The Impact of Green Barriers in International Trade on Agricultural Exports

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Abstract. As traditional strategic trade policies are bound by World Trade Organization/General Agreement on Tariffs and Trade (WTO/GATT) regulations, countries have begun to pay attention to the effects of environmental policies and green barriers in international trade in terms of strategic responses. Since China's entry into the WTO, the traditional tariffs as well as non-tariff barriers to China's role are not so obvious, in order to seek new means of trade protection, in this context, the new type of technical barriers - green trade barriers to enter the stage of history. This paper compares, analyses and summarises the impact on the international market of agricultural products by sorting out this international research field and the corresponding different policies at home and abroad. On this basis, it analyses and researches the impact of agricultural trade, in order to promote the healthy development of the green industry, create a green and healthy production environment as well as the healthy development of the corresponding industries. At present, green barriers as a policy tool for environmental quality improvement, due to its trade policy there is a strategic response to the effect of green barriers may become a traditional trade policy hit to replace the means. The study shows that the nature of green barriers is a complex of environmental regulation and trade protection, and its suppression effect on agricultural exports is highlighted in the short term, but in the long term through the forcing mechanism to drive the green transformation of the industry.

Keywords: Green barriers, agricultural products, international trader.

1. Introduction

Within the framework of global economic integration, trade in agricultural products occupies a central position in the growth and prosperity of many countries and is a key element of the global business sector [1]. However, with the increasing severity of global environmental issues, green trade barriers, as an emerging form of non-tariff barriers, are becoming an important factor affecting international trade in agricultural products. Green trade barriers mainly refer to a series of regulations, standards or policies formulated by importing countries to restrict or prohibit the import of foreign agricultural products, ostensibly to protect the ecological environment, natural resources and human health [2]. These barriers impose higher requirements on the quality and environmental standards of agricultural products in exporting countries, posing a major challenge to agricultural exports [3]. The reason why the global agricultural trade encountered developed countries systematically setting up environmental barriers to blockade, that is the core contradiction lies in the imbalance of the rule-making power and the double suppression of the iteration of technical standards. Japan's "Positive List System" implemented in 2006 increased the number of pesticide residue tests to 392, which directly led to a 17% drop in exports of garlic from Shandong to Japan; the EU's Deforestation Regulation, which will come into effect in 2025, requires the provision of geographic coordinates of raw material origins, which has increased the compliance cost of Fujian edible fungus enterprises, which lacks the traceability capability of the blockchain, by a whopping 30%. This kind of rule reconstruction not only pushes up trade costs but also forms a vicious circle of "suppression - breakthrough - suppression again". More and more scholars have found that green barriers spread along with economic similarities and have started to explore this point. For example, some scholars through rigorous empirical analysis found that green trade barriers significantly reduce the export competitiveness of developing countries' agricultural products, further exacerbating the inequality in international trade [4]. In contrast, domestic studies are more inclined to focus on the current situation of green trade barriers facing China's agricultural exports, as well as the corresponding

countermeasures and policy adjustments. However, it is worth noting that while existing studies have delved into the complex relationship between green trade barriers and agricultural exports, they have tended to overlook the important role of financial support in mitigating the impact of these barriers and promoting exports [5]. This research gap provides a new direction for future academic exploration. Related scholars believe that green barriers bring negative impacts to China, and these scholars believe that green trade barriers have a positive impact on international trade [6]. Its core view that in the context of the deep integration of the global economy and the increase in the level of free trade, policymakers in various countries, when formulating export policies, often belittle the impact of trade on national economic development, while failing to pay sufficient attention to environmental protection and the maintenance of ecological balance of the potential hazards, which will lead to the ecological environment suffered a more serious damage.

In the early days, around the trade inhibiting effect of green barriers, focusing on the tariff equivalence transformation and welfare loss measurement, related scholars use the gravity model and the comprehensive measurement of the Computable General Equilibrium (CGE) model to show that green barriers weaken the competitiveness through the internalisation of their costs, and at the same time there is a regional imitation of the green barriers [7]. As research progressed, scholars began to focus on the dynamic upgrading of green barriers and firms' innovation, but these studies were too fragmented and homogeneous, lacking in dynamism, and most of them focused on macro effects and binary margins, lacking the chain of integration from policy to structure and market. From the existing literature, the influencing factors and development trend of green barriers are still focused on the national level, and few scholars have analysed them into different stages for an overall objective and universal analysis. This paper analyses the design of domestic and international policy mechanisms to influence the equilibrium level of the international market, thereby changing the original pattern of profit distribution. China is the world's major agricultural trading country, the scale of China's international trade in agricultural products is expanding, under the new development pattern of double-cycle, it is of positive significance to think about and sort out how to make full use of the power of the international market to realise the transformation and upgrading of China's agriculture, and it is beneficial to explore the impact of the level of trade in China's agricultural products on the mechanism of the green barriers to promote the process of high-quality development of agriculture..

2. The Current Situation of Green Trade Barrierst

2.1. Relevant Concepts

Green barriers are usually interpreted as "environment-related trade barriers" in domestic and foreign literature, which refers to the fact that in international trade, some countries, by virtue of their scientific and technological and economic advantages, protect the ecological environment, natural resources, human beings, animal and plant health, and protect the national market and trade for the fundamental purpose of legislation or the formulation of harsh technical regulations, green environmental standards, so as to protect their own markets and trade, and to protect their own markets and trade. The trade protection measures that restrict the products of other countries or regions from entering the domestic market by enacting legislation or setting stringent technical regulations and green environmental protection standards are the fundamental purpose of protecting the domestic market and trade. China's research on green trade barriers mainly focuses on the WTO, international conventions and treaties with simple translations and shallow introductions. After entering the 21st century, with the negative growth of China's international trade in agricultural products and the impact of green trade barriers is becoming more and more significant, the content, scope, and expression of the research is also gradually expanding to a deeper level of research. Early studies by relevant scholars pointed out that green trade barriers are replacing traditional tariff and non-tariff barriers as the main means of trade protectionism [8]. Other scholars started from the perspective of the politics of trade protection, systematically examined the formation of green trade barriers, deeply analysed the game process between countries on this policy, and revealed the key

influence of domestic trade blocks on the policy choices of other countries in setting green barriers. In terms of quantitative research, relevant scholars innovatively use the data of green technical measures notification of WTO member countries to construct the "import coverage" indicator to quantify green barriers and accordingly analyse its specific impact on the marginal benefits of exports [9, 10]. Part of the study is focused on the WTO's legal deficiencies and qualitative analysis of China's agricultural products today's technological deficiencies, as well as developed countries in the name of trade protection to raise the trade threshold, so as to point out that the prominence of the environmental problem and green barriers to trade brought about by the damage to the economic interests of the two-edged sword must be [11].

2.2. Manifestations of Green Trade Barriers

Green trade barriers were formed at the end of the 1980s and proliferated globally in the 1990s. The essence is that developed countries, by virtue of their technological and environmental protection advantages, set up mandatory environmental standards by means of legislation to restrict the access of developing countries to their goods. They are reasonable in name, legal in form, hidden and discriminatory in character, and form a closed loop of trade inhibition through double control of quantity (raising the threshold and reducing qualified commodities) and price (increasing the cost and weakening the competitiveness). The impact on China's agricultural exports is that the threshold of access is raised, the cost of rigid growth, the growth rate is suppressed.

Green trade barriers are mainly in the form of the following three points. The first is the green technical standards, which are based on their own economic conditions and advantages of the countries developing norms, usually through legislation, administrative orders or signed organisational agreements and other ways to implement. Due to the prevailing differences between countries, many countries have formulated strict green technology standards in order to protect their own trade and restrict the import of products from other countries. Such standards set by developed countries have a direct impact on trade-exporting countries and relate to the eligibility of their products to enter the market. For developing countries with a lower level of technology, it is difficult to meet the environmental requirements set by developed countries in the short term, which fundamentally reduces the possibility of developing countries' products entering the markets of developed countries. Secondly, green tariffs, green tariffs refer to the additional taxes imposed on top of the original tariffs when the importing country determines that a product is detrimental to environmental protection, human health, or the safety of animals and plants. It is also known as environmental import surtax or ecological import surtax and is characterised by a high degree of covertness and discrimination. Green tariffs raise the cost of the products of exporting countries, leading to an increase in their prices, weakening their competitiveness in the international market and negatively affecting the trade in goods of exporting countries. This is the earliest manifestation of green trade barriers. Finally, there is the green environmental labelling system. The green environmental labelling system refers to the system whereby government departments mark products or their packaging in accordance with environmental regulations and standards to prove that the entire process of the product, from production to recycling, meets environmental requirements. Government departments or private certification bodies certify the products on the basis of applications from enterprises, and qualified products may have specific graphic labels printed on their packaging. The purpose of the logo is to indicate to consumers that the product meets the requirements of renewable resources and environmental protection, to guide consumers to choose environmentally friendly products and to promote environmentally friendly and healthy consumption. In many countries, only products bearing the label are allowed to be imported. The certification systems of developed countries are more robust than those of developing countries, and their consumers are more inclined to green consumption and have a higher degree of acceptance of green-labelled products. When enterprises from developing countries export to developed countries, the complex and cumbersome green mark certification process can significantly increase product costs and reduce export efficiency, thus forming a certain degree of hindrance and constituting a green trade barrier.

3. The Negative Impact of Green Barriers

3.1. Reducing the Total Export Volume of China's Agricultural Products and Hindering the Development of Domestic Agriculture

Since the reform and opening up, China's agricultural exports have continued to grow, but the green barriers implemented by Japan after entering the 21st century have impeded this growth momentum. From 2007 to 2009, China's agricultural exports fell by 13.3 per cent, and about $20 billion of agricultural products lost export opportunities because they could not meet the standards of green trade barriers. In addition, export standards have become more restrictive as developed countries continue to update and raise the standards and requirements of green laws. This has had a severe impact on agricultural production, agricultural packaging and transport, and agricultural processing and exports. Reduced external demand has led to stagnant sales and falling prices of agricultural products, seriously harming the interests of farmers, and thus hindering the development of domestic agriculture.

3.2. Increasing the Cost of Agricultural Exports,and Weakening the Competitive Advantage of Chinese Agricultural Products Overseas

The green trade barriers set by Japan have significantly increased the export cost of China's agricultural products and led to a reduction in the production of related agricultural products. As green trade barriers involve various processes and links such as R&D and production, processing, storage, transport, sales and recycling of agricultural products, exporters need to upgrade their technology in these processes if they want to break through the higher green standards of developed countries. Meanwhile, other countries have narrowed the gap between their products and China's specialty agricultural products through economic and technological inputs. These factors work together to put China's agricultural products at a disadvantage in international competition, and the competitive advantage overseas has been significantly weakened.

3.3. Increased Multilateral Trade Friction between China and the International Community

China's agricultural exports are heavily restricted by green barriers, mainly focusing on antibiotic residues, pesticide residues and additive use standards. Although China has strict restrictions, but Japan for the purpose of crowding out the formulation of more than the actual need for harsh testing standards, with unreasonable requirements to restrict the entry of Chinese agricultural products. In response, China often defends its rights on the grounds that it has encountered trade barriers and takes retaliatory tariffs and other measures, leading to increased bilateral and multilateral trade frictions with Japan and other countries. In this vicious circle, China-Japan agricultural trade is further hindered, and China's agricultural exports continue to suffer.

4. Strategies and Paths to Cope with Green Barriers

4.1. Correct Understanding of Green Trade Barriers

When dealing with green trade barriers, people must adopt a dialectical perspective. On the one hand, it should be recognised that these barriers have a positive impact on the global ecosystem and national health, for example, through stringent environmental standards that encourage companies to reduce pollution emissions and promote sustainable agricultural practices, thereby protecting biodiversity and consumer safety. Therefore, all green barriers should not be dismissed outright but should be judged on the basis of scientific assessments of their reasonableness and acceptability, such as whether they followed the internationally accepted principles of transparency and non-discrimination. On the other hand, people must resolutely respond to unreasonable barriers that are protectionist in nature and lack scientific basis within the international framework [12]. According to the WTO's Agreement on Technical Barriers to Trade (TBT) and the Agreement on the Application

of Sanitary and Phytosanitary Measures (SPS), China should actively file lawsuits through the dispute settlement mechanism and require the other party to provide sufficient evidence to prove the legitimacy of its measures. At the same time, for countries that set retaliatory tariffs or malicious barriers, such as certain developed countries using the name of environmental protection to restrict imports, China can implement reciprocal countermeasures within the scope of international rules, such as targeted tariffs or restrictions on the export of their key products, so as to curb the behaviour of arbitrarily adding barriers to trade, and to safeguard the fair trade order. In addition, China needs to strengthen multilateral cooperation and participate in international standard-setting organisations (such as ISO) to promote the harmonisation of global green standards and avoid unilateral barriers from turning into trade conflicts, thereby protecting domestic industries while promoting global sustainable development. This comprehensive strategy not only reduces trade friction, but also forces domestic industries to upgrade, achieving a win-win situation for both the economy and the environment.

4.2. Establishment of a Scientific Awareness System and Supervisory Association

In order to effectively deal with the dynamically changing green trade barriers, China needs to build a set of scientific and systematic awareness and monitoring system. First, it should take risk assessment as the core and establish a sound early warning and forecasting mechanism for agricultural trade barriers. This includes using big data and artificial intelligence technology to monitor real-time updates to import standards in major exporting countries (e.g. Japan, the EU and the US), analyse the probability and extent of their impact on domestic exports, and issue early warning reports to enterprises through a national platform to shorten response time and minimise losses for individual exporters. For example, it can draw on Japan's experience in dealing with international barriers to establish a similar "risk map" tool to anticipate sudden policy changes and simulate response options. Secondly, professional industry associations should be actively developed to play a central role in the industry chain. Referring to the Japanese agricultural association model, Chinese industry associations should not only provide international and national standards to member enterprises, but also take the lead in formulating industry-specific specifications covering the whole process of production, processing and certification to ensure that products meet the environmental requirements of the target market; at the same time, the associations need to act as an information hub to collect global market dynamics, provide early warnings of changes in the green barriers, and customise guidelines for enterprises to deal with the situation, for example, by assisting in certification or technological upgrading. At the same time, the association needs to act as an information hub to collect global market dynamics and provide timely warning of changes in green barriers, and customised response guidelines for enterprises, such as assistance in certification or technology upgrading. In addition, industry associations, as collective representatives of small and medium-sized farmers, should take the initiative to coordinate international trade negotiations, unify their voices in disputes, resolve frictions through diplomatic channels, and accelerate the trade process. In response to barriers imposed by major trading partners such as Japan - which essentially inhibit the competitive advantage of Chinese agricultural products in order to support its own agriculture - China must adopt a two-pronged approach: internally, by upgrading the quality of its agricultural products, developing green agriculture, and investing in regulation, such as the establishment of a national testing laboratory; and externally, by making good use of the international community. Externally, it should make good use of international rules (such as the WTO's trade facilitation agreement) and join forces with developing countries to resist discriminatory measures. Through this system of internal and external training, China can not only increase its export resilience but also promote the evolution of global trade in a fairer and more sustainable direction.

5. Conclusion

This paper adopts a combination of literature review and case analysis to systematically analyse the formation mechanism, dynamic evolution and chain impact of green trade barriers on agricultural exports, and concludes that the nature of green barriers is a composite of environmental regulation and trade protection, and its impact presents the dual characteristics of "short-term suppression of exports" and "long-term upgrading"; it further elaborates that the barriers are upgraded through the upgrading of technical standards, the surge in compliance costs and the increase in market access, Further elaboration of the barrier through the upgrading of technical standards, compliance cost surge and market access contraction of the three paths to weaken competitiveness, specifically manifested in Japan's "positive list system" to China's garlic exports plummeted 17%, the cumulative loss of about 20 billion U.S. dollars in 2007-2009, the European Union's "Deforestation Regulation" so that the cost of traceability of enterprises to increase the 30% continued to dilute the price advantage, as well as the discriminatory standards triggered by retaliatory tariffs. A vicious circle of multilateral trade friction.

From a short-term perspective, green trade barriers for China's difficulties far outweigh the opportunities, however, as long as the government, industry and enterprises each actively respond to this barrier, and strengthen communication and collaboration, common resistance, can ensure that China's agricultural products smoothly into the international market, enhance competitiveness and promote the development of export trade.

In the long run, green is the core of the country's long-term interests, the need for a dialectical view of the barriers to avoid economic losses at the same time, to see that it can promote the emergence of green products and environmental protection industries play a positive role; at the same time, through the improvement of the Agricultural Law, Environmental Law, Foreign Trade Law and other relevant regulations, strengthen the whole process of supervision and control of agricultural products, the implementation of the Agricultural Sustainability Program, the development of eco-agriculture, and the implementation of the green marketing strategy, which is the challenge into a good opportunity. It is a good opportunity to turn challenges into opportunities.

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