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The Impact of Green Trade Barriers on Chinese Tea Exports: A Gravity Model Study

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Abstract

In recent years, with the intensification of the impact of reverse globalization, many countries have used green trade barriers to restrict China's tea exports, so as to protect their own trade. This paper composes and analyzes the theories related to green trade barriers, explores the current situation of China's tea exports and its influence by green trade barriers, selects the data of China's tea exports to 30 countries between 2001 and 2021, and uses the trade gravity model for empirical analysis to explore the specific situation of China's tea exports affected by green trade barriers. The gravity model is a tool used to measure the impact of trade barriers on international trade flows. It takes into account factors such as the countries' gross domestic product, population size, distance between them and the trade policies they have in place. The results show that the existence of green trade barriers will lead to the decline of China's tea exports. Finally, this paper put forward countermeasure suggestions to deal with green trade barriers from three levels: government, industry and tea enterprises.

Keywords

Green Trade Barriers, Gravity Model, Chinese Tea Exports

1. Introduction

In recent years, under the continuous impact of the anti-globalization trend, international trade has faced a series of challenges and reforms. Trade protectionism poses new challenges to traditional tariff barriers. With the existence of international institutions such as the World Trade Organization (WTO), the role of traditional tariff barriers is no longer sufficient to meet the trade protection requirements of various countries. In this new situation, green trade barriers, as a type of non-tariff barrier, have gained more attention from many countries,

becoming a focal point in international trade.

The tea trade is a crucial component of China's economy and trade. With the development of economic globalization, it has become one of the major beverage products globally. Since China's accession to the WTO, the export volume of tea has increased steadily, and China's share of the international tea market has risen rapidly, significantly impacting foreign local beverage markets. Data from the National Bureau of Statistics shows that in 2022, China's tea production was 3,342,100 tons and exports reached 389,400 tons, making it the world's largest tea producer and exporter (https://data.stats.gov.cn/index.htm). However, despite the success of Chinese tea in the international market, it faces restrictions from green trade barriers imposed by overseas countries. These barriers have led to a decline in the competitiveness of Chinese tea, posing significant challenges to China's tea export trade. Therefore, China needs to take corresponding measures to produce tea that meets international standards, overcoming the obstacles posed by green trade barriers.

This study reviews and analyzes relevant theories of green trade barriers and explores the current situation of China's tea exports and the impact of green trade barriers. The study selects tea export data from China to 30 countries between 2001 and 2021, employing the gravity model for empirical analysis. The research investigates the specific impact of green trade barriers on China's tea exports, and the results indicate that the existence of green trade barriers leads to a decrease in China's tea export value. Finally, the study proposes countermeasures against green trade barriers from the perspectives of the government, industry, and tea enterprises.

The significance of this research lies in systematically analyzing the impact of green trade barriers on tea exports and providing strategic guidance for China's tea industry. Faced with the challenge of green trade barriers, an in-depth study of the competitive environment of China's tea industry in the international market helps formulate more accurate policies and business strategies, enhancing China's competitiveness in the international tea market. Additionally, this research contributes to promoting the sustainable development of China's tea industry, facilitating the organic integration of green trade and tea trade, and improving global competitiveness. Moreover, through a thorough analysis of green trade barriers, this study provides new perspectives and empirical cases for international trade and green trade barrier research, offering valuable references for the academic community.

2. Background

2.1. Concept of Green Trade Barrier

Green trade barriers, also known as environmental trade barriers, are a form of non-tariff barrier. They refer to the restrictions imposed by importing countries on imported goods through strict green tariffs, green technical standards, sanitary and phytosanitary measures, and other means, aiming to protect the eco-

logical environment, human health, and the health of animals and plants (Wei, 2019). The interpretation of green trade barriers remains controversial in academia: if a country establishes green trade barriers to protect the environment, natural resources, human health, and the life of animals and plants, and it complies with WTO rules, it is considered a friendly green trade barrier. Conversely, measures that use environmental protection as a pretext and have trade protection intentions are referred to as malicious green trade barriers. This paper primarily discusses the latter—malicious green trade barriers that use environmental protection as an excuse to restrict imported products through various means.

The protection forms of green trade barriers are legitimate. According to relevant WTO provisions, governments have the right to adopt corresponding trade protection measures for the purpose of protecting their own environment. This makes green trade barriers a legitimate basis for certain countries to restrict imports. Green trade barriers have a wide range and various manifestations. Due to significant differences in the natural environment and natural resources among countries, there are differences in setting green barrier standards. Countries also differ in their economic development levels and standards for product quality. Therefore, to protect consumer health, green trade barriers can impose extensive restrictions on industrial and agricultural products. These restrictions often place greater pressure and challenges on the export trade of developing countries. The protection methods of green trade barriers are often covert. Some countries frequently use the pretext of environmental protection, natural resource conservation, and human health to engage in trade protection in international trade. In reality, these protection measures have covert characteristics, making it difficult for export enterprises to discover and respond to them promptly.

Green trade barrier measures in major countries and regions of the world are listed below.

1) Japan

At the end of May 2006, Japan formally implemented the "positive list system" for residue limits of agricultural chemicals. Among them, there are very strict regulations on the residue limits in tea, which made China's tea exports suffer an unprecedented impact. The data from China Technical Trade Measures Network shows that Japan has formulated 216 SPS measures on pesticide and veterinary drug residues in tea, which has largely hindered the export of China's tea, (http://www.tbtsps.cn/pc/foodsafelimit/2/007021#).

2) EU

The European Union (EU) has consistently maintained the strictest requirements for pesticide residues in tea. Starting from early July 2000, the EU began implementing new standards for pesticide residue limits in tea, with revisions typically taking place every one to two years. The EU has its own standard system for the Maximum Residue Limits (MRLs) of pesticides in tea. For instance, in 2016, the EU increased the sampling proportion for inspection of Chinese tea

to 10% and extended the customs clearance time. In 2017, the number of inspection items was expanded to 216 (Lyu, 2020).

3) United States

The legal basis for the inspection of tea in the United States is the "Tea Import Act", the packaging of imported tea, certification and inspection methods have clear requirements. Although the U.S. tea imports do not as many testing items as the European Union, the requirements for individual items are particularly strict, and must be tested by the U.S. Food and Drug Administration (FDA) and Health Human Services sampling, the quality of the products below the legal standards, deterioration or purity does not meet consumer requirements, full refusal to import or detain. For tea pesticide residues, must be allowed by the exporting country's environmental protection department, or prove that the residue is within the permitted range.

2.2. Green Trade Barriers to China's Tea Exports

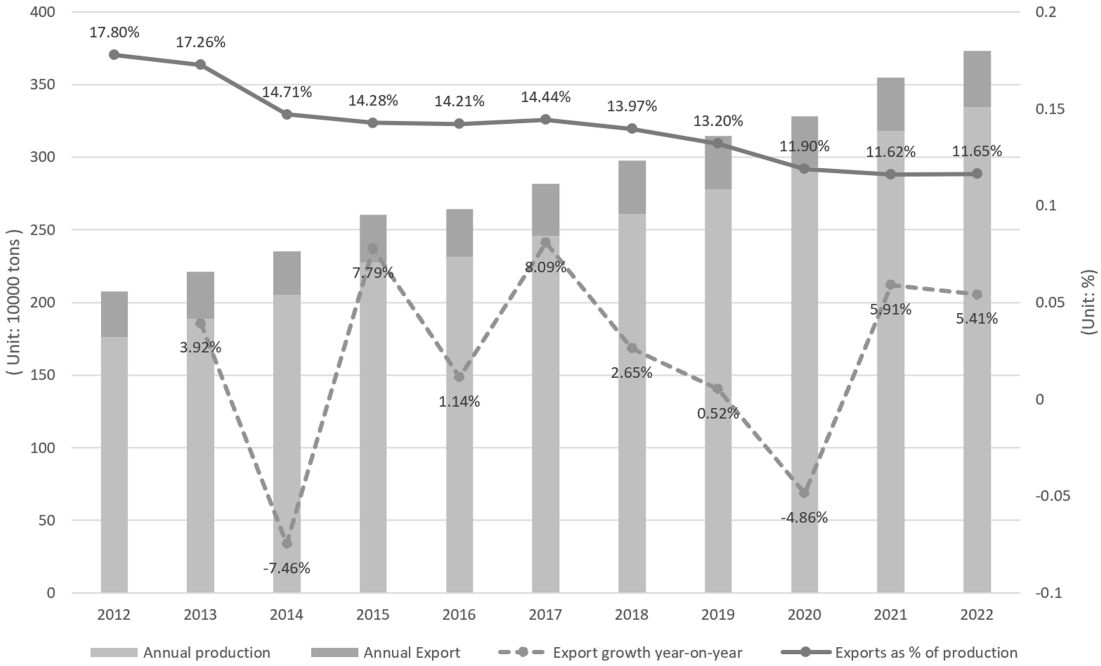
Tea in China has a long history and profound cultural significance, representing an integral part of the ancient Chinese culture. China has been a major tea-producing nation since ancient times and is currently the only country globally that comprehensively produces all six major types of tea: black tea, green tea, yellow tea, oolong tea, dark tea, and white tea. The tea culture is deeply rooted in the rich heritage of Chinese civilization. Tea trade plays a crucial role in China's foreign trade. In recent years, the Chinese tea industry has continued to steadily develop. Data from the National Bureau of Statistics shows that in 2022, China's tea production was 3,342,100 tons and exports reached 389,400 tons, making it the world's largest tea producer and exporter.

As shown in **Figure 1**, although China produces a lot of tea, most of it is limited to domestic sales only, and the export volume is always limited, which is related to the green trade barriers that China suffers. 17.8% of tea exports in 2012, and in 2021, the export percentage decreases to 11.6%, with the largest decline in tea exports in 2014, down 7.46% year-on-year, precisely because other countries have strengthened green trade barrier measures. The decrease in the volume of China's tea exports and the slower growth rate are largely influenced by these factors.

There was also a decline in export volume in 2020, down 4.86% year-on-year, which may have been caused by the impact of the COVID-19 epidemic on global trade.

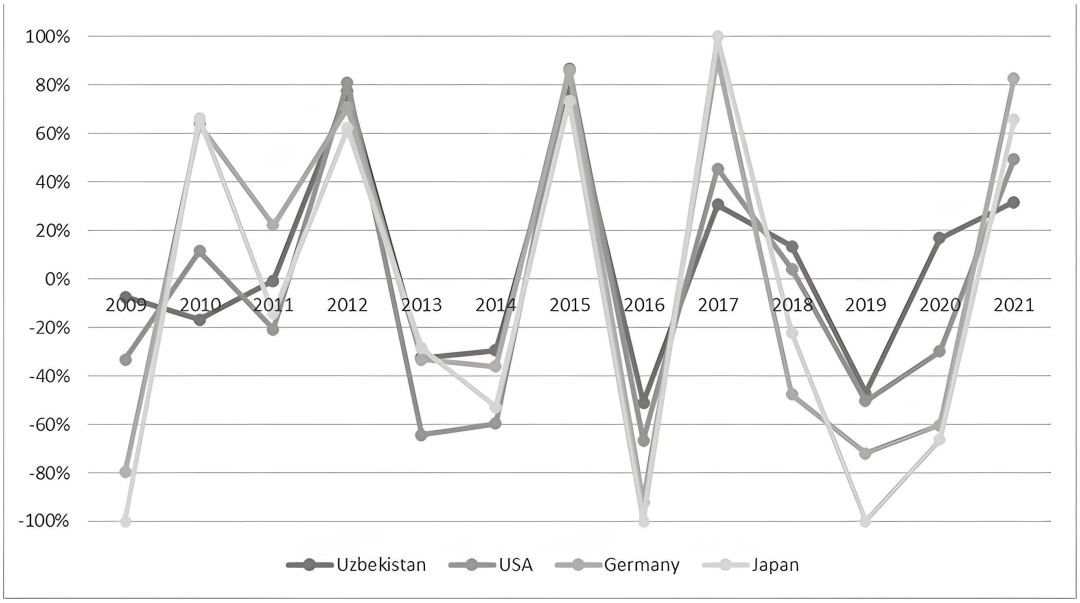
As can be seen from **Figure 2**, since the financial crisis in 2008, the major exporting countries of Chinese tea have all adopted a certain degree of green trade barrier measures, resulting in a slower growth rate of Chinese tea exports and also a continuous decline in consecutive years.

In 2009, the import volume of the United States decreased by 13.02% year-on-year, the import volume of Germany decreased by 23.45% year-on-year, the import volume of Japan decreased by 10.30%. In 2016, the highest year-on-year



Data source: National Bureau of Statistics of China.

Figure 1. China's tea production and export volume statistics (2012-2022).



Data source: UN Comtrade Database (HS0902).

Figure 2. Year-on-year growth of China's tea exports to selected countries (2009-2021).

decline of 85.02% was recorded in the imports of Uzbekistan, and other countries also experienced different degrees of decline.

3. Literature Review

Early scholars mainly studied the definition, manifestations, characteristics, causes, impacts, and countermeasures of green trade barriers. Lu and Yang (2003)

analyzed the basic characteristics of green trade barriers and, from both static and dynamic perspectives, examined the multifaceted impacts of this emerging trade barrier on China's export trade. Zeng (2003) researched the substitution effects of green barriers for tariff barriers. Liu and Wu (2005) conducted a comprehensive analysis of the status and causes of corporate green marketing based on the relevant analysis of green barriers.

In recent years, domestic scholars have gradually shifted to empirical analysis, using economic analysis tools to study the new features and impacts of green trade barriers. Quantitative research on green trade barriers has mainly focused on using gravity models, with most scholars often employing methods like the maximum residue limit method, dummy variable method and TBT notification count method as indicators to measure green trade barriers in the models. Chen et al. (2008) analyzed the impact of food safety standards on Chinese agricultural product exports using vegetables and aquatic products as examples, pointing out the losses to Chinese agricultural product exports due to the implementation of SPS and TBT measures as green trade barriers.

Gu et al. (2007) analyzed the impact of green trade barriers faced by China's exports of tea to Japan by establishing a gravity model. They introduced green trade barriers as a dummy variable into the model, taking 0 before a specific year and 1 in and after the implementation year, concluding that the enactment of regulations on pesticide residues in tea significantly negatively affected the trade volume of tea between China and Japan. Zhu (2012) analyzed the impact of green trade barriers on China's exports of wooden furniture to the European Union by constructing an extended gravity model. They introduced green trade barriers and technical trade barriers into the model separately, with green trade barriers as a dummy variable. The results indicated a significant negative impact of the EU's implementation of green trade barriers on China's wooden furniture exports. Bian (2014) conducted an empirical study on the impact of Japan's green trade barriers on China's agricultural product exports by constructing a trade gravity model. Sun et al. (2018) built a gravity model based on panel data of China's agricultural product exports to the United States, Japan, and Europe, analyzing the impact of green trade barriers on agricultural product exports. Wang et al. (2021) similarly focused on agricultural products, dividing China into six regions across 31 provinces and municipalities. They used a VAR model to analyze the impact of green trade barriers.

According to existing literature, the maximum residue limit method to some extent can represent the implementation of green trade barriers. However, the scope of green trade barriers is extensive and highly concealed, and studying its impact on product export trade as a variable may not be comprehensive enough. The use of TBT notification numbers to measure the implementation of green trade barriers may lack representativeness. In comparison, using the dummy variable method to study green trade barriers has the advantages of simplicity, clarity, and operational feasibility.

4. Theoretical Model and Data Sources

4.1. Gravity Model

The gravitational model originally originated from Newton's law of universal gravitation, which was first introduced by Tinbergen (1962) in the study of trade flows. Now the model is used as a research tool to link trade barriers with trade flows. The scale of trade is influenced by some measurable variables such as the GDP of the two countries and the distance between the two countries. It also includes some dummy variables that cannot be measured, such as whether they have a common boundary. The expression for a general gravity model is:

$$X_{ij} = G \times \frac{M_i^{\alpha} + M_j^{\beta}}{D_{ij}^{\theta}} \tag{1}$$

where X_{ij} denotes the trade flows between the two economies, i denotes the exporting country and j denotes the importing country, M_i and M_j denote the economic aggregates of the two economies, usually expressed in terms of GDP. D_{ij} denotes the geographical distance between the two economies, and G, α, β and θ are constants. In order to standardize and thus facilitate the econometric regression, the formula is usually taken logarithmically and the model form after the change is as follows:

$$\ln X_{ij} = R_I + \alpha \ln M_i + \beta \ln M_j - \theta \ln D_{ij} + \varepsilon_{ij} \tag{2}$$

This model reveals that the volume of trade between two economies is proportional to their economic levels, and the demand for trade increases with the increase in economic aggregates. The increase in economic aggregates brings about a stronger supply capacity on the export side and a stronger demand capacity on the import side, thus generating trade flows. The geographical distance between two economies is inversely proportional to the trade volume, and a longer trade distance raises the transportation cost and reduces the trade flow. With the in-depth study of the trade gravity model, more explanatory variables are introduced and extended to the model. In this paper, combining the relevant theoretical foundation and literature research, the economic aggregate, geographical distance and green trade barriers of the economy are set as explanatory variables, where the economic aggregate is represented by the GDP of importing and exporting countries, and the green trade barriers are set as dummy variables, so as to study its impact on China's tea exports, and the final model is as follows:

$$\begin{aligned} \ln EX_{ijt} = {} & \alpha_0 + \alpha_1 \ln GDP_{it} + \alpha_2 \ln GDP_{jt} + \alpha_3 \ln DIS_{ijt} + \alpha_4 \ln POP_{jt} \\ & + \alpha_5 \ln R_t + \alpha_6 DV + \mu_{ijt} \end{aligned} \tag{3}$$

4.2. Variables and Data Sources

This paper selects the panel data of the top thirty countries in terms of China's export volume from the data released by the International Tea Committee as the research object, and the explanatory variable is the annual tea export value of China to that country. Considering China's accession to the WTO in 2001 and

the significant development of foreign trade since then, the time range selected for this paper is from 2001 to 2021, and the data are all annual data within the time range.

According to the gravity model, the GDP of the exporting country can describe the actual capacity of tea exports, the GDP of the importing country can describe the purchasing capacity of tea, the distance between the two countries affects the tea trade by influencing the transportation cost, and the exchange rate level of the two countries also affects the trade. Therefore, this paper chooses Chinese GDP_{it}, importing country GDP_{jt}, the distance between the two countries DIS and the exchange rate ratio between the two countries R as the explanatory variables. Among them, since the geographical distance between the two countries does not change and may be absorbed by fixed effects in the regression, this paper uses the product of the geographical distance between the two capitals and the international crude oil price in the current year to represent the distance between the two countries based on relevant literature studies, as shown in Table 1 and Table 2.

The geographical distance data used in this paper are from the CEPII database, the international oil price data are from the FRED database, the annual tea export values of China are from the UN Comtrade database, and the GDP, population and exchange rate data are from the World Bank.

This paper sets green trade barriers as a dummy variable, where 2008 is chosen as the node, and the value is 0 from 2001 to 2008 and 1 from 2009 to 2021, which is a comprehensive study of related literature and takes into account that the outbreak of the financial crisis in 2008 has affected the economic development of various countries to a certain extent, resulting in the weak demand of the world economy, and thereafter countries have implemented trade protection policies in order to In order to protect their industries and promote the recovery and development of their economies, countries have implemented trade protection policies, thus enhancing the degree of restriction of green trade barriers. This is not to say that green trade barriers did not exist before 2008, or that all countries have implemented green trade barriers after 2008, but since the research object of this paper is China's tea exports to 30 countries, the green trade barrier exceptions of individual countries are no longer considered. The specifics and data sources for each of the above variables are shown in Table 3.

In this paper, the panel data were analyzed econometrically using Stata 16.0 software, with the main variables logged and tailed, thus alleviating the heteroskedasticity problem and ensuring smoothness to some extent. The results of descriptive statistics for the main variables are shown in Table 4.

5. Results of the Empirical Research

Before conducting the panel data regression, the correlation between the variables is tested to ensure the accuracy of the regression results. The highest correlation coefficient is 0.591, which is low. The Variance Inflation Factor (VIF) in

the model was further tested in Table 5, and the maximum VIF was 5.87 and the mean was 4.36, which was much smaller than the critical value of 10. It can be

Table 1. Geographical distance between Beijing and the capitals of the countries under study.

Country	ISO	Capital	Unit: KM
Afghanistan	AFG	Kabul	4180.438
Australia	AUS	Canberra	9018.307
Benin	BEN	Porto-Novo	11516.91
Canada	CAN	Ottawa	10458.92
Germany	DEU	Berlin	7363.33
Algeria	DZA	Algiers	9117.676
Spain	ESP	Madrid	9232.299
France	FRA	Paris	8225.232
United Kingdom	GBR	London	8151.353
Ghana	GHA	Accra	11831.63
Gambia	GMB	Banjul	12365.75
Indonesia	IDN	Jakarta	5220.879
Iran	IRN	Tehran	5609.038
Japan	JPN	Tokyo	2098.111
Liberia	LBR	Monrovia	12572.44
Morocco	MAR	Rabat	9951.105
Mali	MLI	Bamako	11841.6
Mauritania	MRT	Nouakchott	11903.59
Malaysia	MYS	Kuala Lumpur	4355.047
Netherlands	NLD	Amsterdam	7831.141
Pakistan	PAK	Islamabad	3882.877
Poland	POL	Warsaw	6947.899
Russian Federation	RUS	Moscow	5795.045
Senegal	SEN	Dakar	12312.88
Singapore	SGP	Singapore	4484.657
Togo	TGO	Lome	11,656.86
Thailand	THA	Bangkok	3303.891
United States of America	USA	Washington DC	11,159.25
Viet Nam	VNM	Hanoi	2330.799
South Africa	ZAF	Cape Town	11674.59

Data source: CEPII Database.

Table 2. International crude oil prices over the years.

Year	Price	Year	Price
2001	24.7137627909530	2012	112.0116726974720
2002	25.1150959752808	2013	108.9617254768180
2003	28.7791027197440	2014	99.3454458011795
2004	38.2335804473304	2015	53.0227124035385
2005	54.6838476064998	2016	45.0790762438045
2006	65.6047431065311	2017	54.8869160863291
2007	72.6528058457243	2018	71.6125929873267
2008	97.3301517582659	2019	64.1984739867620
2009	61.5810495718050	2020	43.3338428226363
2010	79.8070083443127	2021	70.8314995843529
2011	111.5392264335910		

Data source: FRED Database.

Table 3. Variable and data description.

Variable Type	Variable Name	Data Indicator	Abbreviation	Data Source
Dependent Variable	Tea Export Volume	China's annual total tea export volume to the respective country (Unit: KG)	EX_{ijt}	UN Comtrade Database (HS0902)
Independent Variables	Exporting Country's GDP	GDP of China (Unit: Billion US dollars)	GDP_{it}	World Bank
	Importing Country's GDP	GDP of the importing country (Unit: Billion US dollars)	GDP_{jt}	World Bank
	Importing Country's Population	Population of the importing country	POP_{jt}	World Bank
	Distance	Product of the distance between the capitals of the two countries and the current year's oil price	DIS_{ijt}	CEPII Database and FRED Database
	Exchange Rate Level	Exchange rate of the importing country's currency against RMB	R_t	World Bank
Dummy Variable	Green Trade Barrier	Whether encountering a green trade barrier	DV	-

Table 4. Descriptive statistics of variables.

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
$\ln EX_{ijt}$	630	14.86859	1.675845	5.247024	18.16659
$\ln GDP_{it}$	630	29.6578	0.5178302	28.72963	30.39103
$\ln GDP_{jt}$	630	25.9232	2.437484	20.70602	30.65145
$\ln POP_{jt}$	630	17.29996	1.26411	14.20718	19.62033
$\ln DIS_{ijt}$	630	52.75199	25.79105	10.85615	95.39192
$\ln R_t$	630	1.289711	3.071108	−2.722743	8.781504
DV	630	0.6190476	0.4860068	0	1

variables in the model have good independence from each other, and there is no obvious problem of multicollinearity, and further regression can be performed.

In order to avoid pseudo-regression problems, IPS test and ADF test were used to test the smoothness of each variable. Each variable rejects the original hypothesis at the 5% significance level after the first-order difference, and the difference series can be judged to be smooth. Then, the KAO test is used to analyze the cointegration of the panel data to determine whether there is a long-run equilibrium relationship between the variables. The results show that the p-value is 0.0018, which is less than 0.05, indicating that the original hypothesis is rejected at the 5% significance level and there is a cointegration relationship between the variables, so the possibility of pseudo-regression is excluded and the original series can be regressed for analysis.

When analyzing and estimating panel data, the commonly used regression analysis models include the following three: mixed OLS model, fixed effects model and random effects model. In this paper, we will use the three models to compare the panel data on the impact of green trade barriers on tea exports and analyze which model is more applicable.

The model to be regressed is first subjected to an F-test, which leads to a choice between a fixed-effects model and a random-effects model. Since the p-value corresponding to the F-test is 0.0000, which is much less than 0.05, it is clear that it is more appropriate to construct a fixed-effects model than a random-effects model. Next, the Hausman test is conducted to determine which is more appropriate, the fixed-effects model or the random-effects model.

The results of the Hausman test are shown in Table 6.

It can be seen that the statistic of $\chi^2(6)$ is 11.30 and the p-value is 0.0797, and since the p-value is greater than 0.05, it is judged that it is more appropriate to use the random effects model than the fixed effects model. Based on the above

Table 5. The variance inflation factor.

Variable	VIF	1/VIF
$\mathrm{Ln}GDP_{it}$	5.87	0.170358
$\mathrm{Ln}GDP_{jt}$	5.49	0.182243
$\mathrm{Ln}POP_{jt}$	4.55	0.219966
$\mathrm{Ln}DIS_{ijt}$	3.54	0.282486
LnR_t	2.10	0.476409
DV	4.61	0.217012
Mean VIF	4.36	

Table 6. Hausman test results.

Test Summary	Chi-sq. Statistic	Chi-sq. d.f.	Prob.
Cross-section Random	11.30	6	0.0797

preparations, regressions were conducted using the three models and the regression results are shown in Table 7.

From the regression results in Table 6, it can be seen that $\ln GDP_{it}$ and $\ln R$ in the random effects model passed the 0.1% significance test, $\ln POP$ and DV passed the 5% significance test, $\ln GDP_{jt}$ passed the 10% significance test, and $\ln DIS$ did not pass the significance test, from which the estimated equations can be obtained:

$$\ln EX_{ijt} = 0.394671 \ln GDP_{it} + 0.681845 \ln GDP_{jt} + 0.632768 \ln POP_{jt} - 0.480411 \ln R_t - 0.296395 DV + 2.794568 \quad (4)$$

The regression results show that since the coefficients of the dummy variables are negative, it indicates that there is a significant negative restrictive effect of green trade barriers on the volume of Chinese tea exports, i.e. the existence of green trade barriers will lead to a decrease in the value of Chinese tea exports.

In addition, the GDP of China and the tea importing countries, the total population of the importing countries, and the RMB exchange rate all have a positive contribution to tea exports. Every 1% increase in China's GDP will bring a 0.39% increase in tea exports, every 1% increase in the GDP of the importing countries will bring a 0.68% increase in tea exports, and every 1% increase in the exchange rate of the currency of the importing countries against the RMB will cause a 0.48% decrease in tea exports, which is also in line with expectations.

In reality, an increase in GDP implies an increase in the level and size of the

Table 7. Regression results of the three models.

Variable	OLS	FE	RE
$\ln GDP_{it}$	0.0150137 (0.287496)	0.0565604*** (0.5706538)	0.3946706*** (0.3317418)
$\ln GDP_{jt}$	0.3052829*** (0.0519142)	−0.1996348 (0.1942042)	0.6818447# (0.3660348)
$\ln POP_{jt}$	0.5842217*** (0.0791379)	0.5460172** (0.3516306)	0.6327682* (0.6176794)
$\ln DIS_{ijt}$	0.0081712 (0.0228887)	−0.2864127 (0.0105813)	−0.4677974 (0.0510823)
LnR_t	−0.1620919*** (0.0343502)	−0.2064618 (0.0920907)	−0.4804114*** (0.1501722)
DV	0.0882171 (0.3432838)	−0.0866817* (0.1484003)	−0.2963953* (0.068721)
_cons	1.84416	0.1297	2.794568
R^2	0.0664	0.7738	0.0648
N	630	630	630

Note: The p-values of the tests are in parentheses in the table, ***indicates significant at the 0.1% level, **indicates significant at the 1% level, *indicates significant at the 5% level, and #indicates significant at the 10% level.

economy, which in turn increases production capacity, export size and import demand. An increase in the currency of the importing country against the RMB implies a depreciation of the currency of the importing country and an appreciation of the RMB, which has a dampening effect on tea exports.

6. Recommendations

In recent years, with the increasing impact of reverse globalization, many countries have used green trade barriers to restrict China's tea exports in order to protect their own trade. This paper compares and analyzes the theories related to green trade barriers, the current situation of China's tea exports and its influence by green trade barriers, selects the data of China's tea exports from 2001 to 2021, and uses the trade gravity model to conduct an empirical analysis to investigate the specific situation of China's tea exports affected by green trade barriers, and the results obtained show that the existence of green trade barriers will lead to the decline of China's tea exports. In the face of green trade barriers, the Chinese government, related industries and enterprises should actively play their respective roles and take measures to deal with them in a timely manner, so as to overcome the obstacles of green trade barriers and protect and promote the export of Chinese tea. Combined with the previous research, this paper puts forward the following suggestions from three levels: government, industry and enterprises.

6.1. Government Strategies

First of all, China's current relevant legislation is not comprehensive, we can refer to the laws of developed countries, take the essence and remove the dross, further improve the relevant laws and regulations including pesticide management, adopt active policies to guide and support, encourage new environmentally friendly production technologies and production methods, and guide enterprises to develop green standards according to international market standards.

Secondly, the government should also give full play to the function of supervision and guidance, strengthen the safety management of all aspects of tea production, combat the illegal and irregular behavior of tea export enterprises, help improve the quality management system of enterprises, so as to improve the quality requirements of tea, actively promote the ISO14000 international environmental standard certification, control the amount of pesticide residues and bring it in line with the international level, and promote Chinese tea to get more international recognition.

Furthermore, the government should optimize and adjust the traditional tea export market structure, make plans to adapt to the international development route, implement trade preferential policies to encourage tea enterprises to "go global", strengthen international communication and coordination, reduce trade frictions, and at the same time, take advantage of diplomatic opportunities and civil exchanges, build a government platform to actively promote and enhance

China's tea culture's popularity and influence, to tap the potential of the international market. In addition, China, as a member of the WTO, should keep abreast of WTO policy information, make full use of the preferential treatment and trade dispute settlement mechanisms that developing countries have, improve the international discourse, actively participate in trade negotiations, create a good international competitive environment, so as to cross the green barriers to trade and promote China's tea exports.

6.2. Industry Strategies

First of all, the industry association should serve the government's scientific decision-making, give full play to its active role and become a bridge between the government and enterprises. We should fully integrate industry resources, promote mutual assistance among enterprises, share the information obtained in the process of production and operation and export to overseas markets, so as to enhance the overall bargaining power of Chinese tea in the international market. For the vicious competition behavior of individual enterprises, measures should be taken to respond in a timely manner, so as to maintain the normal order of the tea export market. In addition, the industry association should also actively research and collect relevant information from the export market, and timely convey to enterprises the economic and social policy trends of overseas countries, so as to help enterprises flexibly respond to changes in the market environment, avoid the risks that may be encountered in exports, and improve the competitiveness of the industry in the international market.

In addition, the lack of green trade barriers and early warning mechanisms is one of the important reasons why China's tea exports are hindered, the tea export industry should set up a professional team and in-depth study of trade friction events between China and export target countries, explore the reasons why Chinese tea exporters encounter green barriers and discuss solutions, pay attention to the international market in a timely manner, grasp the latest industry trends, establish and improve the overall system of early warning-consulting-rapid response, to provide efficient and targeted support to enterprises, but also to better help the government carry out related work.

6.3. Enterprise Strategies

First of all, with the development of economy and society, consumers in developed countries and regions such as the EU are paying more and more attention to the quality of tea, as well as the technical content of tea processing. China's tea export enterprises should, according to the needs of overseas markets, improve their independent innovation capabilities, increase investment in scientific and technological research and development, accelerate the transformation and upgrading of science and technology, improve the technical content and production efficiency of their products, and promote standardized tea production, thus improving product quality and added value.

Secondly, the enterprise should continue to expand and promote the construction of tea production bases and science and technology parks, promote the conversion of scientific and technological achievements and continuously optimize and improve tea varieties, technical processes, production processes, packaging design, etc. to ensure that all aspects are in line with international quality certification standards and safety technology standards, so as to improve export competitiveness.

Last but not least, tea enterprises should adopt a diversification strategy, constantly explore the potential international market, enrich the product range and give cultural connotation. China as a tea-drinking country has five thousand years of tea-drinking history, enterprises can integrate Chinese cultural connotation into the brand concept and pay attention to the taste differences of different regions, innovatively combine local characteristics with national style when developing new products, improve the degree of product differentiation while maintaining the stability of product quality, create a unique advantage and attractiveness, cater to more consumers, so as to cross the green trade barriers.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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