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Research on the Influencing Factors of Agricultural Products Trade Between China and Major Countries Along the "The Belt and Road" Initiative

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Abstract: Since the implementation of the Belt and Road Initiative (BRI), agricultural trade volumes between China and participating nations have demonstrated sustained growth, but the development of trade faces new opportunities and challenges due to changes in the international situation and regional differences. According to the trade gravity model and the theory of regional economic integration, this paper adopts the method of combining literature analysis and empirical research to systematically examine the influence mechanism of factors such as policy system, economic environment, social culture, and technical facilities on agricultural trade. The study finds that: institutional arrangements such as FTAs significantly promote trade growth, but technical trade barriers still constitute a major obstacle; economic growth in the countries along the route leads to demand upgrading, but exchange rate fluctuations affect trade stability; cultural differences and consumer preferences constrain market expansion, while quality certification and branding help to enhance competitiveness; improved logistics facilities reduce trade costs, and digital technology improves transaction efficiency. The study proposes to build a more open, efficient, and sustainable agricultural trade system by deepening policy coordination, improving infrastructure, and promoting technological innovation. This paper provides the theoretical basis and practical reference for optimizing agricultural cooperation in the “Belt and Road”, which is of great significance for promoting regional economic integration.

Keywords: Belt and Road, agricultural products, trade.

1. Introduction

Since its introduction in 2013, The Belt and Road Initiative, as an important bridge for promoting global economic and trade cooperation, has provided crucial support for deepening agricultural product trade exchanges between China and the countries along the routes.Looking back at the history of the development of the Silk Road, agricultural trade and agricultural exchanges have been the main content of the ancient land and sea Silk Road. Trade in agricultural products is not only related to food safety and people's livelihood but also an important link for deepening economic integration and realizing mutual benefits and a win-win situation. From history to the present, agricultural trade has always been an important part of China's foreign economic cooperation. In 2023, for example, agricultural products accounted for 4.9% of China's total trade exports, highlighting its continued

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importance in economic and trade relations. However, with the complications of the international situation, such as the new crown epidemic, geopolitical conflicts, and the intensification of the trend of anti-globalization, the stability and sustainability of the trade network face many challenges.

Current research shows that China's agricultural trade with countries along the route shows significant regional stepwise differences. ASEAN and CIS countries dominate, while Central and Eastern Europe, Central Asia, and other regions still have more room for the development of trade cooperation due to distance, cultural differences, and lack of infrastructure. There are also issues such as a single trade structure with low value-added, the dominance of primary agricultural products in exports, and the limited share of technology-intensive processed goods. At the policy level, in 2025, the central government included the “Coordination Mechanism for Trade and Production of Agricultural Products” in the No. 1 Document of the Central Government, a policy aimed at coordinating agriculture’s import and export and balancing supply and demand in the domestic market. This reflects the key role of policy regulation in stabilizing trade networks and coping with unexpected risks.

Existing literature mostly explores trade influencing factors from a single perspective, such as geographic location and population size [1], economic complementarity and competitiveness [2], but there is still a lack of comprehensive consideration of political, cultural, institutional and technical standards. For example, non-economic factors such as cultural diversity, differences in food safety standards and imperfections in the legal system of countries along the route. In addition, emergencies such as the New Crown epidemic further reflect the vulnerability of trade networks.This study employs an interdisciplinary approach integrating economic geography and international political economy to examine the key factors influencing agricultural trade under the Belt and Road Initiative. The research focuses on identifying both the potential benefits and challenges in regional agricultural cooperation among participating countries. By reviewing the existing research results, this paper will provide theoretical support and practical reference for increasing the export value of agricultural products, optimizing the trade network and promoting balanced development, as well as providing new ideas and paths for further expanding the opening up of agriculture and economic and trade cooperation between China and the above nations.

2. Literature review

2.1. Analysis of trade status

The extent of China’s agricultural trade with “Belt and Road” partner nations continues to grow. In 2024, China's total agricultural exports amounted to 732.975 billion yuan. As shown in Figure 2, China's agricultural exports to Vietnam are the highest, amounting to 5,173,300 tons (accounting for 9.47%), followed by Japan (5,093,800 tons, accounting for 9.32%) and South Korea (4,655,500 tons, accounting for 8.52%). In terms of specific products, as shown in Figure 1, the export value of nuts, fruits and feeds has increased, Total fruit and processed fruit product exports reached USD 7.46 billion, representing a 21% year-on-year growth, while nuts, seeds and their derivatives achieved $2.84 billion in exports with a 25.2% annual increase. The cumulative export of feedstuffs totaled 4.03 billion U.S. dollars, an increase of 11.7% during the same time frame in the prior year.While the export value of aquatic and marine products and vegetables, edible fungi and products declined, the cumulative export of aquatic and marine products and products amounted to 18.08 billion U.S. dollars,Year-on-year figures reveal modest declines across key agricultural categories, with overall exports decreasing by 0.2%. The vegetable sector, including edible fungi and processed products, recorded USD 15.16 billion in exports, representing a 1.6% contraction compared to the previous year's period.Countries along the route, such as Southeast Asia, Central Asia and Eastern Europe, have become important trading partners of China due to their rich agricultural resources and

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geographic advantages. For example, Xinjiang, with its geographic and policy advantages, has become an important hub for agricultural exports to Central Asia.

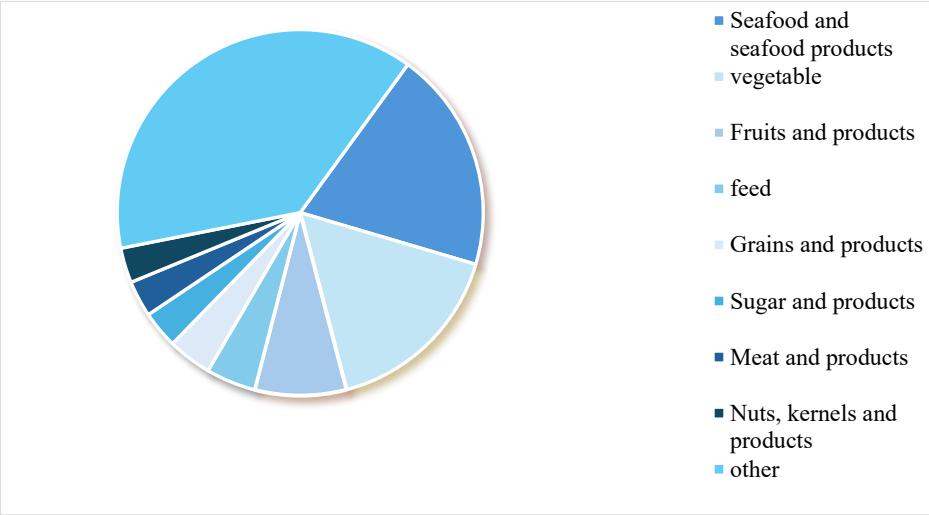

Figure 1: Percentage of exports of major categories of agricultural products

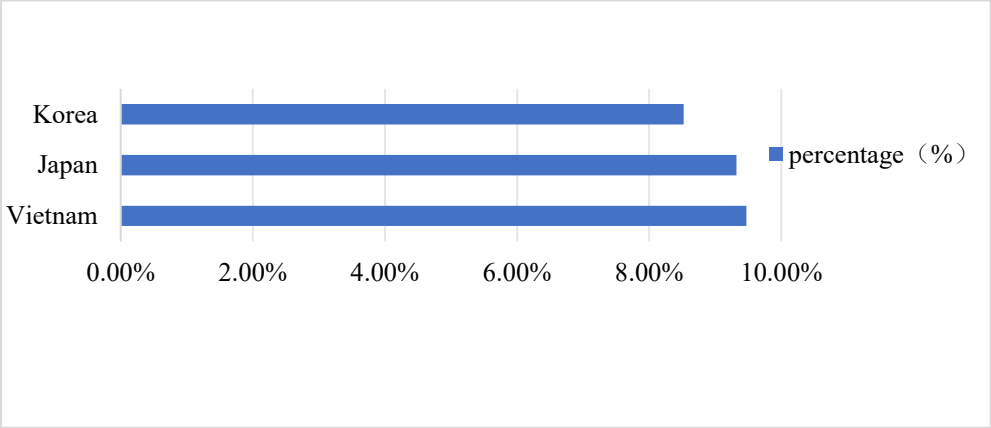

Figure 2: Statistics on main sources of China's agricultural products exports in 2024 (by export volume, in tons)

2.2. Research on influencing factors

Existing studies have shown that factors such as total GDP, population size, spatial distance and institutional arrangements also have an important impact on agricultural trade [3], for example, countries with larger economies and higher population sizes tend to exhibit higher demand for agricultural products, which directly contributes to the growth of international trade flows. In addition to the traditional factors, with the deepening of global value chains and the advancement of the 'One Belt, One Road' initiative, recent studies have further expanded the dimensions of the analysis, proposing new perspectives on the impact mechanisms such as relative economic size, trade distance, and product differentiation [4]. The agricultural commerce between China and the nations along the route has also been significantly impacted by the "Belt and Road" plan, The policy environment in BRI cities has been enhanced, elevating the average quality of export products from local enterprises. Combined with strengthened governmental support for corporate innovation, these improvements have contributed to the growth of high-quality exports from Chinese firms [5].

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2.3. Theoretical basis

The theory of regional economic integration provides an important for researching the "Belt and Road" agriculture trade.The thesis highlights that by removing trade restrictions,the promotion of factor mobility and the strengthening of policy coordination, intra-regional economic cooperation can achieve a higher level of trade liberalization and economic integration. Under the Belt and Road Initiative, China has promoted regional economic integration by establishment free trade zones and signing of bilateral or multilateral trade agreements. For example, the establishment of the China-ASEAN Free Trade Area (CAFTA) has significantly reduced tariffs on agricultural products and contributed to the rapid growth of agricultural trade in the region. At the same time, regional economic integration has also promoted the integration of the agricultural industry chain, facilitated the transfer of agricultural technology and increased agricultural investment, and provided a new impetus for agricultural trade. There is also the trade gravity model, which is an important tool for analyzing bilateral trade flows, and its core idea is that trade flows are related to the economic size and distance of the two countries. Under the “Belt and Road” initiative, the trade gravity model can be used to examine the elements that impact agricultural commerce between China and the nations that border it. Trade flows between nations with larger economies are greater, according to the trade gravity model. Distance is an important factor affecting trade flows. The trade gravity model can also incorporate policy variables, such as tariff levels and trade agreements, to analyze their impact on agricultural trade.

3. Discussion of the categorization of impact factors

3.1. Policy and institutional factors

“Trade policies under the Belt and Road Initiative have had a two-way impact on agricultural trade. On the positive side, trade agreements signed between China and countries along the Belt and Road Initiative have significantly reduced tariff barriers and contributed to the growth of agricultural exports. Meanwhile, regional cooperation mechanisms like the China-ASEAN Free Trade Area (CAFTA) and the Eurasian Economic Union (EAEU) have provided institutional safeguards for trade through harmonization of rules and simplification of processes, further enhancing the level of facilitation. On the negative side, however, technical barriers to trade (TBT) and sanitary and phytosanitary measures (SPS) have made it more difficult to export, and stringent inspection standards imposed by some countries on Chinese agricultural products have lengthened customs clearance time and raised costs. In addition, the protectionist policies of a few countries also pose challenges to trade liberalization. Particular attention needs to be paid to the fact that there are regional differences in the extent to which different regions are affected by the policies, for example, the South-East Asian market has benefited significantly from deeper regional cooperation, while some Central Asian countries are still constrained by non-tariff barriers. Overall, despite the challenges, policy-driven trade liberalization and facilitation have led to a net increase in agricultural trade, and further harmonization of rules needs to be optimized to unlock greater potential in the future [6,7].

3.2. Economic factors

The economic development level and market scale are the fundamental factors influencing agricultural products [8]. Taking Southeast Asian countries as an example, their fast-growing economies and large population bases make them important export markets for Chinese agricultural products. In terms of exchange rate fluctuations and price competition, fluctuations in the RMB exchange rate will affect the international competitiveness of China's agricultural products, while fluctuations in international agricultural prices will affect the stability of trade. Furthermore, changes

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in income levels and consumption structures in countries along the route have boosted demand for high-end agricultural products and organic food, providing new opportunities for China's agricultural exports.

3.3. Socio-cultural factors

Cultural differences and consumer preferences are important factors affecting trade in agricultural products. For example, the demand for halal food in Central Asian countries has boosted the export of related products. Meanwhile, branding and cultural promotion help enhance the international competitiveness of Chinese agricultural products. In addition, rising consumer concerns about food safety and quality have driven improvements in quality certification and traceability systems for China's agricultural products, which in recent years have enhanced their recognition in the international market by obtaining international organic certification and geographical indication protection. For example, in 2019, China's “Yunnan Pu'er Tea” and “Ningxia Wolfberry” were awarded the European Union's Geographical Indication Protection Certification, greatly enhancing the competitiveness of these products in the European market. Meanwhile, the increase in cultural exchange activities, such as the organization of Chinese agricultural product exhibitions and food festivals, has also helped to enhance the recognition and acceptance of Chinese agricultural products by consumers in countries along the route.

3.4. Technology and infrastructure factors

Improvements in logistics and transportation infrastructure have significantly increased trade efficiency, especially in the cross-border transportation of agricultural products. With the development of cold chain logistics along the Belt and Road, the loss of agricultural products during transportation has been reduced, and the quality of perishable food products, in particular, has been better guaranteed. The innovation and application of agricultural technology have also provided new growth points for agricultural trade. China has made progress in agricultural science and technology cooperation with countries along the route, such as the promotion of hybrid rice technology and the application of the Internet of Agricultural Things, which has not only improved crop yields and resistance to diseases but also enhanced the quality of the products, thus boosting China's agricultural products' competitiveness for export. Using digital technology, on the other hand, has provided new channels and modes for agricultural trade. The rise of cross-border e-commerce platforms has made it easier for Chinese agricultural products to enter the markets of countries along the routes, shortening the supply chain and reducing transaction costs. Meanwhile, the application of intelligent logistics systems, such as drone delivery and intelligent warehouse management, has further enhanced the efficiency and reliability of agricultural trade.

4. Challenges and opportunities

Agricultural trade faces both challenges and opportunities in the context of globalization. First, trade barriers are one of the main challenges, with some countries restricting trade liberalization through high tariffs and complex non-tariff barriers, such as stringent inspection and quarantine standards and quota restrictions, which make exporting more difficult and costly. Secondly, market competition has become increasingly fierce, with low-priced imports impacting the domestic agricultural market, affecting local farmers' income and agricultural development. In addition, supply chain problems should not be ignored. The perishable nature of agricultural products leads to high logistics costs, while the imperfect cold chain system and poor infrastructure constrain the efficiency of transportation and affect the quality of products. Information asymmetry also leads to supply and demand imbalance and price volatility, further increasing trade risks.

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However, agricultural trade has also ushered in many opportunities. The opening up of markets has expanded the space for trade, especially free trade agreements and the Belt and Road Initiative, which have created a broader market and more convenient conditions for agricultural exports. The rise of emerging markets has also provided new impetus to the growth of demand for agricultural products. The establishment of regional cooperation mechanisms, such as the China-ASEAN Free Trade Area and bilateral cooperation mechanisms, has optimized the trade environment and enhanced the depth of cooperation. In addition, technological innovations have injected new vitality into agricultural trade, with digital technologies such as e-commerce and blockchain improving trade transparency, The integration of intelligent technologies—including the Internet of Things (IoT) and big data analytics—has significantly optimized agricultural production, post-harvest processing, and supply chain efficiency. Concurrently, innovations in agricultural science and technology have contributed to enhanced crop yields and strengthened the global competitiveness of agri-food products.To meet the challenges and seize the opportunities, countries need to strengthen cooperation, promote trade liberalization and improve the global agricultural governance system, while actively using new technologies to enhance efficiency and promote sustainable agricultural development. Through joint efforts, agricultural trade will usher in a more prosperous future.

5. Conclusion

This paper centers on a systematic study of the elements that affect China's agricultural commerce with the nations along the BRI and analyzes the characteristics of the current trade pattern, the key influencing factors and the future development trend by integrating the perspectives of economic geography and international political economy. The study finds that China's agricultural trade with the countries along the route shows significant regional differences, with ASEAN and CIS countries dominating, while Central and Eastern Europe, Central Asia, and other areas have not yet fully released their trade potentials due to insufficient infrastructure and policy differences. The core factors affecting trade can be summarized in four aspects. First, in terms of policies and institutions, FTAs have lowered tariff barriers but technical trade barriers still exist. On the economic front, economic growth and consumption upgrading in countries along the route have boosted demand, but exchange rate fluctuations have affected export stability. On the socio-cultural front, cultural differences and brand recognition affect market acceptance. In terms of technology and infrastructure, cold chain logistics and digital technology improve efficiency, but the infrastructure of some countries is still weak. The study also points out that agricultural trade is currently facing challenges such as high trade barriers, fragile supply chains and intensified market competition, but also new opportunities such as market liberalization, technological innovation and sustainable development. In the future, a more stable and efficient agricultural trade system should be built by deepening policy coordination, improving infrastructure, promoting technological innovation, fostering the development of green agriculture and strengthening regional cooperation. Overall, The Belt and Road Initiative provides a robust platform for expanding agricultural trade cooperation, offering significant growth across participating economies,and it is expected to realize win-win cooperation with higher quality through multi-dimensional synergistic promotion.

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