Proceedings of ICFTBA 2025 Symposium: Financial Framework's Role in Economics and Management of Human-Centered Development
DOI: 10.54254/2754-1169/2025.GL26976

Green Trade Barriers and China's Foreign Trade: Current Research Status and Future Prospects

Huiya Zhang

International Business School, Dalian Minzu University, Dalian, China
zhanghuiya59@gmail.com

Abstract. During the past few decades, China's economy experienced rapid expansion, foreign trade between China and other countries has also increased. However, numerous countries implement trade barriers to safeguard their domestic industries, and the adoption of green trade barrier policies continues to impede the sustainable development of China's international commerce. This article summarizes the definition, characteristics, and main forms of green trade barriers by sorting out existing documents, and finds that the characteristics mainly include nominal rationality, formal legality, etc., and the main forms are green technology guidelines, green tariff systems, etc. By analyzing the mainstream global literature on how green trade restrictions affect China's international commerce, it is evident that there are two distinct aspects to the way that green trade barriers affect China's international trade. In the final section, this paper organizes the current measures to address the obstacles to green trade and summarizes its future research trends are mainly focused on two aspects: increasing research on green trade barrier policies in nations in Asia and deepening research on its new situation.

Keywords: Green trade barriers, foreign trade, China.

1. Introduction

Foreign trade is always an important industry in China, it plays a significant part in China's economic growth and constitutes one of the key "troika" driving forces behind it. In 2023, "Opinions on Enhancing the Stable Scope and Excellent Structure of Foreign Trade" were released by the Chinese National Council, which broadened foreign trade in intermediate commodities and further accelerated the development of China's foreign trade. Meanwhile, with the implementation of the Regional Comprehensive Economic Partnership (RCEP) agreement, the scale of China's exports also reached record highs. And by 2024, China will have maintained its position as the world's No. 1 in trading goods for 16 consecutive years. However, more and more countries implement trade barrier policies to protect their trade and market, especially the green trade barrier policy, which has a great impact on China's foreign trade. More and more scholars are beginning to focus on green trade barriers to carry out research. Due to the different perspectives of different scholars, this leads to the current situation that the academic community has not yet reached a unified opinion on whether green trade barriers are helpful for China's international trade. These academic debates also reflect the complexity of studying green trade barriers.

DOI: 10.54254/2754-1169/2025.GL26976

In this context, this paper selects green trade obstacles as the subject of the study, and is expected to summarize the current research status of green trade barriers on China's foreign trade through in-depth clarifying. In order to improve the international competitiveness of China's foreign trade products and foster the growth of China's foreign trade, it is helpful to present a comprehensive overview encompassing the definition and key characteristics, and primary forms of green trade barriers, the multifaceted impacts(both positive and negative, exerted on China's foreign trade), the primary countermeasures currently in place, and the direction of future research on these effects.

2. Definition and main forms of green trade barriers

Green trade barriers refer to strict standards set by certain countries and regions for imported products to safeguard the health of people and the natural environment, thereby restricting foreign products from entering their markets. It belongs to one of the technical barriers, is a new type of non-tariff barrier in international trade, and this new type of barrier to China's foreign trade poses a considerable challenge. Wu Yuping first proposed the concept of green trade barriers [1]. After entering the 21st century, with the increasing global attention to environmental protection, countries formulated and implemented more strict environmental regulations and standards, further developing and improving green trade barriers. Yang Liu and Sun Yingxu summarized the characteristics of green trade barriers [2,3]. Currently, green trade barriers are mainly characterized by nominal rationality (under the flag of environmental protection), Formal legality (based on international or domestic legislation), wide range of application (covering the whole life cycle of products), concealability (not easy to cause trade conflicts), high technological standards (it includes more technical components, from product production to identification.), and trade -discriminatory (usually implemented by developed countries against developing countries).

In terms of the main forms, green trade barriers mainly include green technical standards (such as ISO9000 quality standard system and ISO14000 environmental management system), green tariff system (such as environmental surtax), green environmental labeling system (complex certification, complicated procedures, strict standards), green packaging system (packaging that is easy to recycle or decompose naturally and does not pollute the environment.), green quarantine system (such as food safety and hygiene indicators, pesticide residues, bacterial content, etc.), green subsidy system (developed countries transfer heavily environmentally intensive industries to developing countries to minimize environmental compliance costs, resulting in companies in developing countries being unable to bear the costs of environmental management and forcing governments to provide environmental subsidies.) and so on. These various green trade barriers, which are ostensibly enacted under the guise of environmental protection, are restricting China's international trade and having a substantial and measurable influence on export products' international trade [4].

3. The impact of green trade barriers on China's foreign trade

3.1. Economic aspects

Green trade barriers may lead to an increase in export costs for Chinese companies in the short term. Green trade barriers require imported products to meet certain safety standards, which usually means that every stage of the production process must comply with strict regulations [5]. The high standards and strict requirements for export products also led to complicated regulations and additional quarantine procedures. Every step of the export process, from production to packaging, needs to go through strict inspections, which makes exporters spend more money and time, and this

DOI: 10.54254/2754-1169/2025.GL26976

affects the export of products. In recent years, the EU implemented the "Green New Deal", which included a series of strict environmental regulations, among which the Carbon Border Adjustment Mechanism (CBAM) attracted the most attention. Among the five major industries initially covered by CBAM, the iron and steel industry accounts for 40% of the trade value covered by CBAM, and its carbon emission intensity varies significantly: at present, China's steel production produces about 1.5 tons of carbon dioxide per ton of steel, while the European Union (EU) average value is only about 0.8 tons. Based on current carbon prices, it is estimated that after the full implementation of the Carbon Border Adjustment Mechanism (CBAM), the export costs of Chinese steel companies will increase by an average of 12% to 15%. In addition to direct cost increases, green trade restrictions may also result in Chinese goods becoming less competitively priced on the global market. For example, Hunan province in China is a major beekeeping province, with as many as 300,000 beekeepers in the province, the bee breeding capacity is more than 2 million boxes per year, and the annual production is 38,000 tons of honey, with the total number of bees and honey production ranking among the top in the country. Yueyang Yeyuan Honey Co., Ltd. used to be a famous honey processing and exporting enterprise in Hunan province. The company used to export 100 tons of honey to Japan, but due to the impact of the "chloramphenicol" crisis, the products were returned, which led to the almost halt of honey export in Hunan province. The export of honey from Hunan province also dropped significantly after this incident. In 2024, only 771.95 tons of honey were exported from Hunan province, which is a significant drop compared to that before the incident [6].

3.2. Industry aspects

In terms of industry, the implementation of green trade barrier policies may make China's traditional export industries face more serious challenges, especially the chemical industry. For example, with the continuous upgrading of the “Reach” regulation in the EU, the regulation requires that the chemical products exported to the EU (including substances, configurations, and articles containing specific substances) must complete the registration, and the cost of testing and registration is really high. At present, the basic registration fee for a single chemical substance is about 116,000 dollars, and that for a new substance is as high as 785,000 dollars [7,8]. This directly leads to some small and medium-sized chemical companies in China may not be able to afford the huge costs and are force to give up the EU market, this causes a large number of chemical products that could be exported to be diverted to the domestic market. However, in terms of green emerging industries, the implementation of green trade barrier policies also brought new development opportunities to the industry. In 2024, China's exports of wind turbines grew by 71.9% in the renewable energy sector, while photovoltaic product exports have remained above 200 billion yuan for four consecutive years. Lithium battery exports reached 3.91 billion, marking a new historical record. In the field of green transportation, China's railroad electric locomotive exports have maintained an increase for five consecutive years. And with the rising demand for electric transportation in the global market, China's electric motorcycles and bicycles are also popular internationally, with exports exceeding 40 billion yuan for the first time. At the same time, in 2024, China's electric vehicle exports surpassed the 2-million-unit mark for the first time, fully demonstrating China's dominant position in the global electric vehicle industry. And Build Your Dream (BYD) Co., Ltd. established production facilities in Thailand, Hungary, Brazil and other countries, avoiding some of the trade barriers successfully. In 2022, the European New Car Assessment Programme (Euro NCAP) gave its new model--Atto3 a 5-star safety certification, successfully breaking the low-quality image of Chinese-made cars in the international market.

DOI: 10.54254/2754-1169/2025.GL26976

3.3. Policy aspects

In terms of policy, with the implementation of the green trade barrier policies, China's green-related regulations are strengthened, and the "dual-carbon" strategic goal can also promote the further improvement of China's green-related policy system. The statement of the Chinese Communist Party's 20th National Congress (CPC) mentioned that "promoting the green and low-carbon development of economic and social development is a key part of achieving high-quality development." In recent years, more and more people have realized that the development of green and low-carbon industries is one of the key industries that enable China to continuously improve its export structure, develop green trade, and achieve trade quality development. From 2024 to the present, China's State Council and other government agencies have intensively published "Opinions on Comprehensively Advancing the Construction of a Beautiful China", "Guiding Opinions on Further Strengthening Financial Support for Green and Low-Carbon Development"," Implementation Plan for the Development of a Carbon Footprint Management System", "Strategic Recommendations for Accelerating the Integrated Green Development Transformation of Economy and Society", "Quantification Requirements and Guidelines for the Carbon Footprint of Greenhouse Gas Products", and" Opinions on Taking Advantage of Green Finance and Dedicated to Advancing the Construction of a Beautiful China", "The People's Republic of China's Energy Law", "Work Plan for the Carbon Emission Dual Control System" as well as a series of other policy documents related to carbon peaking and carbon neutrality efforts. With the support of these policies, China's overall green economic transition continues to accelerate, further promoting the long-term development of China's green foreign trade. Moreover, China also actively participates in the formulation and promotion of international green-related policies [9]. For example, China joined in several environmental management standards formulated by the International Organization for Standardization (ISO), including the ISO14000 series of standards, which are widely used for global environmental management system certification. Through deeply engage in international standard-setting, China not only promotes technological innovation and high-quality development of green industries, but also contributes Chinese solutions to the global green and low-carbon transition.

3.4. Corporate aspects

From the enterprise perspective, green trade barriers may increase the survival pressure on Chinese export enterprises and significantly raise market entry barriers, which may result in some enterprises facing the risk of being left out of the market. In terms of funding, many small and medium-sized enterprises devoted several thousand or even millions of dollars to renovating their production lines to meet EU environmental standards [10]. The funds invested in these renovations far exceeded the annual profits of these companies, ultimately leading them to bankruptcy. As for the supply chain, the battery and electric vehicle sectors are most directly affected by the green trade barrier policies. Since 2027, the EU requires that batteries exported to the EU must provide a digital battery passport (DBP), recording information such as raw material traceability, full life cycle carbon footprint, as well as material and waste battery recycling programs, while carbon footprint accounting needs to strictly follow the rules and standards. Currently, Chinese companies are still in the early stages of managing the carbon footprint of battery products. Many companies still rely on coal-fired power generation, which has high carbon emissions, and this is still a long way from meeting the requirements of the digital battery passport rules, putting companies at risk of facing market access barriers. And many Chinese companies exporting to the EU often have supply chains involving several countries (especially developing countries in Africa and South America), where management

DOI: 10.54254/2754-1169/2025.GL26976

standards for ecological and environmental protection and carbon footprints vary greatly. Furthermore, many raw material suppliers are unable to provide carbon emissions and other environmental data, which increases the difficulty of tracing environmental data across national borders. In terms of talent accumulation, Chinese export companies currently face a serious shortage of talent, especially in the field of environmental conservation. Most companies lack a dedicated environmental protection team, with such responsibilities typically assigned to employees from other departments. Most of the enterprises do not have the awareness of setting up environmental protection teams, and the few enterprises that do have this awareness have few environmental protection teams, which makes it difficult to deal with the complex requirements of the EU reach regulation.

3.5. International relations aspects

In terms of international relations, the implementation of green trade barrier policies can further deepen China's cooperation with some developing countries. At the same time, through the construction of green energy infrastructure under the One Belt, One Road initiative, trade partnerships can be further expanded. In 2024, countries along the One Belt, One Road route accounted for 50.3% of China's total foreign trade for the first time. Furthermore, the development of the One Belt, One Road initiative also enabled participating countries to develop infrastructure projects with the participation and technical expertise of Chinese enterprises. In 2024, the policy attracted One Belt, One Road enterprise investment in key areas, including energy (an increase of US $11.5 billion), technology (an increase of US $5 billion), and metals and mining (an increase of US $2 billion). Meanwhile, China's energy-related investments reached $11.8 billion in 2024, growing by 60% from 2023, which was the greenest year since the launch of the One Belt, One Road Initiative. Also, the One Belt, One Road Initiative combines public infrastructure assets development, trade facilitation and strategic investment to countries along the route, which enables China to contribute to remodeling the flow of global trade through new paths created for its goods and services.

4. Conclusion

The present state of research on China's international trade and green trade barriers is given in this study. Firstly, the paper sorts out the definition, characteristics, and main forms of green trade barriers, and then analyzes how China's international trade is affected by green trade obstacles in the core perspectives of economy, industry, policy, corporation, and international relations, and concludes that green trade barriers have obvious double-sided characteristics.

To sum up, green trade barriers significantly undermine the international competitiveness of China's export commodities. To face the current challenges of green trade barriers, China needs to make economic efforts to improve financial support, provide specific green subsidies to the certified export enterprises, and adjust export tax refunds. On the industrial aspect, positively promote the transformation of traditional industries. On the policy side, China needs to accelerate the improvement of its domestic green management system. On the corporate side, enterprises should speed up the application for international certifications and optimize the supply chains. In terms of international relations, China should further deepen the construction of unions with developing countries and appropriately compete for the right to express opinions on international standards. At present, the scholars in both domestic and foreign countries researching on green trade barriers mainly focus on the impact of green trade barriers on exports as well as the analysis of green trade

DOI: 10.54254/2754-1169/2025.GL26976

barrier policies published by a number of countries. Most scholars mainly study green trade barriers in European and American exporting countries, but there is little research on some Asian countries. In the future, as environmental, social, and governance (ESG) standards and carbon tariffs continue to develop, the forms of green trade barriers will continue to evolve. Therefore, it is necessary to conduct more comprehensive and in-depth research on new types of green trade barriers and evaluate whether current response measures need to be adjusted.

References

[1] Wu, Y.P. (1995) Green Trade Barriers in International Trade. World Economy and Politics, 1, 14-17.
[2] Yang, L. (2017) The Impact of Green Trade Barriers on China's Foreign Trade and Countermeasures. Commercial Modernization, 20, 8-9.
[3] Sun, Y.X. (2020) Research on the Transformation of China's Foreign Trade Development Model from the Perspective of Green Trade Barriers. Modern Business, 31, 59-61.
[4] Zhang, J.J. (2021) Research on the Impact of Green Trade Barriers on My Country's Export Trade and Countermeasures -- An Empirical Analysis Based on Carbon Tariffs. Jiangxi Science and Technology Normal University.
[5] Li, X. (2019) Analysis of the Impact of Green Trade Barriers on China's Export Trade and Discussion of Countermeasures. Modern Marketing (Late Edition), 15, 21-22.
[6] Liu, J.T. (2024) The Development History and Future Trends of International Green Trade Barriers. China Forex, 20, 26-29.
[7] Liu, C.S. (2025) Research on Green Trade Strategies for Breaking Carbon Barriers in International Trade. World Environment, 2, 50-54.
[8] Guo, Y. (2024) Green Trade Barriers under the Developing Country Perspective. Future Human Image, 21, 4-15.
[9] Zhao, P., Gao, S. (2025) Green Trade Barriers, Financial Support and Agricultural Exports. International Review of Economics and Finance, 97, 103758-103758.
[10] Guo, S.J.(2025) The Impact of Green Trade Barriers on Chinese Export Enterprises and Countermeasures. Business and Economic, 3, 95-97.