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Temporary trade barriers and enterprise export market changes: evidence from China

Zhao Wanwan, Zhou Yanan and Zhao Yongliang

School of Economics, Jinan University, Guangzhou, China

ABSTRACT

In theory, previous studies believed that the export market of enterprises was homogeneous. There is no difference in each export market, which is obviously inconsistent with the actual trade situation. This paper divides the export market of enterprises into main export market and secondary export market according to the export status, explores the export changes of enterprises to the main export market and secondary export market respectively when the temporary trade barriers of the main export market to the trade exporting country are raised. This paper focuses on the impact of the main export market on the anti-dumping degree, countervailing level and the improvement of trade safeguard measures on the export conversion of enterprises between the main and secondary markets. The research shows that the increase of the anti-dumping degree of the main market against the trade exporting countries will lead to the higher probability of role exchange between the main and secondary markets; The countervailing level of the main market against the trade exporting countries rises, and the export of enterprises is more likely to turn to the secondary market; The greater the trade safeguard measures in the main market, the more likely the secondary market will become the main market.

1. Introduction

With the emergence of the trend of 'anti-globalization', temporary trade barriers(TTB) dominated by anti-dumping, anti-subsidy and safeguard measures have become the usual means of trade protectionism (Blonigen and Bown, 2003; Prusa, 2005). While the international spread of temporary trade barriers has varied, the number of cases against China has risen sharply. In addition to these temporary trade barriers, Chinese exports are also subject to special safeguard measures specifically targeted at China (Bown & Crowley, 2006). Both traditional and recent users of temporary trade barriers, the number of temporary trade barriers against China has been increasing in the last decade (Bown & Crowley, 2007). There are several possible

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(a)Distribution of China's export in 2002   (b) Distribution of China's export in 2008

Figure 1. China Export frozen shrimp market change.
Source: The Authors.

explanations for the spate of anti-dumping actions against China. For example, part of the increase in trade barriers against China may simply be an increase in the volume of trade that China participates in. Another explanation could be China's non-market status, which allows countries to calculate dumping margins using costs from other 'surrogate countries'. However, some studies suggest that even after controlling for these factors, China is still heavily accused (e.g. Chu and Prusa, 2004). Whatever the explanation, given the volume of trade involved, it is important to understand the impact of these trade barriers on Chinese exports, especially as they may affect not only the country imposing the temporary trade barriers but also other third countries. For example, Bown and Crowley (2006) pointed out that increased US temporary trade barriers against China could lead to more exports from China to the EU and other trading partners (trade diversion).

There is some practical evidence that China has trade diversion. For example, in 2005, the United States imposed anti-dumping duties on imports of frozen shrimp and shrimp (HS code 030613) and processed shrimp and shrimp (HS code 160520) from many countries, including China. According to our theory, this may lead China to increase exports to other trading partners (such as the European Union). In fact, according to the data of UNCOMTRADE(as shown in Figure 1), from 2002 to 2004, China exported frozen shrimp worth about US $11.1 million to US $21.4 million to the EU (HS code 030613). In 2005, China's exports of these goods to the EU jumped to 150.6 million US dollars, an almost seven fold increase. In the next four years, until 2008, the average annual export of China to the EU was 165million US dollars. Although to a much smaller extent, similar trends can also be seen in China's exports to other countries and regions such as Japan and Taiwan, China. It is worth noting that there is a possibility that this growth is not due to trade transfer, but the general increase in China's frozen shrimp exports to all trading partners. However, in terms of share rather than just export volume, the same thing will happen. Before 2005, China's frozen shrimp exports to the EU accounted for only about 5% of its total exports. By 2005, the EU accounted for 26% of China's total exports of frozen shrimp. Similarly, from 2002 to 2003, the frozen shrimp exported from Chinese Mainland to Taiwan, China accounted for only about 1% of its total exports, and increased to 5% in 2005. In contrast, in 2004, China's exports of frozen shrimp to the

United States exceeded 230million US dollars, accounting for more than 55% of its total global exports. However, in 2005, the year the United States imposed anti-dumping duties, China's exports to the United States have fallen to less than $48million, accounting for about 8% of China's total exports to the world.

Based on the matching of Chinese Customs Database and Chinese Industrial Enterprise Database from 2005 to 2015, this paper explores the changes of enterprises' exports to primary export market and secondary export market respectively when the temporary trade barriers between primary export market and exporting country are raised. This paper focuses on the influence of anti-dumping degree, countervailing level of the main export market and the improvement of trade safeguard measures on enterprises' export conversion between the primary and secondary markets. The results show that the increasing degree of anti-dumping from the primary market against the exporting country will lead to a higher risk probability of role swap between the primary and secondary markets. The level of countervailing in the primary market against exporting countries increases, and the export of enterprises is more likely to turn to the secondary market. The greater the trade safeguard measures in the primary market, the greater the thought of avoiding risks of export enterprises, and the greater the proportion of export diversification to the secondary market, so that the secondary market is more likely to become the primary market. This paper has important theoretical and practical significance: First, it expands the enterprise export theory of Melitz (2003), starting from the trade barriers between exporting countries and export markets, and opens a new idea for the study of enterprise export market transformation. It is an extension of the previous export market theory to divide the export market into primary export market and secondary export market according to the export intensity and study the influencing factors of exporting country's conversion between primary and secondary export market. Second, it provides policy reference for Chinese enterprises to further expand export channels, and lays a micro foundation for enterprises to flexibly change export markets, strengthen trade contacts with 'Belt and Road' countries.

The innovation of this paper mainly includes two aspects: First, Melitz (2003) regarded the export market of enterprises as homogenous, and enterprises choose to export to all markets or not, and there is no difference in each export market, which is obviously inconsistent with the actual trade situation (Chaney, 2008). This paper divides export market into primary export market and secondary export market according to export intensity, which is a further extension of export market theory. Second, when studying the export of enterprises, previous literatures mainly focus on the influence of the relationship between enterprises and export markets on bilateral trade, while the influence of the trade of third countries is rarely involved in current literatures, and there is no in-depth and detailed discussion. This paper focuses on the relationship of temporary trade barriers between exporting countries and export markets, explores how the temporary trade barriers in the primary export market affect the export of enterprises, and whether there is a conversion effect between the primary and secondary export markets, which is a further supplement to the existing export problems of enterprises.

The rest of this paper is arranged as follows: The second part is the literature review. The third part is the research hypothesis. The fourth part is the empirical

model and data explanation; The fifth part is the analysis of empirical results. The sixth part is the expansion analysis, the seventh part is the conclusion and policy suggestions.

2. Literature review

Bown and Crowley (2010) first proposed the concept of Temporary Trade barriers. He summarized the Trade policies that can hinder international Trade, such as anti-dumping and countervailing measures and Trade safeguard measures, which are characterized by legal constraints and cannot be used for a long period of time. Followed by some scholars also temporary trade barriers against doing a series of studies, they think that in the past twenty years, with the development of the multilateral trade negotiations, tariff the role of the traditional trade barrier gradually weakened, and the use of temporary trade barriers frequency increasing, especially since 2008, has become a means of trade protection of some emerging economies. Although anti-dumping and other temporary trade barriers are designed to protect domestic industries, they usually lead to higher consumer prices and increase the cost of import dependent enterprises affecting their export capacity (Irwin, 2016).

The increase of temporary trade barriers has led to an increasing number of literatures trying to understand their impact. A large number of literatures tend to focus on the internal impact of countries implementing temporary trade barriers. For example, Prusa (2001) found that, using data from 1980 to 1994, anti-dumping duties lead to a 30–50% reduction in imports from target countries. However, about one third of the decline is replaced by the increase in imports from non-listed countries. Research by Besedeš and Prusa (2013) found that anti-dumping measures eliminate trade to a large extent, and suppliers affected by anti-dumping are unlikely to return to the market even after the cancellation of anti-dumping orders. In another seminal paper, Staiger and Wolak (1994) found that anti-dumping investigations themselves, even if they do not lead to the imposition of anti-dumping duties, lead to a reduction in imports from the target country. Most of these preliminary studies focus on the impact of temporary trade barriers on policy implementing countries, mainly in the United States and the European Union.

However, in recent years, several studies have begun to focus on the impact of temporary trade barriers on countries, especially China. For example, Li and Whalley (2010) investigated the impact of anti-dumping on some Chinese residents in the measures at the industry level Using industry-level data from 1997 to 2007, they found that anti-dumping duties imposed on China resulted in a decline in industrial profits, especially in the number of firms employed and total industrial exports, Chandra and Long (2013) studied the impact of US anti-dumping duties on the productivity of Chinese enterprises. Using the data of Chinese enterprises from 2000 to 2006, they found that US anti-dumping duties led to a significant decline in the productivity of Chinese enterprises at the firm level. Lu et al. (2013) found that anti-dumping investigations led to HS-6 Digit product level of total exports have fallen sharply, the trade inhibition effect is a significant reduction in the number as exporters, while exports fell slightly each surviving exporters They also found that the main

reason for the decrease in the number of exporters are exporter of low production efficiency direct exporters rather than a single product trade intermediary direct exporters rather than more products exporters. Jabbour et al. (2019) analyzed the impact of EU anti-dumping tariffs on Chinese imports on all affected companies: Good European Import Competition company Bad Chinese Exporters and Ugly Dumped Goods European Importers The results show that temporary import tariffs benefit the least productive good EU producers, but hurt the most productive ugly EU importers. Felbermayr and Sandkamp (2020) found that anti-dumping duties would reduce exports and induce firms to exit, but would not affect producer prices. In addition, evidence of trade deflection was also found, as anti-dumping duties led Chinese firms to enter third country markets.

As we can see, while several recent papers have investigated the impact of anti-dumping duties on Chinese export ports, none of the above directly addresses the central question of this paper, namely, how does TTB to China affect its exports to other third-party markets? Bowen and Crowley (2006) investigated the impact of anti-dumping duties imposed by the United States on Japanese products exported to the EU, and found evidence of trade diversion and trade depression. Similarly, Bowen and Crowley (2007) also focused on Japanese exports to study trade diversion and trade depression, but they extended Bowen and Crowley's (2006) analysis in two ways. First, they developed a simple theoretical model to explain the various effects of trade barriers. Second, the empirical analysis was extended to 37 countries to explore the impact of US trade barriers on Japanese exports. They found strong evidence of trade diversion and trade depression, estimating that US import restrictions diverted (increased) Japan's exports to other countries by 5.7% on average. Similarly, they found that the average import restrictions imposed by the US on other countries reduced Japan's exports to other countries by 5–19%, while the above two papers focused on Japan's exports. While Bowen and Crowley (2010) focused on China's exports to 38 countries and investigated the impact of import restrictions imposed by the US and the EU on China's exports Interestingly, unlike in the case of Japan, they do not find any evidence of trade diversion or depression in China from 1992 to 2001.

To sum up, the existing literature has systematically and extensively studied temporary trade barriers and trade diversion, and the previous literature has made a lot of elaboration on it. However, there are still gaps to be filled in the current research on the impact of temporary trade barriers on enterprises' conversion between different export markets, especially the impact of temporary trade barriers in export markets on the trade of third countries, which still needs to be further explored. Therefore, this paper divides the export market of enterprises into primary export market and secondary export market according to the export intensity, from the trading exporting country, primary export market and secondary export market tripartite perspective, focusing on enterprises in the primary and secondary influence factors of export market transformation, from the perspective of trade barriers, to explore the primary export market for exporter of how trade barriers affect exporter to export conversions between primary and secondary export market, in the hope in the future for the enterprise to face international market situation changes and trade relations of export market transformation provides micro Support and policy reference.

3. Research hypothesis

Under the background of significantly increasing external uncertainty, the behavior of Chinese export enterprises will be affected. In order to maintain export stability and further expand export scale, in addition to continuing to stick to the market impacted by risks, export enterprises may change export markets, that is, open up new international markets or transfer to other markets that have been exported. In the face of external risks, the behavior of enterprises to convert export markets and export products is not only a rational choice for enterprises to deal with the changes of export destination risks, but also an effective channel for the country to achieve a high level of opening to the outside world. Therefore, this paper divides the export market into primary export market and secondary export market according to the export status, and further studies the changes of enterprises' behavior in export.

Numerous studies have shown that anti-dumping investigations can inhibit imports of dumped products from the accused country, which is known as the trade restriction effect. Staiger and Wolak (1994) estimated the influence of the US anti-dumping law on trade from 1980 to 1985, and believed that anti-dumping had three effects on trade: investigation effect, termination effect and withdrawal effect. The investigation effect occurred when anti-monopoly investigation occurred. The suspension effect occurs under the so-called 'suspension agreement'; The withdrawal effect occurs after a petition is simply withdrawn without a final decision. Besedeš and Prusa (2013) used the quarterly export data of products subject to anti-dumping cases in the US to explore the degree of suppression of trade caused by anti-dumping actions, and found that the cost of anti-dumping protection was higher than previously realized. At the same time, there is also trade diversion effect in external anti-dumping, which means that the anti-dumping investigation initiated by an anti-dumping country against the exporting country will not only reduce the export of the exporting country, but also increase the trade volume of the products involved from the non-target country. Bown and Crowley (2007) constructed a trade theory model to study whether anti-dumping policies lead to the distortion of exports to the third market. They investigated the effects of such import restrictions on about 4800 products exported by Japan to 37 countries from 1992 to 2001. Found that U.S. restrictions diverted Japanese exports to third countries. There are two reasons for trade diversion caused by anti-dumping. The first is the change in relative costs. Anti-dumping countries levy high anti-dumping duties on part of the exports of the exporting countries, which will reduce the relative 'tariffs' of non-accusing countries and make the prices of the trade products from non-accusing countries more competitive. Therefore, the exports to anti-dumping countries will increase, resulting in trade diversion. The second is that anti-dumping measures will lead to an increase in import prices and domestic prices (Pierce, 2011), which will further induce potential exports from foreign exporters to trade exporting countries and aggravate the phenomenon of trade diversion. Trade shifts caused by anti-dumping measures shift market share and even the source of dumped products from countries accused of dumping to third countries not accused of dumping. This paper divides the export market into primary export market and secondary export market according to the export intensity, and studies the export conversion of enterprises to primary export

market and secondary export market when the primary export market imposes anti-dumping action against the exporting country.

Therefore, we propose hypothesis 1: The increase of anti-dumping degree of the primary market against the exporting country will lead to a higher risk probability of role swap of the primary and secondary markets.

In the early stage of development, countervailing is a restrictive measure taken by a country or the international community to implement subsidies in order to protect the healthy development of its own economy, maintain fair competition order and free development of international trade. However, with the development of globalization, countries in the world are becoming more and more aware of their own industrial protection, and anti-subsidy investigation has gradually become an important means of implementing trade protection. After China's accession to the World Trade Organization (WTO), China has increasingly become a major exporter in the world, and has also become the focus of the world's countervailing investigation, especially the United States led the initiation of countervailing investigation. Cheng and Zhang (2017) collected the data from 2002 to 2014 and found that more than 40 WTO members initiated 380 anti-dumping investigations, among which 70% of the anti-subsidy cases were against China's export products. The study of Shi and Yang (2020) found that the US anti-subsidy investigation against China inhibited the export of enterprises. In terms of its internal mechanism, the anti-subsidy investigation leads to the increase of the cost of enterprises' export to the United States, leads to the decline of enterprises' operating performance and the enhancement of financing constraints, but stimulates enterprises to adjust their market strategies. This is reflected in companies exporting less to the United States and more to other countries with relatively lower costs. On the one hand, a countervailing investigation conducted by the initiator country against the exporting country will restrain the exporting country's exports to the market. Fundamentally, the anti-subsidy investigation will increase the original export cost of enterprises, leading to the reduction of enterprises' export to this market. On the other hand, the decline of business performance and the enhancement of financing constraints caused by the fluctuation of trade costs will stimulate the change of market strategy direction of enterprises, and enterprises will adjust the export country of orders to seek the export country with lower cost. Therefore, when the primary market launches anti-subsidy investigation against the exporting country, the trade cost will be increased, and the export of enterprises to the primary market will be significantly reduced. Under the pressure of cost, the strategic direction of enterprises will be changed, and the export of enterprises will be shifted to the secondary market with relatively lower trade cost.

Therefore, we propose hypothesis 2: As the countervailing level of the primary market against the exporting country increases, enterprises are more likely to shift their exports to the secondary market.

Safeguard measures refer to import restriction measures adopted by members under the 1994 GATT in the event of a surge in imports that causes or threatens to cause serious injury to their domestic industries. This measure is an important means for member governments to safeguard the interests of their domestic industries under normal trade conditions, which is different from measures against unfair trade. The purpose of this measure is to provide flexibility in the international obligations of

members so that they can be exempted from their obligations under the relevant WTO agreements in exceptional circumstances, so as to remedy the serious harm that has been caused or avoid the possible consequences of the threat of serious harm. Safeguard measures should be applied in accordance with the principle of non-discrimination, and all imports of the same kind should be treated equally. According to the agreement, the safeguard measures should not be applied only to imports from one member, but should be given a green light to similar products from other members. Therefore, 'no matter the origin of the product' is actually the embodiment of the non-discrimination principle or most-favored-nation treatment principle in terms of safeguards wording. In international trade, the implementation of primary market safeguard measures will protect domestic industries on the one hand, and reduce imports of foreign products on the other hand, especially for the most targeted exporting countries. When the export of the exporting country to the primary market is blocked, enterprises often choose to export products to the secondary market in order to avoid export risks and disperse export costs.

Therefore, we put forward hypothesis 3: The greater the trade safeguard measures of the primary market, the more risk avoidance thoughts of export enterprises, and the greater the proportion of export diversification to the secondary market, so that the secondary market is more likely to become the primary market.

4. Empirical model and data description

4.1. Empirical model

This paper aims to explore the impact of temporary trade barriers on enterprises' export market changes. Based on the above theoretical analysis, the following models will be used for empirical regression:

$$Market_{ijkt} = \beta TTBD_{ijkt} + \alpha X_{ijt} + \gamma_t + \varepsilon_{ijkt} \tag{1}$$

Where, i is the export enterprise, j is the export market, k is the products divided by HS-6, and t is the export time. $Market_{ijkt}$ is the explained variable, represents the export market position. The greater the value of $Market_{ijkt}$, the higher the status of the export market, and the greater the possibility of being the main export market of enterprises. $TTBD_{ijkt}$ is the core explanatory variable, and represents the temporary trade barriers encountered by enterprises when exporting, including anti-dumping (AD), countervailing (CVD) and Trade safeguard measure (SG). The sign of the coefficient $TTBD_{ijkt}$ and its significance indicate that under the condition that other variables remain unchanged, for every unit of change in the temporary trade barrier implemented by the market on enterprises in, the ranking of the market in all markets exported by enterprises will change by units, and the possibility of the market becoming the main export market of enterprises will change accordingly. The sign expected in this paper is negative. X_{ijt} is the control variable, mainly including the level of economic development of the export market (GDP_{jt}), the degree of openness of the export market ($open_{jt}$), geographical distance ($dist_{ij}$), whether the border ($border_{ij}$). γ_t is the time fixed effect.

4.2. Variable

4.2.1. Explained variable

The explanatory variable $Market_{ijkt}$ is the export market position, which is expressed by the negative ranking of the annual market share in all markets of the enterprise's export products. For example, in 2011, Huawei Technologies Co., Ltd. exported cooling fans (HS-6 is 841459) to the European Union, ranking first in all export market shares, which is -1, while India is third, which is -3. Therefore, the greater the value of $Market_{ijkt}$, the larger the share of the export market j in all the markets in which i enterprises export k products, the higher the market position, and the greater the possibility of being the main export market of enterprises. The relevant trade data used are from China customs database.

4.2.2. Explanatory variable

Explanatory variables $TTBD_{ijkt}$ represent the temporary trade barriers encountered by enterprises when exporting. Respectively, anti-dumping degree (AD), countervailing level (CVD) and trade safeguard measures (SG). The TBD is the sum of the three temporary barriers trade. For example, in 2009, the EU implemented five anti-dumping measures against screws and bolts exported by China (HS-6 is 731815), so Chinese enterprises exporting screws and bolts suffered from the EU's anti-dumping measures in 2009, that is, AD_{ijkt} is 5. The source of these data is the world bank's temporary barriers to trade database (TTB database).

4.2.3. Control variable

(1) The economic development level of the import market (GDP_{jt}). Regional economic development level will affect enterprises' export decisions, and per capita can fully reflect a region's economic development level. The data comes from the World Bank database. (2) Degree of import market opening ($open_{jt}$). Expressed as the ratio of trade volume to GNP in the corresponding year. Data from World Bank GDP database. (3) Geographical distance($dist_{ij}$). The distance between the export market and China's major cities is used to measure. Data were obtained from CEPII database. (4) Border or not($border_{ij}$). The dummy variable representing whether the export market and China share a common boundary, if yes, the value is 1, otherwise 0. This variable comes from the CEPII database. (5) Logarithm of product tariffs($lnduty_{ijt}$), data from WTO database.

4.3. Data description

4.3.1. Data source and processing

The first database used in this paper is the Temporary Trade Barrier database (TTB database) from the world bank, which is an important database for existing research on trade policies, especially temporary trade policies (Bown, 2012). Temporary trade barriers include anti-dumping (AD), countervailing duty (CVD), safeguard (SG) and China specific transitional safeguard (CSG), etc. In the database, binary variables are used to indicate that a country has implemented some temporary protection measures for a product in a certain year. This paper sums up the binary variables in the

database to get the aggregated temporary trade barrier data. That is, if a country implements n kinds of temporary trade barriers to a product in a certain year, the temporary trade barriers are recorded as n, and if no temporary trade barriers are implemented, it is recorded as 0.

The second database used in this paper is the China Customs Trade database produced by the General Administration of Customs of China. The database records the relevant data of each import and export trade in China in detail, and the product categories are subdivided into HS8 level. It mainly includes export enterprise code, export destination country, customs clearance, product quantity and quantity unit, and total transaction price. It also distinguishes the types of product import and export, such as incoming material processing, product assembly, etc. Using the total contract price and quantity in the Customs Trade data, the unit value at the product level can be calculated. Unit value generally reflects the average contract value of the product and can be used as a proxy variable of product price. Customs Trade data can analyze the import and export behavior of enterprises at the product level.

The third database used in this paper is the database of Chinese industrial enterprises. The statistical scope of the China industrial enterprise database is industrial enterprises with sales of more than 5million yuan (more than 20million yuan since 2011) in Chinese Mainland, including state-owned enterprises, collective enterprises, joint stock cooperative enterprises, joint ventures, limited liability companies, joint stock limited companies, private enterprises, other domestic enterprises, Hong Kong, Macao, Taiwan invested enterprises, and foreign-invested enterprises. The statistical variables include the basic situation of the enterprise, the financial situation of the enterprise, and the production and sales situation of the enterprise. The characteristics of China's industrial enterprise database are that there are many statistical indicators, the statistical scope is relatively complete, the classification catalogue is relatively detailed, and the accuracy requirement is high. To ensure data quality, firstly, delete the samples with missing key variables (total assets, total industrial output value, total liabilities, total profits, etc.) or their logarithms (annual average balance of fixed assets, industrial added value, annual average number of employees, total industrial intermediate inputs, etc.). Secondly, according to the conventional method, delete the sample with less than 8 workers, because organizations with less than 8 total employees are usually not regarded as enterprises. Finally, according to the methods of Cai and Liu (2009) and Yu (2015), according to generally accepted accounting principles (GAAP), unqualified samples are removed according to the following conditions: (1) Total assets are greater than the annual average balance of current assets, total fixed assets and net value of fixed assets; (2) Total liabilities, long-term liabilities and short-term liabilities are not negative, and total assets, fixed assets, sales revenue and sales expenses are positive; (3) The accumulated depreciation is greater than the depreciation of this year; (4) The establishment time is between January and December, that is, it cannot be earlier than January and later than December. Through the above processing, the data defects of industrial enterprise database are comprehensively solved.

For the above three databases, this paper refers to the methods of Tian and Yu (2020) and Yu (2015) to merge the data. First, data consolidation is carried out through the Chinese name and year of the enterprise. If the Chinese name of an

Table 1. Descriptive statistics of each variable.

Variables	Observations	Mean	Std. Dev	Minimum	Maximum
Market	1,604,476	−2.868	3.51	−56	−1
AD	1,604,476	0.013	0.281	0	38
CVD	1,604,476	0.003	0.144	0	38
SG	1,604,476	0.006	0.325	0	33
CSG	1,604,476	0.001	0.066	0	14
TBD	1,604,476	0.023	0.502	0	76
lnGDP	1,604,476	28.293	1.497	20.36	30.535
lnopen	1,604,476	4.069	0.615	2.473	6.093
lndist	1,604,476	8.678	0.727	6.862	9.868
border	1,604,476	0.094	0.292	0	1
lnduty	1,604,476	1.818	0.777	−2.303	6.685

Source: The Authors.

enterprise appears in two data of a year at the same time, the two enterprises should be the same enterprise. Then, use the last 7 digits of the postal code and telephone number of the enterprise to merge, because the telephone number of the same region (with the same postal code) must be unique. The merged data maintains a considerable proportion with the original data, ensuring the quality of the data. Using the above method, after removing unreasonable samples from the data of Chinese industrial enterprises in 2006, it is merged with China's Customs Trade data and temporary trade barriers data. (Table 1)

4.2.2. Data statistics

1. Descriptive statistics

Descriptive statistics of variables are shown in Table 1:

2. Temporary trade barriers

From the overall data trend, the number of temporary trade barriers suffered by China shows an obvious increase (Figure 2), especially since 2008, the number of trade barriers has risen sharply. On the one hand, the growth of China's foreign trade volume leads to the increase of trade barriers; on the other hand, the change of international political situation also leads to the increase of the use of temporary trade barriers by various countries. In terms of the form of trade barriers, anti-dumping measures are the most frequent means adopted by countries, accounting for nearly half of the overall trade barriers.

3. The number of temporary trade barriers and the transformation of export market: a bivariate mapping map

According to the data obtained, this paper draws a bivariate mapping map of temporary trade barriers and export market transformation (as shown in Figure 3), from which we can see the possible causal relationship between them. The figure reflects the situation that the relationship between temporary trade barriers and export market transformation varies with different spatial locations, that is, regional differences, which reflects the non stationarity of spatial data, and the spatial distribution of the relationship between temporary trade barriers and export market transformation
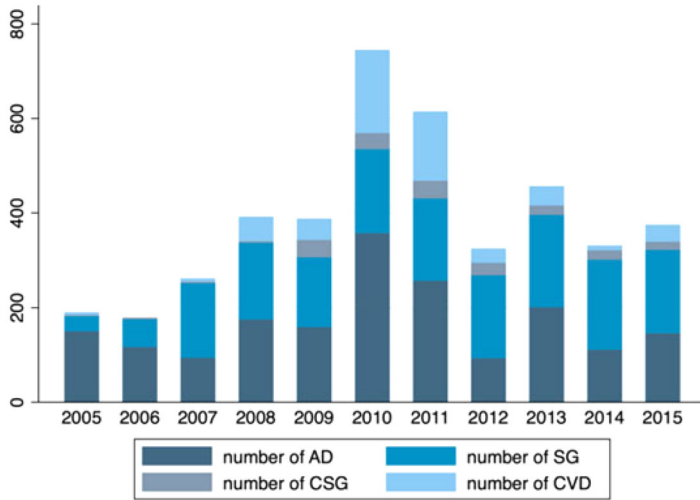
Figure 2. Statistical chart of temporary trade barriers.
Source: The Authors.
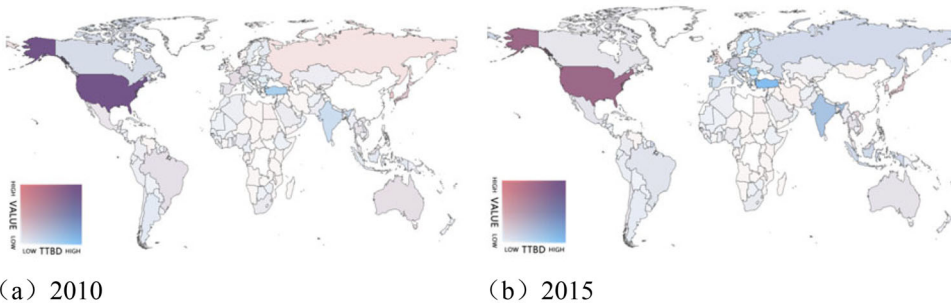

（a）2010　　　　　　　　　　　（b）2015

Figure 3. Bivariate mapping map of temporary trade barriers and export market transformation.
Source: The Authors.

shows a certain spatial aggregation. Purple is the least in the figure, and 80% of the regions are located in the anti diagonal unit of the legend, mainly in red and blue. The closer it is to red, the lower the temporary trade barrier and the higher the market position. The closer it is to blue, the higher the temporary trade barrier and the lower the market position. Therefore, it can be preliminarily determined that there may be a reverse relationship between temporary trade barriers and export market status.

5. Analysis of empirical results

5.1. Basic regression results

Taking the market status as the explanatory variable and the degree of anti-dumping, the level of countervailing and trade safeguard measures as the explanatory variables, we conduct linear regression on the obtained data. The results are shown in Table 2.

Table 2. The impact of TTB on the change of export market of enterprises.

Variables	(1) Market	(2) Market	(3) Market	(4) Market	(5) Market
AD	−0.0502***			−0.0384***	
	(0.00840)			(0.00992)	
CVD		−0.0830***		−0.0435**	
		(0.0163)		(0.0193)	
SG			−0.0600***	−0.0600***	
			(0.00724)	(0.00724)	
TBD					−0.0472***
					(0.00469)
lnGDP_j	1.387***	1.387***	1.386***	1.386***	1.387***
	(0.00199)	(0.00199)	(0.00199)	(0.00199)	(0.00199)
lnopen_j	1.387***	1.387***	1.387***	1.386***	1.387***
	(0.00535)	(0.00535)	(0.00535)	(0.00535)	(0.00535)
lndist_ij	−0.395***	−0.396***	−0.396***	−0.395***	−0.395***
	(0.00337)	(0.00336)	(0.00336)	(0.00337)	(0.00337)
border_ij	0.348***	0.348***	0.347***	0.347***	0.348***
	(0.00864)	(0.00864)	(0.00864)	(0.00864)	(0.00864)
lnduty_ij	−1.265***	−1.265***	−1.265***	−1.265***	−1.265***
	(0.0153)	(0.0153)	(0.0153)	(0.0153)	(0.0153)
Constant	−44.30***	−44.30***	−44.28***	−44.29***	−44.30***
	(0.0768)	(0.0767)	(0.0767)	(0.0768)	(0.0767)
Time fixed effect	YES	YES	YES	YES	YES
N	1,604,476	1,604,476	1,604,476	1,604,476	1,604,476
R^2	0.253	0.253	0.253	0.253	0.253

Note: (1) The values in brackets are the standard errors. (2) *, ** and *** represents the significance levels of 10%, 5%, and 1%, respectively.
Source: The Authors.

Column (1) in the table is the regression of the impact of anti-dumping degree on the export market status. The regression coefficient is −0.05, and it is significantly negative at the significance level of 1%, which further shows that when the number of anti-dumping investigations increases, the lower the export market status of the trading country in the export enterprises. The result also confirms the hypothesis 1 proposed in this paper, that is, the anti-dumping degree of the main market against the trading exporting country increases, it will lead to higher risk probability of role exchange between primary and secondary markets. Column (2) in the table is the regression of the impact of countervailing level on the export market position. The regression coefficient is −0.08, and it is significantly negative at the significance level of 1%, which further shows that when the amount of countervailing increases, the lower the export market position of the trading country in the export enterprises. The result also confirms the hypothesis 2 proposed in this paper. The countervailing level of the main market against the trading exporting country increases, the export of enterprises is more likely to turn to the secondary market. Column (3) in the table is the regression of the impact of trade safeguard measures on the export market position. The regression coefficient is −0.06, and it is significantly negative at the significance level of 1%, which further shows that with the increase of trade safeguard measures, the lower the export market position of the trading country in the export enterprises, and the result also confirms the hypothesis 3 proposed in this paper. The larger the trade safeguard measures in the main market, the heavier the risk aversion of export enterprises, The proportion of export decentralization to the secondary

market increases, which makes the secondary market more likely to become the main market.

In column (4) of the table, three temporary trade barriers are included in the regression at the same time, and the regression coefficients are negative, which is significantly negative at the significance level of 1%. Further, it is verified that the results of this paper are robust. In addition, column (5) in the table regresses the weighted average of temporary barriers to trade again, and the results are consistent with the above. The control variables in the regression are significant under the significance level of 1%, and the economic development level (GDP_{jt}) sign of the import market is positive, indicating that the regional economic development level will affect the export decision-making of enterprises; The coefficient of import market openness ($open_{jt}$) is positive, indicating that the higher the degree of market openness, the greater the impact on enterprises to change their market position; The geographical distance ($dist_{ij}$) coefficient is negative, indicating that the farther the export market is from the geographical location of the importing country, it will be more conducive to the change of the enterprise's export market; Whether the coefficient of border ($border_{ij}$) is positive indicates that the common border will not be conducive to the transformation of enterprise export market; The sign of the logarithm of product tariff (lnduty)is negative, indicating that the increase of tariff level will promote the change of enterprise export market.

5.2. Endogenous test

The core explanatory variable of this paper is that temporary trade barriers may have a causal relationship with the transformation of enterprises' primary and secondary export markets. On the one hand, based on the theoretical framework of this paper, the stronger the temporary trade barriers in the main market against the exporting countries, the higher the risk probability of role exchange in the primary and secondary markets; On the other hand, the primary and secondary market position directly affects the trade pattern and trade flow, so it has an important impact on China's commodities encountering trade barriers. In order to overcome this endogeneity, 2SLS instrumental variable method is used to test the robustness. Considering the availability and effectiveness of instrumental variables, the lag term of temporary barriers to trade is used as the instrumental variable, because the distribution of primary and secondary markets in the current year will not affect the implementation of temporary barriers to trade in the previous year. The results are shown in Table 3. When making 2SLS regression, we need to test the instrumental variables in three aspects: Firstly, unrecognizable test, that is, whether the number of instrumental variables is less than the number of endogenous explanatory variables. This test uses kleibergen Kleibergen-Paap rk LM statistic, and p value (1) is the p value corresponding to Kleibergen-Paap rk LM statistic. The p value in Table 3 is less than 0.01, indicating that the original assumption of 'insufficient identification of instrumental variables' is significantly rejected at the level of 1%, indicating that the number of instrumental variables is not less than the number of endogenous explanatory variables. Secondly, weak instrumental variable test, weak instrumental variable refers to the weak

Table 3. Endogenous test.

Variables	(1) Market	(2) Market	(3) Market	(4) Market
AD	−10.29***			
	(3.240)			
CVD		−11.35***		
		(3.954)		
SG			−0.0679***	
			(0.00886)	
TBD				−0.117***
				(0.0102)
lnGDP	1.449***	1.426***	1.392***	1.393***
	(0.0184)	(0.0125)	(0.00442)	(0.00442)
lnopen	1.266***	1.291***	1.339***	1.337***
	(0.0242)	(0.0183)	(0.00645)	(0.00645)
lndist	−0.285***	−0.335***	−0.387***	−0.385***
	(0.0324)	(0.0185)	(0.00395)	(0.00395)
border	0.434***	0.327***	0.298***	0.300***
	(0.0448)	(0.0161)	(0.0125)	(0.0125)
lnduty	−1.137***	−1.168***	−1.299***	−1.295***
	(0.0565)	(0.0513)	(0.0233)	(0.0233)
Constant	−46.56***	−45.62***	−44.46***	−44.48***
	(0.675)	(0.427)	(0.139)	(0.139)
Kleibergen-Paap rk LM	34.066	42.232	206.124	220.786
P value (1)	0.0000	0.0000	0.0000	0.0000
Cragg-Donald Wald F	28.509	57.804	5.5e + 07	518.207
Stock-Yogo value (15%)	12.83	12.83	12.83	12.83
Hansen J	17.488	2.057	9.319	16.223
P value (2)	0.0002	0.3575	0.0095	0.0003
N	1,198,415	1,198,415	1,198,415	1,198,415

Note: (1) The values in brackets are the standard errors. (2) *, ** and *** represents the significance levels of 10%, 5%, and 1%, respectively.
Source: The Authors.

correlation between instrumental variables and endogenous explanatory variables, which is not conducive to endogenous test. Here, the Cragg-Donald Wald F statistic is used. The Stock-Yogo value (15%) is the critical value of 15% of the stock Stock-Yogo weak ID test corresponding to Cragg-Donald Wald F. it can be seen that the CDW statistic of SG's instrumental variables in the table is less than its critical value and fails to pass the test of weak IV instrumental variables, indicating that there is a problem of weak instrumental variables in the lag term of SG. The possible reason is that SG is an emergency measure, Strive to prevent the rapid increase of imports of other countries when the country is seriously damaged or threatened with serious damage. Therefore, the implementation effect is mainly in the current period, and the lag term is weakly related to the current period. Other temporary trade barrier measures have passed the CDW test, and there is no problem of weak instrumental variables. Finally, over identification test, that is, to test whether all tool variables are exogenous. Using Hansen J statistics, p value (2) is its corresponding p value. It can be seen that except CVD, other p values are less than 0.01, indicating that there are some endogenous tool variables, and the existing tool variable group is approximately exogenous. But in general, tool variable selection is still effective. The regression results show that after controlling the endogenous problem, the significance level and influence direction of each explanatory variable in the regression results are consistent with most of the above, indicating that the above conclusions are robust.

Table 4. The impact of TTB of state-owned enterprises and non-state-owned enterprises on market change.

| | (1) | (2) | (3) | (4) | (5) | (6) |
| | state-owned enterprises | | | non-state-owned enterprises | | |
Variables	Market	Market	Market	Market	Market	Market
AD	−0.0397			−0.0487***		
	(0.0498)			(0.00797)		
CVD		−0.0935			−0.0778***	
		(0.0681)			(0.0162)	
SG			−0.0327			−0.0628***
			(0.0337)			(0.00705)
lnGDP_j	2.005***	2.005***	2.005***	1.282***	1.281***	1.281***
	(0.00986)	(0.00985)	(0.00985)	(0.00193)	(0.00193)	(0.00193)
lnopen_j	1.597***	1.596***	1.596***	1.315***	1.315***	1.314***
	(0.0312)	(0.0312)	(0.0312)	(0.00509)	(0.00509)	(0.00509)
lndist_ij	−0.212***	−0.212***	−0.213***	−0.390***	−0.390***	−0.390***
	(0.0214)	(0.0213)	(0.0213)	(0.00318)	(0.00318)	(0.00318)
border_ij	0.981***	0.980***	0.980***	0.285***	0.284***	0.284***
	(0.0446)	(0.0446)	(0.0446)	(0.00831)	(0.00831)	(0.00831)
lnduty_ij	−1.237***	−1.236***	−1.237***	−1.267***	−1.266***	−1.267***
	(0.0848)	(0.0848)	(0.0848)	(0.0146)	(0.0146)	(0.0146)
Constant	−65.10***	−65.10***	−65.08***	−40.98***	−40.98***	−40.96***
	(0.426)	(0.426)	(0.426)	(0.0737)	(0.0737)	(0.0737)
Time fixed effect	YES	YES	YES	YES	YES	YES
N	126,538	126,538	126,538	1,477,938	1,477,938	1,477,938
R²	0.268	0.268	0.268	0.250	0.250	0.250

Note: (1) The values in brackets are the standard errors. (2) *, ** and *** represents the significance levels of 10%, 5%, and 1%, respectively.
Source: The Authors.

5.3. Heterogeneity analysis

Next, for heterogeneity analysis, we now divide the samples into state-owned enterprises and non-state-owned enterprises for sub sample regression. Among them, state-owned enterprises refer to non corporate economic organizations whose all assets belong to the state, excluding wholly state-owned companies in limited liability companies. The regression results are shown in Table 4. (1), (2) and (3) in the table are listed as the regression results of state-owned enterprises. It can be seen that the regression coefficients of anti-dumping, countervailing and trade safeguard measures are not significant, which shows that when foreign markets launch temporary trade barriers such as anti-dumping, countervailing and trade safeguard measures, the impact on state-owned enterprises has great limitations. The possible reason is that state-owned enterprises, usually as the ballast of national economic development, shoulder the important task of stabilizing economic development and ironing out economic fluctuations. State owned enterprises have constantly adjusted their hedging risks and economic fluctuations, carried out investment activities against the cycle, effectively made up for market failure, and played a vital role in ensuring the stability and improvement of the national economy. Therefore, when the external environment changes, the impact on state-owned enterprises will be greatly reduced. (4), (5) and (6) in the table are listed as the regression results of non-state-owned enterprises. It can be seen that the regression coefficients of anti-dumping, countervailing and trade safeguard measures are significantly negative, which indicates that non-state-owned enterprises will have obvious export strategy adjustment when they receive the

Table 5. The impact of TTB of export-oriented enterprises and domestic enterprises on market changes.

Variables	(1) export-oriented enterprises	(2)	(3)	(4) domestic enterprises	(5)	(6)
	Market	Market	Market	Market	Market	Market
AD	−0.0454***			−0.0353***		
	(0.0100)			(0.0113)		
CVD		−0.0991***			−0.0376**	
		(0.0238)			(0.0177)	
SG			−0.0696***			5.97e-05
			(0.00749)			(0.0187)
lnGDP_j	1.419***	1.419***	1.418***	1.035***	1.034***	1.359***
	(0.00257)	(0.00257)	(0.00257)	(0.00303)	(0.00303)	(0.00308)
lnopen_j	1.399***	1.399***	1.398***	1.073***	1.073***	1.360***
	(0.00691)	(0.00691)	(0.00691)	(0.00778)	(0.00778)	(0.00830)
lndist_ij	−0.349***	−0.349***	−0.349***	0.0603***	0.0601***	−0.441***
	(0.00431)	(0.00431)	(0.00431)	(0.00582)	(0.00582)	(0.00529)
border_ij	0.0260**	0.0258**	0.0248**	0.502***	0.502***	0.571***
	(0.0120)	(0.0120)	(0.0120)	(0.0115)	(0.0115)	(0.0125)
lnduty_ij	−1.331***	−1.330***	−1.331***	−1.092***	−1.092***	−1.124***
	(0.0206)	(0.0206)	(0.0206)	(0.0210)	(0.0210)	(0.0229)
Constant	−45.70***	−45.69***	−45.67***	−36.98***	−36.97***	−42.99***
	(0.0991)	(0.0990)	(0.0990)	(0.120)	(0.120)	(0.120)
Time fixed effect	YES	YES	YES	YES	YES	YES
N	873,207	873,207	873,207	731,269	731,269	731,269
R^2	0.282	0.282	0.282	0.227	0.227	0.227

Note: (1) The values in brackets are the standard errors. (2) *, ** and *** represents the significance levels of 10%, 5%, and 1%, respectively.
Source: The Authors.

impact of external temporary trade barriers. When the degree of anti-dumping, countervailing and trade safeguard measures increases, non-state-owned enterprises will be greatly affected and make corresponding export market change decisions.

In addition, we divide the enterprise sample into domestic enterprises and export-oriented enterprises for sub sample regression. Here, we define export-oriented enterprises whose export delivery value accounts for 50% or more of the total output value, otherwise they are domestic-oriented enterprises. The regression results are shown in Table 5. It can be seen that (1), (2) and (3) are the regression results of export-oriented enterprises, and the regression coefficients are significantly negative at the significance level of 1%, which indicates that export-oriented enterprises have an obvious tendency to change the export market in the face of anti-dumping, countervailing and trade safeguard measures in the external export market. This is because the export-oriented enterprises themselves are heavily dependent on the export-oriented economy, which makes them suffer a great impact in the changes of the external environment. Therefore, when the external changes are large, the export-oriented enterprises will also be strongly impacted. (4), (5) and (6) are listed as the regression results of domestic enterprises. It can be seen that the regression coefficient of domestic enterprises is significantly lower than that of export-oriented enterprises, and the significance level has also decreased. The reason is that the main business scope of domestic enterprises is carried out in China. When anti-dumping, countervailing and trade safeguard measures are launched in foreign markets, there are obvious differences in the impact on domestic enterprises compared with export enterprises.

Table 6. The impact of TTB of large and small enterprises on market changes.

Variables	(1) small enterprise	(2)	(3)	(4) Large enterprises	(5)	(6)
	Market	Market	Market	Market	Market	Market
AD	−0.0386***			−0.0507**		
	(0.00757)			(0.0239)		
CVD		−0.0625***			−0.133***	
		(0.0143)			(0.0494)	
SG			−0.0658***			−0.0108
			(0.00651)			(0.0207)
lnGDP	1.028***	1.028***	1.027***	2.334***	2.334***	2.334***
	(0.00171)	(0.00171)	(0.00171)	(0.00661)	(0.00661)	(0.00661)
lnopen	1.078***	1.078***	1.077***	2.122***	2.121***	2.122***
	(0.00443)	(0.00443)	(0.00443)	(0.0201)	(0.0201)	(0.0201)
lndist	−0.339***	−0.339***	−0.339***	−0.278***	−0.278***	−0.278***
	(0.00277)	(0.00277)	(0.00277)	(0.0131)	(0.0131)	(0.0131)
border	0.188***	0.188***	0.187***	0.771***	0.771***	0.771***
	(0.00730)	(0.00730)	(0.00730)	(0.0296)	(0.0296)	(0.0296)
lnduty	−1.208***	−1.207***	−1.208***	−1.290***	−1.289***	−1.290***
	(0.0129)	(0.0129)	(0.0129)	(0.0531)	(0.0531)	(0.0531)
Constant	−33.02***	−33.02***	−33.00***	−76.44***	−76.43***	−76.42***
	(0.0646)	(0.0646)	(0.0646)	(0.279)	(0.279)	(0.279)
Time fixed effect	YES	YES	YES	YES	YES	YES
N	1,323,248	1,323,248	1,323,248	281,228	281,228	281,228
R^2	0.236	0.236	0.236	0.328	0.328	0.328

Note: (1) The values in brackets are the standard errors. (2) *, ** and *** represents the significance levels of 10%, 5%, and 1%, respectively.
Source: The Authors.

We also divide the enterprise sample into large enterprises and small enterprises for regression. The division standard of large enterprises is enterprises with more than or equal to 500 employees, otherwise they are small enterprises. The regression results are shown in Table 6. Columns (1), (2) and (3) in the table are the regression results of small enterprises, and the regression coefficients are significantly negative at the level of 1%, while columns (4), (5) and (6) are the regression results of large enterprises. It can be seen that compared with small enterprises, the impact of temporary trade barriers on large enterprises is significantly weakened, and the results are not even significant, This shows that large enterprises have certain advantages over small enterprises in dealing with temporary trade barriers. Its internal logic is that the larger the enterprise is, the more capable it is to affect trade barriers, making it more conducive to enterprises to reduce direct losses and new costs; At the same time, the larger the scale of the enterprise, the stronger the control over the market, which can transfer part of the cost of crossing barriers to consumers. Therefore, when analyzing the impact of barriers, large enterprises can raise their expectations of future income and make more positive decisions.

6. Expansion analysis

In order to further investigate the theoretical mechanism of temporary trade barriers affecting the market change of export enterprises, we have constructed an intermediary effect model (as shown in Figure 4). Previous studies have shown that the export cost of enterprises plays a decisive role in the choice of export market (Shepherd, 2010). In fact, geographical location, language, culture, past export experience and
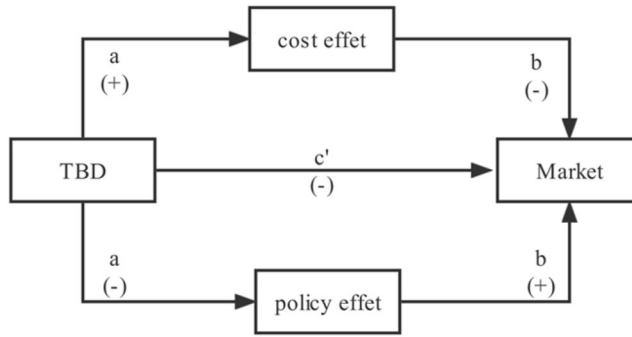
Figure 4. Mediating effect diagram.
Source: The Authors.

even the experience of CEO all affect the export market choice of enterprises by affecting the export cost or information search cost (Jin & Jin, 2020). In addition to the perspective of export cost, the export risk of enterprises also has a great impact on the choice of export market. If there are major changes in the export market of enterprises, such as political conflicts, the export of enterprises will be greatly affected. Beverelli et al. (2015) believe that the diversification of export destinations can reduce the overall risk from the trading target countries, because after the export of one market is affected, other markets can effectively reduce this negative effect. Therefore, this paper introduces enterprise cost from the perspective of export cost and political proximity from the perspective of export market risk. Political proximity represents the political relationship between the two places to a certain extent. When the political relationship between the two places is bad, trade barriers and technical blockades often appear, which is not conducive to enterprise exports (Wang et al., 2019). The corresponding action channels are shown in the figure below:

The specific measurement model is as follows:

First, make benchmark regression, that is, regression without considering intermediary variables:

$$Market_{ijkt} = c^{'}TBD_{ijkt} + \alpha X_{ijt} + \gamma_t + \varepsilon_{ijkt} \tag{2}$$

Secondly, do the regression of intermediary variables:

$$M_{ijkt} = aTBD_{ijkt} + \gamma_t + \varepsilon_{ijkt} \tag{3}$$

Finally, the model of intermediary variables is introduced:

$$Market_{ijkt} = \beta TBD_{ijkt} + bM_{ijkt} + \alpha X_{ijt} + \gamma_t + \varepsilon_{ijt} \tag{4}$$

In the model, i is the export enterprise, j is the export market and t is the export time. $Market_{ijkt}$ is export market position; TBD_{ijkt} is a temporary trade barrier encountered by enterprises when exporting; M_{ijt} is the intermediary variable, which is the enterprise cost and the institutional of the export market respectively. The cost of an enterprise is expressed in the current assets of the enterprise (Zhang et al., 2016).

Table 7. Intermediary effect regression results.

Variables	(1) Market	(2) Incost	(3) Market	(4) policy	(5) Market
		Enterprise cost		Political proximity	
TBD	−0.0472***	0.0314***	−0.0288***	−0.0477***	−0.0427***
	(0.00469)	(0.00303)	(0.00449)	(0.00148)	(0.00469)
Incost			−0.472***		
			(0.00123)		
policy					0.265***
					(0.00428)
lnGDP_j	1.387***		1.247***		1.502***
	(0.00199)		(0.00194)		(0.00286)
lnopen_j	1.387***		1.275***		1.411***
	(0.00535)		(0.00513)		(0.00538)
lndist_ij	−0.395***		−0.310***		−0.317***
	(0.00337)		(0.00323)		(0.00356)
border_ij	0.348***		0.489***		0.0780***
	(0.00864)		(0.00828)		(0.00921)
lnduty_ij	−1.265***		−1.159***		−1.846***
	(0.0153)		(0.0146)		(0.0174)
Constant	−44.30***	10.91***	−35.50***	−1.486***	−47.94***
	(0.0767)	(0.00153)	(0.0770)	(0.000747)	(0.0999)
Time fixed effect	YES	NO	YES	NO	YES
N	1,604,476	1,608,119	1,603,833	1,591,412	1,587,126
R^2	0.253	0.000	0.315	0.001	0.257

Note: (1) The values in brackets are the standard errors. (2) *, ** and *** represents the significance levels of 10%, 5%, and 1%, respectively.
Source: The Authors.

Engels believed that only when the sum of the cost price of the goods sold is equal to the sum of the total capital, the capital can complete the whole turnover. Therefore, taking the demand for working capital as the cost of selling products conforms to the capital cycle theory (Xu, 1982). Political proximity adopts the empirical approach of Bailey et al. (2017) to construct the opposite number of the distance between China and the export market countries from the ideal point of voting in the United Nations General Assembly as the proxy variable of political proximity. The larger the value, the closer the bilateral political relationship between the export market and China is, the closer the political proximity is. X_{ijt} is a control variable and γ_t is a time fixed effect.

The empirical results are shown in Table 7. In the table, columns (1), (2) and (3) are three-step regression with enterprise cost as the intermediary variable, and column (1) corresponds to model (2), which is equal to −0.0472, which is significant at the level of 1%, indicating that the implementation of temporary trade barriers has reduced the status of the export market; Column (2) corresponds to model (3), and the regression result is significantly positive, indicating that increasing temporary trade barriers can significantly increase enterprise costs; (3) corresponding to model (4), it can be seen that it is significantly negative, indicating that the increase of enterprise costs reduces the export market position. In short, the three-step regression results show that temporary trade barriers can reduce the export market position by increasing the cost of enterprises, reduce the possibility of the market becoming the main market, and increase the probability of enterprises changing the primary and secondary markets. Hypothesis 2 is established. At the same time, this conclusion is consistent with the research conclusion of Shi and Yang (2020). The U.S.

Countervailing Investigation against China has inhibited the export of Chinese enterprises. In terms of its internal mechanism, the countervailing investigation has led to an increase in the export cost of enterprises to the United States, which has stimulated enterprises to make market strategic adjustments, which is manifested in that enterprises reduce exports to the United States and increase exports to other countries with relatively low costs. (1), (4) and (5) in the table are listed as three-step regression with political proximity as the intermediary variable. The results show that temporary trade barriers can reduce the export market position by reducing the political proximity between the two countries, and promote enterprises to change the export market. Hypothesis 3 is established. Analyzing the reasons, after enterprises encounter the risk of temporary trade barriers from a certain market, they will try to enter other markets to reduce the possible losses caused by the political crisis, that is, the change of export market. This result is consistent with the research mechanism of Liu and Zhu (2020), that is, after the implementation of trade barriers or technical blockades in the export market, the political proximity between the two countries is reduced, various types of exchanges are reduced, and the export of enterprises is more cumbersome and complex. At this time, enterprises tend to export to other markets.

The empirical results of the intermediary effect test in Table 7 are consistent with the previous mechanism analysis, indicating that temporary trade barriers can have a significant impact on market changes through these two paths. However, in view of the low testing power of the three-step stepwise regression test, it may be difficult to reflect the actual intermediary effect, so this paper further conducted Sobel test on this impact path. The results are shown in columns (1) and (2) of Table 8. The results are significant and the same as the three-step conclusion. Among them, the cost mechanism effect accounts for 38.787% of the total effect, while the political proximity accounts for 6.400% of the total effect, It shows that the cost channel accounts for a larger proportion, and its logic may be that compared with political proximity, the cost of enterprises acts more directly on enterprises and has a greater impact on their export decisions. In addition, the Sobel test needs to assume that aXb obeys the normal distribution, and the intermediary effect analysis through the structural equation model (SEM) can make up for this defect (Iacobucci et al., 2007; Zhao et al., 2010). Therefore, the SEM test is carried out in this paper. The regression results are shown in Table 8 (3) and (4), and the results are not different from the Sobel test, indicating that the results of the mechanism test are robust.

7. Conclusion

According to the export intensity, this paper divides the export market of enterprises into main export market and secondary export market, explores the export changes of enterprises to main export market and secondary export market respectively when the temporary trade barriers of main export market to trade exporting countries are increased, and focuses on the anti-dumping degree of main export market to trade exporting countries The impact of the improvement of countervailing level and trade safeguard measures on the export transformation of enterprises between primary and

Table 8. Sobel test SEM mediated effect analysis.

Mediation Tests Effect	(1) Sobel-Goodman	(2)	(3) Structural equation model	(4)
	Enterprise cost	Political proximity	Enterprise cost	Political proximity
Sobel	−0.0169***	−0.00279***		
	(0.00138)	(0.000160)		
Goodman-1	−0.0169***	−0.00279***		
	(0.00138)	(0.000160)		
Goodman-2	−0.0169***	−0.00279***		
	(0.00138)	(0.000160)		
a coefficient	0.0362***	−0.0178***	0.00828***	−0.0255***
	(0.00296)	(0.000905)	(0.000790)	(0.000793)
b coefficient	−0.466***	0.157***	−0.266***	0.0421***
	(0.00120)	(0.00414)	(0.000683)	(0.00109)
c' coefficient			−0.00396***	−0.00587***
			(0.000672)	(0.000678)
Indirect effect	−0.0169***	−0.00279***	−0.0148***	−0.00747***
	(0.00138)	(0.00016)	(0.00141)	(0.000304)
Direct effect	−0.0266***	−0.0409***	−0.0266***	−0.0409***
	(0.00451)	(0.00472)	(0.00451)	(0.00472)
Total effect	−0.0435***	−0.0436***	−0.0414***	−0.0483***
	(0.00472)	(0.00472)	(0.00473)	(0.00472)
Proportion	38.787%	6.400%	35.749%	15.466%
N	1,603,833	1,587,126	1,603,833	1,587,126

Note: (1) The values in brackets are the standard errors. (2) *, ** and *** represents the significance levels of 10%, 5%, and 1%, respectively.
Source: The Authors.

secondary markets. The research shows that the increase of the anti-dumping degree of the main market against the trade exporting countries will lead to the higher risk probability of role exchange between the main and secondary markets; The countervailing level of the main market against the trade exporting countries rises, and the export of enterprises is more likely to turn to the secondary market; The greater the trade safeguard measures in the main market, the heavier the risk aversion of export enterprises, and the greater the proportion of export decentralization to the secondary market, which makes the secondary market more likely to become the main market. This evidence contrasts with the slight cicada effect found by Bowen and Crowley (2010) during 1992–2001. One possible explanation for the differences we found is that Chinese exporters have become more flexible and can now quickly adapt to new markets to respond to changes in trade policies. Another possibility is that before China's accession to the WTO in December 2001, Chinese enterprises may face higher trade barriers or greater potential threat of retaliation. Therefore, they are unwilling to increase exports to other countries.

This paper has important economic policy significance for the study of changes in the primary and secondary export markets of enterprises. On the one hand, we should promote the upgrading of the opening-up strategy and explore the establishment of a new system in which internal and external cycles promote each other. First, on the basis of further promoting market opening and factor opening, we should strive to promote institutional opening of rules, regulations, management, standards and so on. Secondly, take the pilot free trade zone as the platform to create a new highland of reform and opening up in the new era, and take the lead in forming a new development pattern in conditional regions. Finally, the high-quality joint

construction of the 'the Belt and Road' will help form a new development pattern of double circulation in the construction of a global industrial chain supply chain with China as the center. On the other hand, we should promote the high-quality development of trade and speed up the construction of a new pattern of foreign trade that adapts to the dual cycle. First, we should adhere to the principle of stabilizing external demand while expanding domestic demand, and pay attention to expanding imports while stabilizing exports, so as to form a new development pattern of benign interaction between domestic and foreign demand, simultaneous development of trade in goods and trade in services, and balanced development of exports and imports. The second is to establish a mechanism for transferring export products to domestic sales, actively expand imports, drive the upgrading of domestic demand market and consumption, and help the coordinated development of internal and external circulation.

This paper focuses on the factors affecting the change of enterprises' export market - temporary trade barriers, and verifies the impact of temporary trade barriers on the change of enterprises' export market through theoretical analysis and empirical research. In view of the limited ability and time of the author, there are still some deficiencies and expansions in this paper. In the future research, we can expand from the following aspects: First, explore more factors that affect the change of export market of enterprises, such as how political relations affect the change of export market of enterprises; Second, the research is not limited to the relationship between the exporting country and the main market, but focuses on how the relationship between the primary and secondary markets affects the export market change of enterprises.

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