Study on the Efficiency and Potential of China's Tire Export Trade to Ten ASEAN Countries under the Perspective of "One Belt, One Road"

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Abstract. Tires are an important product category in China's export trade. Based on the stochastic frontier gravity model, this paper uses the panel data of China's tire export trade to the ten ASEAN countries from 2018 to 2022 to study the influencing factors of bilateral trade in tire exports, and to measure China's export trade efficiency, export potential and expandable space to the ten ASEAN countries. Based on these three indicators, we analyze the future prospects of China's tire product exports to the ten ASEAN countries. The results show that: (1) in the stochastic frontier model, GDP per capita, population, border variables and language variables of both sides of trade as natural factors have a significant positive impact on tire export trade. (2) In the trade inefficiency model, liner transportation connectivity, trade freedom and financial freedom of both sides have a significant positive impact on tire export trade. (3) China's overall tire export efficiency and potential to the ten ASEAN countries is high, but the country-specific differences are obvious, and the trade as a whole still has more room for improvement. (4) China's tire export potential market can be divided into saturated, expanding, developing and iceberg type, of which the expanding type includes Malaysia, Vietnam, Thailand and Brunei 4 countries, the developing type includes Cambodia, Indonesia and Singapore 3 countries, of which Malaysia and Singapore is the need to pay attention to the overseas market.

Keywords: Belt and Road; tires; export efficiency; export potential; stochastic frontier gravity models.

1. Introduction

Since the signing of the Framework Agreement on Comprehensive Economic Cooperation between China and ASEAN in 2002, the process of economic integration between China and ASEAN has accelerated, and the introduction of the Belt and Road Initiative in 2013 has further deepened economic and trade cooperation between China and ASEAN, providing a good platform and opportunity for ASEAN to realize economic recovery in the "post-epidemic" era and accelerate the process of economic integration. The "Belt and Road" initiative in 2013 has further deepened economic and trade cooperation between China and ASEAN, providing a good platform and opportunity for ASEAN to achieve economic recovery in the "post epidemic era", optimize and adjust the regional economic layout, and accelerate the economic integration process. Take 2020 data as an example, although affected by the epidemic, China and ASEAN trade structure continues to optimize the scale of imports and exports still achieve "double growth", ASEAN for the first time jumped to China's largest trading partner. China has been ASEAN's largest trading partner for 14 consecutive years, the total amount of imports and exports is much higher than the United States, South Korea and other major ASEAN trading partners.

The automobile industry is of great significance to the development of China's national economy, in which automobile parts and components are located at the forefront of the industrial chain in the production process of the whole vehicle. Tires (HS code: 870870) are an important part of the chassis system in automotive parts, and an important product category in China's export trade.2022, China's rubber tire exports totaled 660,000 tons, an increase of 1.1% year-on-year; the export value of about 11.839 billion yuan, a year-on-year increase of 12.6%. Under open economic conditions, accompanied by the fall in the price of raw materials and shipping costs, the introduction of national

policies and enterprises to pay more attention to innovation and research and development, the tire industry is facing unfavorable factors gradually recede, and the overseas market to further deepen the expansion.

In the current context, this paper will discuss how China should improve the efficiency of trade with ASEAN in the future, further release the trade potential and expand the space for trade development; how to enhance the competitiveness of Chinese tire enterprises in the international market, which is of great significance to China's positive response to the new challenges brought by changes in the international trade pattern, and to build a closer community of destiny between China and ASEAN.

2. Literature References

At present, most of the academic literature on measuring the efficiency or potential of export trade involves studies on export trade in goods, services, agricultural products and high-tech products, and at the level of the main body of research, there are studies on export trade at the level of province-to-country and country-to-country. China's agricultural export potential; Li Ming et al. (2021) investigate China's agricultural export efficiency and potential to RCEP partner countries based on a stochastic frontier gravity model at the product export level; Wang Jing and Xu Yubing (2022) and Zeng Shunyang et al. (2022) investigate China's export trade efficiency and potential of ICT products to RCEP member countries by constructing a stochastic frontier gravity model; Huang Manying and Qi Qunquan (2020) investigate the trade inefficiency of 21 countries along the "Silk Road Economic Belt" by constructing a stochastic frontier gravity model and a trade inefficiency model. Huang Manying and Deng Xiaohong (2022) conduct further research on China's export potential of service trade to its trading partners.

In recent years, there has been an increase in scholars' discussions on the efficiency and potential of inter-country export trade among countries along the Belt and Road. For example, Fu Shaojun (2016) constructs a stochastic frontier gravity model based on panel data to empirically study the relationship between the construction of the "Belt and Road" and the improvement of China's export efficiency; Li Xiaozhong and Lv Peipei (2019) analyze the relationship between China's export trade efficiency and that of its trading partners based on an empirical analysis of the countries along the "Belt and Road". China's equipment manufacturing products export trade potential and trade efficiency based on empirical analysis of countries along the "Belt and Road"; Hu Feng et al. (2020) studied the export trade potential of dairy products between China and 35 countries along the "Belt and Road" from the perspective of directional export flow characteristics; Tong Guangji and Wang Yiying (2023) studied the relationship between China and the "Belt and Road" construction and the improvement of China's export efficiency. Tong Guangji and Wang Yiying (2023) studied the export trade potential of agricultural machinery products between China and 121 countries along the "Belt and Road". There are also scholars with a more focused scope of research, based on the current situation of trade cooperation between China and other major ASEAN trading partner countries and ASEAN, to study the trade efficiency of China and ASEAN country-by-country comparisons and competitive advantages (Wang Rui and Zhang Aiyu, 2022).

In addition, Armstrong (2007) gave a specific form of the stochastic frontier gravity model (SFA) and proved the rationality of measuring trade potential with this model. When using the SFA model to study trade export efficiency and potential, it is important to determine which variables serve as influencing factors for export trade efficiency. Armstrong classified the influencing factors into natural and human factors and suggested using natural factors (i.e., the core determinants of trade) to estimate the trade potential, and the human factor is also an important influencing factor for trade efficiency, which is usually used to explain the difference between the real trade size and the trade potential Gap. Among them, natural factors include GDP per capita and geographic distance, as well as whether or not the border is critical and the use of a common language (Lu and Zhao Qiwei, 2010), while variables set as human factors include tariffs and the establishment of free trade zones, the time

for import clearance, and whether or not the country is a member of the World Trade Organization (Yuan Bo et al., 2010; Li Jiguang and Wang Hongmei, 2017). Part of the literature adopts the "two-step approach" to analyze the influencing factors of export trade efficiency based on the SFG model, but in view of the shortcomings of the "two-step approach", scholars tend to adopt the modeling setup of Battese and Coelli (1995), combined with the "one-step approach" to analyze the efficiency of export trade. Scholars have mostly adopted Battese and Coelli's (1995) model setup, combined with the "one-step method" to analyze the influencing factors of export trade efficiency. For example, Pan Ziyan et al. (2021) studied the factors influencing the trade efficiency of China's service exports to nine countries along the Belt and Road route through the one-step method based on the stochastic frontier gravity model and the trade inefficiency model.

To summarize, many scholars in China have taken the approach of constructing a stochastic frontier gravity model to study China's export trade to the countries along the "Belt and Road". However, there are relatively few studies specifically focusing on the impact of China's export efficiency on the trade of related products to the ten ASEAN countries. This paper refers to the research method of Armstrong (2007), takes the panel data of ten ASEAN countries in 2018-2022, studies the influencing factors of the bilateral trade of tire exports, and measures the export trade efficiency, export potential, and expandable space of China's export trade to ten ASEAN countries, and analyzes the future prospects of China's exports of tire products to ten ASEAN countries. This is of great significance to support the further implementation of China's "Belt and Road" initiative and the sustainable development of China's tire export trade.

3. China's exports to ASEAN tire trade status

3.1. Tire Classification

Tire, in accordance with GB/T 6326-2014 "tire terms and their definitions": tire that is mounted on the wheel or machine wheel circular elastic products. Tires have a variety of classification caliber, can be classified according to the structure, tread, vehicle type, size and other criteria. This paper mainly adopts the classification by vehicle type to classify the tires into new pneumatic rubber tires for national motorized minibuses, new pneumatic rubber tires for passenger cars or freight motor vehicles, new pneumatic rubber tires for motorcycles, new pneumatic rubber tires for bicycles, and new pneumatic rubber tires that are not listed, and explains the subsequent related contents.

Table 1. Tire classification.

Categorization	Name
Structure	Radial tires, bias tires, radial-bias hybrid tires, all-steel tires fiber-reinforced tires, hollow tires
Decorative design	Horizontal Pattern, Longitudinal Pattern, Mixed Horizontal and Longitudinal Pattern, Off-Road Pattern
Vehicle types	1.Car tires (PC), Light truck tires (LT), Truck and bus tires (TB), Agricultural Vehicle tires (AG), Construction vehicle tires (OTR), Industrial vehicle tires (ID), Aircraft tires (AC), Motorcycle tires (MC) 2.New pneumatic rubber tires for national motorized minibuses, New pneumatic rubber tires for passenger cars or cargo motor vehicles, New pneumatic rubber tires for motorcycles, New pneumatic rubber tires for bicycles, New pneumatic rubber tires not listed
Sizes	Full-size tires, Non-full-size tires

3.2. Export Scale

From 2018 to 2022, the export value of China's tires in general shows a stable growth momentum. Among them, the export value of China's tires in 2022 is 49.364 billion yuan, an increase of 13.786 billion yuan compared with 2020, with a 5-year average annual growth rate of 0.39%.

According to TireWorld.com, the total turnover of China's top 10 tire companies in 2022 is 184.7 billion yuan. Among them, CPU Rubber ranked first with a turnover of 31.889 billion yuan, a year-on-year growth of 4.90%. In terms of year-on-year growth, except for Linglong Tire and Fengshen Tire, which declined by 8.47% and 10.26%, respectively, all other companies showed different degrees of growth. Among them, Sailun Group had the most significant growth of 21.69%. Overall, in recent years, most of China's tire companies' turnover growth, Sailun Group and Sen Kirin year-on-year growth of up to 20% or more, the industry competition pattern is relatively stable, still need to pay attention to the development of real-time dynamics.

Table 2. Ranking of China's Top 10 Tire Companies by Revenue in 2022 (Unit: RMB Billion).

Ranking	Company Name	2022 Turnover	Year-on-year growth
1	Zhongce Rubber	318.89	4.90%
2	Sailun Group	219.02	21.69%
3	Linglong Tire	170.06	-8.47%
4	Double Coin Group	100	6.42%
5	Triangle Tire	92.2	2.97%
6	Guizhou Tire	84.4	15.00%
7	PuLin ChengShan	81.52	8.12%
8	Senqilin	62.92	21.54%
9	Fengshen Tire	49.88	-10.26%
10	General Corporation	41.2	-3.20%

Source: TireWorld.com

3.3. Export Structures

Statistics from China's General Administration of Customs show that China's tire exports continued to grow in 2022, with a total export volume of 6,831,500 tons, a year-on-year increase of 4.06%. China's tire export trade mode to general trade and processing trade, motorized minibus tires and passenger car or freight motor vehicle tires are the main varieties of exports. As shown in Table 3, in 2022, China's motorized minibus tires to general trade and processing trade exports reached a total of 2,340,700 tons, an increase of 2.77%; passenger car or freight motor vehicle tires total exports of 4,042,300 tons, an increase of 7.08%, to general trade and processing trade exports reached a total of 3,897,200 tons, accounting for a total export volume of 96.41%, an increase of 5.80% year-on-year.

Table 3. 2022 China's exports of tires by vehicle type.

Category	General Trade		Import processing trade	
	Export volume/Tons	Year-on-year growth rate / %	Export volume/Tons	Year-on-year growth rate / %
Motorized minibuses	49.13	-15.80	184.94	9.17
Passenger cars or cargo motor vehicles	151.08	11.49	238.64	2.50
Motorcycle	14.04	2.71	4.49	-6.07
Bicycle	5.31	-34.20	1.13	-25.66
Unlisted	10.43	-21.76	4.19	-24.09

Source: General Administration of Customs, China

3.4. Exporting Countries

As can be seen from the table 4, in 2022, Singapore's tire imports from China showed significant year-on-year growth, reflecting the fact that China's products are more in line with its market demand in terms of specifications and standards, leading to an increase in the volume of its demand. Indonesia and Malaysia tire import demand from China showed a small increase, and accounted for more than

68% of the total import volume. Thailand from China's tire imports from the number of a certain decline, but overall still remain at the level of more than half of China's enterprises in the export strategy adjustment, can still be in such countries to enhance a certain market share. Cambodia, Brunei, Myanmar, the Philippines and other ASEAN countries tire imports from China decreased significantly, of which Cambodia's tire imports fell by 54.4 percentage points compared with 2021, which may be caused by China's leading tire companies to Cambodia to invest in building factories, localization of production and sales chain and other factors.

Table 4. Ten ASEAN countries' imports from China as a share of total imports, 2018-2022 (in %).

Country	2018	2019	2020	2021	2022	Year-on-year
Indonesia	79.59	80.36	88.42	85.17	86.87	2.0
Thailand	73.82	72.36	85.44	87.19	86.77	-0.5
Myanmar	96.10	96.86	84.27	95.05	76.44	-19.6
Malaysia	73.65	66.98	59.74	64.64	68.80	6.4
Brunei	62.59	72.86	51.36	64.72	49.88	-22.9
Singapore	30.67	24.34	24.70	27.66	48.37	74.9
Philippines	74.03	57.53	50.58	49.35	44.29	-10.3
Cambodia	79.44	71.05	29.62	74.82	34.09	-54.4
Vietnam	39.01	38.68	53.76	55.48	-	
Laos	0.91	26.05	42.71	42.29	-	

Source: Calculations based on UN Comtrade database.

4. Model Setting and Description of Variables

Stochastic frontier gravity model (SFA) is an important model in the field of international trade to study the influencing factors of bilateral trade and to measure the efficiency and potential of trade exports. This paper draws on Armstrong's research method, based on the panel data of China's tire export trade to ten ASEAN countries in 2018-2022, constructs the time-varying stochastic frontier gravity model and the trade inefficiency model to measure the level of China's export efficiency to each country, and then measures the level of China's export efficiency to each country according to the formulas of "export potential=actual export amount/export efficiency" and Then according to the formula of "export potential = actual export amount/export efficiency" and "expansion potential = export potential - actual export amount", the corresponding export potential and expandable potential are measured respectively. The time-varying stochastic frontier gravity model and trade inefficiency model are set up as follows:

$$\ln EXP_{ijt} = \beta_0 + \beta_1 \ln PGDP_{it} + \beta_2 \ln PGDP_{jt} + \beta_3 \ln POP_{it} + \beta_4 \ln POP_{jt} + \beta_5 \ln DIST_{ij} + \beta_6 BOR_{ij} + \beta_7 LANG_{ij} + v_{ijt} - u_{ijt} \quad (1)$$

$$u_{ijt} = \delta_0 + \delta_1 \ln FTA_{ijt} + \delta_2 TAF_{jt} + \delta_3 SHP_{jt} + \delta_4 TF_{jt} + \delta_5 FIN_{jt} + \omega_{ijt} \quad (2)$$

In this paper, GDP per capita, total population of each country, geographic distance, common borders and the use of a common language are used to estimate the export trade potential of tires, and the entry into force of free trade agreements, tariff rates, liner shipping connectivity, trade freedom and financial freedom are used to explain the gap between the scale of tire export trade and export trade potential. The specific meanings, theoretical descriptions and data sources of the variables in the formula are shown in table 5.

Table 5. Meaning of model variables, theoretical description and data sources.

Variable	Connotation	Description	Sources
EXP_{ijt}	China's tire exports to ASEAN 10 importers in period t	-	UN Comtrade
$PGDP_{it}$	China's GDP per capita in period t	Reflecting the degree of economic development on both sides of the trade	World Bank
$PGDP_{jt}$	GDP per capita of importing countries in period t		
POP_{it}	Total population of China in period t	Reflects market demand on both sides of the trade	
POP_{jt}	Total population of importing countries in period t		
$DIST_{ij}$	Distance between the capitals of China and the importing country	Reflecting transportation costs on both sides of the trade	CEPII-BACI
BOR_{ij}	Whether China and the importing country share a common border		
$LANG_{ij}$	Whether China and the importing country share a common language	Reflecting cultural commonalities between the trading parties	
FTA_{ijt}	Whether China has a free trade agreement with the ten ASEAN countries in period t	Reflects the bilateral trading environment	China Free Trade Zone Service Network (FTZSN)
TAF_{jt}	Simple average tariff rate for all products in the importing country in period t.	Reflecting the country's tariff level	World Bank
SHP_{jt}	Importing country's liner shipping connectivity index in period t	Reflecting the country's maritime transportation capacity	
TF_{jt}	Trade freedom of the importing country in period t	Reflects the openness of the country's foreign trade	Economic Freedom Index (EFI)
FIN_{jt}	Financial freedom of the importing country in period t	Reflects the openness of the country's financial sector	

5. Empirical Analysis

As shown in Table 6, this paper analyzes the coefficients of each variable based on the time-varying stochastic frontier model: First, the coefficients of the per capita GDP ($PGDP_{it}$ and $PGDP_{jt}$), population (POP_{it} and POP_{jt}) border variable (BOR_{ij}) and language variable ($LANG_{ij}$) of China and the ten ASEAN countries are all significantly positive at the 1% level, which indicates that the upgrading of China's and the ten ASEAN countries' level of economic development, having a common border and a common language are all able to effectively promote the trade in tire exports. Second, the coefficient of the distance between the capitals of China and the ten ASEAN countries ($DIST_{ij}$) did not pass the significance test, indicating that with the strengthening of infrastructure construction and the increase in the degree of connectivity, the geographic distance between the two sides of the trade has gradually ceased to be a factor hindering trade.

According to the trade inefficiency model to analyze the coefficients of the variables: First, the coefficient of the free trade agreement in force variable (FTA_{ijt}) is significantly negative at the level of 10%, indicating that China's signing of the free trade agreement with the ten ASEAN countries effectively promotes the trade efficiency of China's tire exports. The second is that the coefficient of the tariff variable (TAF_{jt}) is significantly positive at the level of 10%, indicating that higher tariffs in the ten ASEAN countries will impede the trade of China's tire exports to the ten ASEAN countries. Products export trade. Thirdly, the coefficients of liner shipping connectivity (SHP_{jt}), trade freedom (TF_{jt}) and financial freedom (FIN_{jt}) are significantly negative at the 1%, 10% and 1% levels,

respectively, indicating that the improvement of shipping capacity, the opening up of trade activities and the development of the financial sector in the ten ASEAN countries can effectively promote the efficiency of China's tire exports to the ten ASEAN countries.

Table 6. Regression results for the main variables of the model.

Function	Variable	Coefficients
Stochastic Frontier Function	$PGDP_{it}$	1.34***
	$PGDP_{jt}$	0.46***
	POP_{it}	4.67***
	POP_{jt}	1.04***
	$DIST_{ij}$	-0.08
	BOR_{ij}	1.43***
	$LANG_{ij}$	4.46***
	FTA_{ijt}	-0.29*
	TAF_{jt}	0.03*
Trade inefficiency function	SHP_{jt}	-0.02***
	TF_{jt}	-0.02*
	FIN_{jt}	-0.02***

Note: The data in the table are collated from stata, ***, **, and * indicate significance at the 1%, 5%, and 10% significance levels, respectively.

This study uses stata software, through the “one-step method” based on the construction of the trade inefficiency model to get the trade efficiency of China's tire exports to the ten ASEAN countries in 2018-2022, according to the formula, to get the trade potential and the value of the space can be expanded, the specific results are shown in Table 7. Tire export efficiency and potential is high, but the country-specific differences are obvious, and there is still more room for improvement in trade as a whole.

Table 7. Trade Efficiency, Potential and Expandable Potential of China's Tire Export to Ten ASEAN Countries, 2020-2022.

Country	5-year average	2020			2021			2022		
	Export Efficiency	Export Potential	Expansion	Potential	Export Potential	Expansion	Potential	Export Potential	Expansion	Potential
Philippines	0.93	0.93	0.22	1500	0.94	0.34	2000	0.95	0.39	2000
Myanmar	0.92	0.93	0.03	300	0.94	0.03	200	0.94	0.03	100
Brunei	0.79	0.80	0.01	100	0.82	0.01	100	0.85	0.01	200
Thailand	0.75	0.75	2.90	72100	0.78	4.44	96900	0.81	4.11	78700
Vietnam	0.68	0.68	0.47	15200	0.72	0.72	20400	0.75	0.87	21700
Malaysia	0.60	0.60	1.27	50200	0.65	1.60	56400	0.69	1.88	58900
Singapore	0.49	0.49	0.30	15400	0.54	0.33	15100	0.59	0.26	10500
Indonesia	0.46	0.46	0.98	52400	0.51	1.31	63500	0.56	1.76	76700
Cambodia	0.33	0.33	0.06	4300	0.38	0.06	3600	0.44	0.07	3900

Note: The data are estimated by stata on the one-step model (i.e., model (1)-model (2)) and measured by the author, data unit: export potential/expansion potential (USD million), and Laos with a lot of missing data has been excluded.

According to the size of export trade efficiency, this paper draws on the research method of Zhao Jinxin and Tian Zhihong (2019), the market of each country can be subdivided into saturated (0.9-1.0), expanding (0.6-0.9), developmental (0.3-0.6), and iceberg (0.0-0.3), as shown in Table 8.Saturated refers to the fact that China's export of its products to importing countries is already close

to saturation, and its market tends to be The corresponding countries are Myanmar and the Philippines; the expansion type refers to the fact that China's trade exports to them have a certain scale, but through strategic adjustments can still achieve export growth, corresponding to Malaysia, Vietnam, Thailand and Brunei; the development type refers to the fact that China's trade exports to their market base is beginning to emerge, the product exports can be expanded to a large space, corresponding to Cambodia, Indonesia and Singapore; in terms of tire exports, the ten ASEAN countries as a whole fall into the category of expansion, and the expansion of tire exports is the most important. In terms of tire exports, the ten ASEAN countries as a whole belong to the expansion and development-oriented market, with greater room for development.

Table 8. Market segments by size of export efficiency value.

Market Segmentation	Export efficiency value	Corresponding Countries
Saturated	0.9-1.0	Myanmar, Philippines
Expansion	0.6-0.9	Malaysia, Vietnam, Thailand, Brunei
Developmental	0.3-0.6	Cambodia, Indonesia, Singapore
Iceberg	0.0-0.3	--

Note: Countries are listed in descending order of their export efficiency averages over the last five years.

Based on the assessment of the ASEAN ten countries market development environment and potential, combined with the above analysis of China's tire export countries, the tire products market development selected target market for Malaysia and Singapore, China should increase the attention and development of the two countries' export market, fully realize the release of trade potential. Reasons are as follows: (1) Malaysia and Singapore's domestic GDP to maintain steady growth, high international credit rating, market capacity is considerable, with a good market development environment. (2) Malaysia and Singapore's export efficiency is currently at a medium level, showing a year-on-year increase in the trend of expandable potential to remain at a relatively stable level. (3) Malaysia belongs to the expansion of market segments, China's exports to its trade has a certain scale, the current market strategy is highly feasible, through the adjustment of the export structure and match the market demand, tire exports can still achieve a certain degree of growth. (4) Singapore belongs to the development-oriented market segments, China's trade exports to its market foundation has begun to show that although the current trade efficiency is low, but the product export space is large, can be combined with the actual market situation to establish an effective trade cooperation mechanism to reduce trade resistance.

6. Summary

6.1. Conclusion of the study

This paper analyzes the influencing factors of China's tire export trade to ten ASEAN countries with the help of stochastic frontier gravity model in 2018-2022, and measures the export efficiency, potential and expandable space The results show that: First, in the stochastic frontier model, the GDP per capita, population, border variables and language variables of both sides of the trade as natural factors have a significant positive impact on the tire export trade. Second, in the trade inefficiency model, liner shipping connectivity, trade freedom and financial freedom of both sides have a significant positive impact on the tire export trade. Third, the overall efficiency and potential of China's tire exports to the ten ASEAN countries are high However, the country-specific differences are obvious, and there is still much room for improvement in trade as a whole. Fourth, China's tire export potential market can be divided into saturated, expansion, development and iceberg, of which the expansion type includes Malaysia, Vietnam, Thailand and Brunei 4 countries, and the development type includes Cambodia, Indonesia and Singapore 3 countries, of which Malaysia and Singapore and Phi are the overseas markets that need to be focused on

6.2. Suggestions

In order to grasp the opportunities of the ASEAN regional market, further promote China's tire export trade to the countries along the “Belt and Road”, and continue to explore emerging markets and reduce the risk of over-concentration of the tire export market, this paper provides policy insights for reducing the inefficiency of China's tire export trade with ten ASEAN countries and promoting the healthy and sustainable development of China's tire export trade. This paper provides policy insights from four dimensions of government departments, related industries and export enterprises, and the products themselves, in order to reduce the inefficiency of China's tire export trade to ten ASEAN countries, and boost the healthy and sustainable development of China's tire export trade with ten ASEAN countries.

In the government dimension, the first is to deepen economic and trade relations and improve the efficiency of trade. On the one hand, the government should actively promote regional cooperation with the ten ASEAN countries, to jointly build a regional industrial chain, supply chain and value chain, deepen economic and trade cooperation relations, improve China's competitiveness and adaptability in the ASEAN regional market, and provide a broader space and more opportunities for enterprises to explore the market. On the other hand, the government should promote the infrastructure construction with the ten ASEAN countries, smooth land and water intermodal transportation channels, promote the construction of port cooperation, increase sea routes and frequencies, reduce transportation costs, in order to achieve more convenient and efficient logistics and personnel exchanges, and improve the efficiency of market development. Second, strengthen overall coordination and optimize the policy environment. On the one hand, the government should carry out more in-depth policy communication with the ten ASEAN countries, improve the policy guidelines, enhance the understanding and mutual trust among the countries, and provide convenient services and strong political guarantee for market development. On the other hand, the government should further simplify the approval process, improve transparency, strengthen the protection of intellectual property rights, and accelerate independent innovation and standardization. Meanwhile, it should establish an early warning and prevention mechanism for the ASEAN regional market, monitor and analyze market dynamics and risks in a timely manner, provide reference and suggestions for enterprises, and help them avoid potential risks and challenges.

In the industrial dimension, one is to complement each other's relative advantages and enhance the stickiness of cooperation. Countries along the “Belt and Road” can promote the construction of mutually beneficial and win-win regional industrial chain and supply chain cooperation system, such as strengthening technical cooperation, establishing the supply chain system of the tire industry, comprehensive cooperation from raw material procurement, production and processing to sales and after-sales service, according to the comparative advantage of the pattern of industrial division of labor, and to concentrate resources in areas with Comparative advantage in the field, accelerate the transfer of part of the industrial chain to the relative advantage of the country. Second, optimize the export structure, expand trade potential. In addition to continue to increase the export of the original tire products, to further optimize the product structure, improve high quality, special tires and other high value-added products such as research and development and production capacity. Strengthen brand building, improve brand awareness and reputation, through the creation of independent brands, can enhance the image and value of China's tires in the international market, in order to facilitate the development of emerging markets and regional markets. Expanding the coverage of Chinese tires in the international market through cooperation with local channels and participation in international exhibitions will help improve the competitiveness of Chinese tires in the ASEAN regional market and expand the trade and export potential.

In the enterprise dimension, one is to optimize the overseas layout and strengthen the sense of symbiosis. Enterprises through the globalization of production capacity layout to actively respond to the transfer of part of the industry to ASEAN countries, dispersion of trade friction brought about by the business risk, so as to steadily increase the international market share. On the one hand, you can invest and build factories in ASEAN regions with cost advantages and location advantages, establish

a large-scale production base for tires, reduce raw materials and logistics costs, and optimize the allocation of resources. At the same time, we need to take into account the geopolitical conflicts, laws and regulations, industrial chain foundation and other factors, to obtain the policy support of the local government to further develop overseas markets. On the other hand, in the market development area to set up sales networks and logistics centers serving the local and surrounding areas, and actively explore the online and offline synergistic integrated development mode together with dealers, to provide users with more professional localized services, and help product sales. Second, deepen the application of technology to promote transformation and upgrading. On the one hand, enterprises should actively strengthen the transformation and transformation of the tire industry intelligence, digitalization, and continue to explore the depth of the application of industrial Internet, artificial intelligence, big data and other information technology in the rubber tire industry in order to obtain sustained competitive advantage. For example, the establishment of a comprehensive service platform for upstream and downstream of the industry chain to promote the agglomeration and integration of enterprises upstream and downstream of the industry chain. On the other hand, enterprises should improve their digital transformation and data management capabilities to promote product quality, enhance innovation and expand market channels. Establish R&D centers in ASEAN regions with leading R&D technologies, and form a whole-process R&D and testing system from market research, product planning, formula development, structural design to product validation testing.

In the product dimension, the first is to improve supply capacity and adapt to overseas demand. In order to adapt to the development needs of tires in overseas markets, enterprises can understand the target market demand, improve tire quality, and strengthen international cooperation and other aspects, so as to improve the supply capacity of China's tires. On the one hand, do a good job of terminal extension, channel sinking and market penetration. Enterprises should understand the target market demand, consumer preferences, and competition, while the target market vehicle habits, road conditions, climate and other in-depth investigation, in order to adjust the product supply to better meet local consumer demand. On the other hand, in the production process, we should adopt advanced production technology and raw materials to ensure that the tires have high quality, high performance, safety and reliability. On the basis of the product factory, the use of international exchange platforms, and internationally renowned tire companies to carry out technology, production, market and other forms of cooperation, can be faster to adapt to overseas market demand, improve product supply capacity. Second, play the brand effect, enhance the degree of well-known. On the one hand, through multi-channel, multi-form, diversified brand activities, to play the brand benign effect. Enterprises can carry their own products and technologies to participate in global industry exhibitions, sponsorship of domestic and international sports events, automobile races, participation in public welfare activities, etc., and constantly enhance the international market visibility of China's tire brand. On the other hand, enterprises should provide high-quality products and services, utilize social media platforms such as Facebook, Instagram and Twitter for brand promotion, interact with foreign consumers by releasing valuable content, and provide convenient channels for overseas business cooperation to increase market exposure and continuously expand the brand's international influence.

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