual market + landing processing model has only been implemented in a few core regions of Guangxi and Xinjiang. The driving effect of trade on the industry has not been fully utilized, and the industry's ability to support trade is insufficient.

Uneven infrastructure support and low efficiency of cross-border logistics: Although the overall border infrastructure has improved, the regional support is uneven. The road and railway support at some ports on the western and northern borders are imperfect, and there is a shortage of logistics, warehousing and sorting facilities; the logistics support of cross-border channels such as the old and middle railways is insufficient, and the logistics standards of different provinces and regions are not uniform; cross-border logistics is mainly by road, with a low proportion of railway transportation and high logistics costs, accounting for an average of more than 20 % of total trade, which is much higher than the international average.

Lack of human resources and insufficient professional support capacity: the economic development of border areas is lagging behind, and educational resources are

scarce, making it difficult to attract and retain professionals in foreign trade, logistics, cross-border law, foreign languages, etc. Small and medium-sized border trade enterprises lack professional market analysis and cross-border operation talents, and are less sensitive to changes in the international market and the adjustment of trade policies of neighboring countries. It is difficult to adapt to international market competition, restricting trade format innovation and market expansion [21].

Although the border trade cooperation mechanism between China and neighboring countries has been initially established, there are still problems such as poor convergence of rules, insufficient coordinated supervision, and inefficient dispute resolution, making it difficult to adapt to the needs of high-quality border trade development [20].

The convergence of trade rules is not smooth, and institutional barriers still exist: there are large differences in trade standards, quality inspection systems, and tax policies between China and neighboring countries, and the customs codes and product certifications of some neighboring countries are low in line with international standards, resulting in cumbersome commodity customs clearance processes; the duty-free quotas and commodity types of border markets are not uniform among countries, and the rules of origin of cross-border processing trade lack bilateral consensus, which increases the compliance costs of trade entities [12].

Insufficient cross-border coordinated supervision and low customs clearance efficiency: the degree of information interconnection between customs, quality inspection, immigration and other departments of China and neighboring countries is low, and mutual recognition of inspection results and real-time sharing of information have not yet been achieved; some border ports still implement bilateral separate inspections, repeated inspections, long waiting times in queues, and the average customs clearance time at core ports far exceeds the international advanced level; the lack of regulatory coordination mechanisms for cross-border logistics and small-scale trade, and the joint law enforcement efforts to combat smuggling and tax evasion are insufficient.

The dispute resolution mechanism is inefficient and the protection of the rights and interests of trade entities is insufficient: the border trade dispute resolution mechanism between China and neighboring countries is mostly based on negotiation, and lacks

standardized and legalized arbitration and litigation channels; there is a lack of mediation institutions for civil trade disputes, and the cost of defending rights is high and the efficiency is low when small, medium and micro enterprises face disputes; the insurance and guarantee system for cross-border trade is imperfect, and the ability of trade entities to deal with exchange rate fluctuations, policy changes, and geographic risks is weak, and the protection of rights and interests lacks effective support

3.2 Policy recommendations for China's border trade

In view of the international challenges, domestic shortcomings and institutional issues facing the development of China's border trade, combined with advanced international experience and the actual situation of China's border areas, this chapter puts forward targeted optimization suggestions from the five core dimensions of policy system improvement, format integration and innovation, infrastructure upgrading, cross-border mechanism construction, and trade subject cultivation. Each dimension consists of no more than 3 subdivided points to ensure the landing, adaptability, and practicality of the recommendations, and promote the transformation of China's border trade from scale expansion to quality improvement to better serve the opening up along the border and the construction of the Belt and Road.

With inter-country policy coordination as the core, combining the economic development differences between China and neighboring countries, we will build a border trade policy system of unified rules, gradient preferences, and precise support to eliminate institutional barriers and reduce transaction costs.

Promote the convergence of bilateral/multilateral trade rules: strengthen trade policy consultations with neighboring countries, promote mutual recognition of customs codes, product quality standards, inspection and quarantine results, and establish a unified system of border trade rules; for border-people mutual markets and cross-border processing trade, negotiate with neighboring countries to formulate unified duty-free quotas, commodity type restrictions, and rules of origin to simplify compliance processes and reduce the institutional costs of trade subjects [12].

Implement differentiated taxation and financial support policies: further optimize the trade taxation policies of border and people-to-city exchanges, appropriately increase the amount of tax exemptions, and expand the types of duty-free commodities, focusing on agricultural products, daily necessities, and specialty processed products; give preferential corporate income tax and value-added tax exemptions to cross-border processing trade and cross-border e-commerce enterprises in border areas; set up special funds for the development of border trade at the national level, focusing on supporting the industrial upgrading and infrastructure improvement of core provinces and regions such as Guangxi, Xinjiang, and Yunnan, and give preferential support to marginal provinces and regions such as Jilin and Tibet to narrow the regional development gap.

Strengthen policy implementation and implementation supervision: incorporate border trade policies into the performance appraisal system of border provinces and regions, clarify the responsible subjects and time nodes for policy implementation, and ensure that policies such as tax incentives and financial support reach market entities directly; establish a policy implementation effect evaluation mechanism, regularly conduct research and evaluation on the implementation effect of border trade policies, and adjust policies in a timely manner according to market changes and enterprise needs to improve the adaptability and implementation of policies.

Relying on the resource endowments and geographical advantages of border areas, we will promote the deep integration of border trade with processing and manufacturing, cross-border tourism, and the digital economy, break the traditional trade model, cultivate diversified and high value-added new trade formats, and enhance the core competitiveness of trade [3].

Deepen the trade + landing processing model and build cross-border industrial clusters: build cross-border processing industrial parks at border ports in core provinces and regions such as Guangxi, Xinjiang, Yunnan, etc., focusing on the development of agricultural product processing, mineral deep processing, light industrial product manufacturing and other industries, relying on the border-people mutual market + park processing + cross-border sales model, to achieve closed-loop development of trade and industry; give land, tax and logistics support to enterprises in the park, attract leading

domestic enterprises to settle in, form an industrial agglomeration effect, and enhance the added value of border trade.

Build a characteristic brand of trade + cross-border tourism and activate consumer-oriented trade: relying on the cross-border tourism resources of Yunnan and Guangxi, build high-quality cross-border tourism routes between China and Vietnam, middle-aged and elderly, and China and Myanmar, exempt each other from border tourist visas, and open cross-border tourism dedicated lines; build cross-border tourism and shopping complexes at border ports, integrate shopping, catering, accommodation, and logistics functions, and promote the offline sales and online drainage of characteristic agricultural products, handicrafts, and cultural and creative products, and realize the two-way empowerment of tourism drives trade and enriches tourism.

Develop a new format of trade + digital economy and improve the level of trade digitization: build a comprehensive pilot zone for cross-border e-commerce at core border ports, improve supporting policies for cross-border e-commerce customs clearance, tax refunds, and foreign exchange settlement, and promote the integration and development of cross-border e-commerce and border people's mutual markets, market procurement and trade; build a digital platform for border trade, integrate market information, customs clearance declaration, logistics tracking, financial services and other functions to provide enterprises with one-stop digital services; cultivate local cross-border e-commerce enterprises, support enterprises to expand the markets of neighboring countries through platforms such as Amazon and Aliexpress, and realize the integration of online and offline trade [19].

With the goal of integration of facilities, efficient logistics, and modernization of ports, we will increase investment in infrastructure in border areas, improve cross-border transportation, ports, and logistics systems, weaken the border effect, and improve the convenience and efficiency of border trade [22].

Build a global cross-border transportation network: accelerate the construction of cross-border railway and highway projects such as China-Myanmar, China-India, China-Mongolia, etc., improve transportation facilities in the western and northern border areas, and open up logistics channels for border trade; enhance railway transportation capacity in

border areas, optimize the route layout of China-EU trains, China-old railways, increase freight frequency, and promote the transformation of cross-border logistics from highway-based to public railway intermodal transport, and reduce logistics costs.

Promote the modernization and standardization of ports: modernize and transform 72 national-level ports along the border across the country, improve supporting facilities such as inspection, logistics, warehousing, and sorting, and focus on enhancing the service capabilities of western and northern border ports; build smart ports and promote digital means such as electronic declaration, electronic inspection, and self-service customs clearance to achieve one declaration, one inspection, and one release, reducing the average customs clearance time of core ports by more than 50 %; promote the functional differentiation and positioning of border ports, such as Guangxi Pingxiang and Yunnan Ruili, focusing on the development of cross-border processing and e-commerce, Inner Mongolia Manzhouli and Heilongjiang Heihe focusing on the development of energy and resource trade, Avoid homogenization competition.

Improve the supporting system of cross-border logistics: build large-scale cross-border logistics hubs in core border cities to realize the integrated operation of warehousing, sorting, distribution, and bonded; promote the unification of logistics standards in border provinces and regions, strengthen the convergence of logistics standards with neighboring countries, and realize the interconnection of logistics information; cultivate leading local cross-border logistics enterprises, support enterprises to cooperate with international logistics enterprises, open cross-border logistics dedicated lines, enhance logistics service capabilities, and reduce the proportion of cross-border logistics costs in total trade to less than 15 %.

Conclusion

Taking China's 9 provinces and regions along the land border as the research object, this paper combs the theoretical connotation and development history of border trade, empirically analyzes the development characteristics and core issues of border trade from 2015 to 2025, and puts forward high-quality development suggestions based on international experience. The core conclusions are as follows.

After thousands of years of development, China's border trade has achieved all-round upgrading of policies, infrastructure, and formats under the empowerment of the Belt and Road initiative. It has become the core driving force of border economic development and an important support for border opening. From 2015 to 2025, border small-scale trade and border people's mutual market trade have grown steadily, and the trade pattern has shown the rise of Xinjiang and Guangxi's stable position in the second place. Innovative models such as mutual market + landing processing have become an important path for the prosperity of the border and the rich. The level of infrastructure interconnection such as cross-border transportation and ports has been significantly improved, and the import and export of high-value-added commodities such as mechanical and electrical have increased. Promote the diversified and high-quality transformation of the trade structure, and form a theoretical analysis framework based on classic trade theory and integrating the characteristics of border location, which provides a solid support for practical development.

At present, the high-quality development of China's border trade is still facing multiple constraints. The internal manifestations are insufficient trade resilience, and the sensitivity to external shocks is much higher than the national average level of foreign trade, and there have been many negative growth rates; the commodity structure is unbalanced, imports are highly dependent on resource products, exports are mainly traditional primary manufactured products, and high value-added categories are only concentrated in Gui and Xin provinces; the regional development pattern has solidified, and the core provinces and regions have formed a virtuous circle of trade + industry. Marginal provinces and regions are still stuck in channel trade, and the port coordination

and linkage are insufficient, and the industrial base is weak, the lack of professional talents, and the regional imbalances in policy support are highlighted. Externally, it is affected by the weak global economic recovery, the escalation of geopolitical conflicts, and the rise of trade protectionism. Problems such as poor convergence of cross-border rules, insufficient coordinated supervision, and inefficient dispute resolution mechanisms have further exacerbated development risks.

Drawing on the experience of the development of international border trade such as the European Union and ASEAN, and combining the actual situation of China's border areas to promote the high-quality development of border trade, it is necessary to take institutional innovation, format integration, facility upgrading, mechanism coordination, and subject cultivation as the core to promote the convergence of bilateral/multilateral trade rules and implement differentiated tax and financial support; deepen the integration of trade + landing processing, cross-border tourism and digital economy to cultivate new kinetic energy; improve cross-border transportation, smart ports, and logistics supporting systems to build strong hardware support; establish normalized cross-border negotiation, collaborative supervision, and legalized dispute resolution mechanisms to enhance the effectiveness of cross-border cooperation; cultivate and strengthen market entities, strengthen the training of professional talents, and promote Deep integration of trade and industry.

The high-quality development of border trade is related to the economic prosperity and improvement of people's livelihood in border areas, as well as to the security of the country's borders, the deepening of border opening and the implementation of the Belt and Road initiative. In the future, with the continuous improvement of the border policy system, the continuous optimization of the cross-border cooperation mechanism, and the gradual consolidation of the border industry foundation, China's border trade will break through the bottleneck of development, give full play to its geographical advantages, realize the transformation from characteristic supplement to core engine, and promote the formation of a coordinated and balanced development pattern in nine provinces and regions, so that border trade will become an important support for prosperous and stable borders, and inject new kinetic energy into the coordinated development of the country

and the optimization of the surrounding diplomatic pattern.

There are still limitations in the research of this paper. Affected by the availability of data, the research depth of some micro-subjects and sub-categories is insufficient, and the discussion on differentiated cooperation strategies of different neighboring countries needs to be deepened. In the future, it can be combined with field research to obtain first-hand data, in-depth analysis of the differentiated development paths of each border prefecture-level city, formulate cross-border cooperation strategies adapted to different surrounding regions, and promote the development of border trade to a higher quality and deeper level.

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