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Analysis of Trade Influencing Factors and Trade Potential of China's New Energy Vehicles under Carbon Emission—Evidence from "Belt and Road" Countries

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Abstract: The purpose of this research is to examine the trade influencing factors and trade potential of China's new energy vehicles in "Belt and Road" countries. We adopt the gravity model and focus on the impact of carbon emissions. Our results show that: (1) carbon emission level, GDP, and distance are the most important factors affecting trade; (2) China's new energy vehicles have high trade potential in "Belt and Road" countries; (3) carbon emission trading can promote the export of new energy vehicles.

1. Introduction

The new global climate change agreement, the Paris Agreement, adopted at the Paris Climate Change Conference in late 2015, calls on countries to take immediate action to reduce greenhouse gas emissions in order to reduce the risks of climate change. Against the backdrop of the global economic crisis and global warming, countries around the world are seeking a balanced path between economic growth and environmental protection, and the low-carbon economy, as an entirely new mode of economic development, has become the fifth wave of the world economy after the industrial revolution and the information revolution. The essence of the low-carbon economy is to ensure economic growth while minimising carbon emissions, which are one of the main causes of climate warming caused by fossil fuels such as coal, oil and natural gas, so countries use carbon emissions as a measure of the level of development of the low-carbon economy.

According to statistics, in 2021, China's annual production and sales of new energy vehicles will exceed 3.5 million units, reaching 3.545 million units and 3.521 million units, both up 1.6 times year on year, ranking first in the world for seven consecutive years. In terms of exports, in 2021, China's new energy vehicle exports reached 310,000 units, up 304.6% year-on-year, and in the first half of 2022, the export volume of new energy vehicles reached 202,000 units, up 1.3 times year-on-year, accounting for 16.6% of total automobile exports. As a strategic emerging industry, new energy vehicles have the characteristics of energy saving and environmental protection, low operating cost, intelligence and networking, etc., and the increase of its market share is of strategic significance to the global energy saving and emission reduction and energy security of all countries.

At present, the global distribution of production and sales of new energy vehicles is multi-polar,

with China, Europe, the United States and Japan as the main players. Against the backdrop of China's "Belt and Road" initiative, its automobile industry has made significant progress in promoting the supply-side structural reform. Developing new energy vehicles has become a crucial aspect and symbol of China's transformation from a large automobile country to an automobile superpower. With the ongoing promotion of the "Belt and Road" initiative, logistics channels and infrastructure have improved among the countries along the route. Consequently, the "Belt and Road" countries have increasingly become a significant transfer market for China's new energy vehicle exports. Deepening trade and cooperation in new energy vehicles among countries along the "Belt and Road" will support the growth of China's overseas market for new energy vehicles and speed up the overseas industrial layout of Chinese new energy vehicle enterprises.

China has been actively promoting the development and application of new energy vehicles (NEVs) to cope with the challenges of energy security and environmental protection. In recent years, "Belt and Road" countries have become important markets for China's NEVs exports. However, the trade potential of China's NEVs in these countries is still unclear, and the impact of carbon emissions on NEVs trade needs to be explored. Therefore, this paper uses the gravity model to analyze the trade influencing factors and trade potential of China's NEVs. The research sample covers 44 "Belt and Road" countries from 2015 to 2019. In addition, this paper takes into account the impact of carbon emissions on trade and explores the promotion effect of carbon emissions trading on the export of NEVs. Literature Review: The gravity model is commonly used to analyze the trade potential between countries, and it has been widely applied to the study of NEVs trade influencing factors. Research shows that carbon emissions have a significant impact on trade and trade competitiveness. Moreover, the development of carbon emissions trading can improve the international competitiveness of green products. Meanwhile, relevant studies have pointed out that the trade potential of China's NEVs in "Belt and Road" countries is still high despite the impact of trade policy and technical standards.

2. Literature Review

Established studies have mainly evaluated China's new energy vehicle trade in terms of subsidy policy, trade status and supply chain.[1-2]Based on the background of the subsidy policy to improve the ownership and quality of new energy vehicles, some scholars have established a dynamic game model including the government, manufacturers, retailers and consumers, and found that the government's unit subsidy to manufacturers and consumers can increase the market demand for new energy vehicles and increase the profit level of manufacturers and retailers under the condition of ensuring the government's positive subsidy performance. [3-5] Producers have an imperfect complementary relationship, and there is a substitution relationship between the material and cooperation efforts of both parties.[6]

Empirical studies generally agree that economic development, population size, institutional arrangements and trade facilitation are important factors affecting China's trade in goods exported to Belt and Road countries.[7-8] Many scholars believe that GDP per capita and population size are significantly positively correlated with China's product trade efficiency, while geographical distance and income disparity are significantly negatively correlated, and institutional distance and trade costs are significant obstacles to improving the level of trade efficiency. [9]Many other scholars have considered the impact of the institutional environment on bilateral trade and examined the impact of trade institutional arrangements on the trade efficiency of China's agricultural exports to countries along the Belt and Road, pointing out that whether or not the two trading parties sign relevant agreements will indirectly affect the degree of trade facilitation and thus bilateral trade, such as whether or not to introduce tariff policies, whether or not to sign the FTA, whether or not to join the

WTO, whether or not to join the WTO. It has been shown that the longer the period between the two sides signing an FTA and joining the WTO, the more favourable it is for improving the efficiency of export trade.[10]

In the existing literature, the research on carbon trade mainly focuses on the trade implied carbon emissions and its influencing factors, etc. Liu et al (2018) selected countries along the "Belt and Road" based on the value-added trade perspective, applied the value-added trade accounting method and the trade-implied carbon emissions accounting method to study the situation of implied carbon emissions from exports of countries along the "Belt and Road", and the results show that the implied carbon emissions from exports of countries along the "Belt and Road" are overestimated. "The results show that the implied carbon emissions from exports of countries along the "Belt and Road" are overestimated.[11] Han et al (2018) measure the implied carbon emissions from China's imports and exports by using the input-output model to investigate the impact of import and export trade on carbon emissions.[12]

In summary, it is rare to study the influence factors and trade potential of carbon emissions on China's new energy vehicle exports in countries along the Belt and Road as an important explanatory variable. Starting from the current situation of new energy vehicle trade and carbon emissions between China and countries along the "Belt and Road", this paper adopts the extended gravity model based on the import and export data of China's new energy vehicles to countries along the "Belt and Road" from 2017 to 2021 to investigate the influence factors and trade potential of carbon emissions on China's new energy vehicle trade.[13-14] Based on China's import and export data to countries along the "Belt and Road" from 2017 to 2021, we use the extended gravity model to investigate the influencing factors of China's new energy vehicle trade in light of carbon emissions, and to measure the potential of China's new energy vehicle exports.[15]

3. Analysis of the current situation

3.1 Situation of new energy vehicle trade

Table 1: Development trend of new energy vehicle trade between China and "Belt and Road" countries Unit: US dollar

Year	China exports to "Belt and Road" countries	The "Belt and Road" countries for export to China	Trade balance	Total trade
2017	142438009	892421863	-749983854	1034859872
2018	151352249	1464597353	-1313245104	1615949602
2019	337432957	3738300037	-3400867080	4075732994
2020	273191181	4710742541	-4437551360	4983933722
2021	1923029909	5466938562	-3543908653	7389968471
2022	625667288	5223580875	-4597913587	5849248163

Source: General Administration of Customs of China.

Overall, China's trade in new energy vehicles with the "Belt and Road" countries has been steadily expanding, exhibiting fluctuating growth. The total trade in new energy vehicles between China and the "Belt and Road" countries reached £584,925,000 in 2022, nearly sixfold the level of total trade in 2017. The largest increases occurred in 2019 and 2021, which were 252% and 148% higher than the preceding year, respectively. In 2022, China's trade with the "Belt and Road" countries amounts to £584,925,000, which is nearly six times the total trade in 2017. The largest increases occurred in 2019 (up by 252%) and 2021 (up by 148%) compared to the previous year.

China's exports of electric vehicles to countries along the "Belt and Road" demonstrated a

general growth pattern, with a slight dip in 2020. However, there was a substantial increase in 2021, possibly due to the global pandemic in 2020, which had a certain impact on the import and export trade of new energy vehicles. Consequently, in 2021 the Chinese new energy vehicle industry rapidly accelerated. The new energy vehicle industry has experienced a surge in growth with accelerating exports. Impressive export figures indicate the industry's transition into the "fast lane"; notably, the first exports of new energy vehicles to the "Belt and Road" countries. This export trade has marked a record high, amounting to 1,923,030,000 US dollars, and a year-on-year increase of 704%.[16]

The trade trend of new energy vehicles within "Belt and Road" countries differs from that within China, whereby there is an overall growth trend, but a downward trend is expected in 2022. This indicates that China's vigorous development of the new energy vehicle industry could impact the export trade of new energy vehicles in "Belt and Road" countries. Export Trade.

From the perspective of the status of China's trade in new energy vehicles with the "Belt and Road" countries, China has been experiencing a trade deficit, which has shown a trend from expansion to shrinkage. However, there has been a turnaround in 2021 due to China's vigorous development of the new energy vehicle industry, resulting in a shrinking trade deficit.[17]

Based on the above analysis, we can summarise the characteristics of the new energy vehicle trade between China and the Belt and Road countries as follows: (1) the total trade volume of new energy vehicles between China and the Belt and Road countries has been increasing year on year, with undulating growth and an overall expanding trade scale. The export trend of new energy vehicles between China and the "Belt and Road" countries differs, as China displays an undulating growth, while the "Belt and Road" countries show a continuous growth trend. China's robust development of the new energy vehicle industry is beneficial for the trade of new energy vehicles, leading to a reduction in the size of China's new energy vehicle trade. (3) China's strong development of the new energy vehicle industry benefits Chinese new energy vehicle exports and reduces the trade deficit. (4) China currently experiences a trade deficit in new energy vehicles with the "Belt and Road" countries.

3.2 Status of carbon emissions

Table 2: Carbon Emissions in China and the Belt and Road Countries

Year	China's CO2 emissions	"Belt and Road" country CO2 emissions (average volume)
2017	10415	225
2018	10606	231
2019	10771	232
2020	10842	220
2021	11420	231

Data source: According to the US Energy Data Network.

From the data on carbon emissions over the years, it is evident that China's carbon emissions have shown a consistent increase, while the average carbon emissions of countries associated with the "Belt and Road" initiative exhibit a fluctuating trend with little change in the ups and downs of growth. From 2017 to 2021, the average carbon emissions of the "Belt and Road" countries amounted to 228 million tonnes, while China's average carbon emissions amounted to 10,818 million tonnes, making it 47 times higher than that of the "Belt and Road" countries. From 2017 to 2021, the "Belt and Road" countries emitted an average of 228 million tonnes of carbon, while China's average was 10,818 million tonnes. This is 47 times higher than the average for the "Belt and Road" countries and significantly greater than their emissions.

Based on the aforementioned analysis, it can be inferred that the carbon emissions of China and the "Belt and Road" countries during the 2017-2021 period exhibit the following trends: (1) while China's carbon emissions have been increasing consistently, the growth rate has been declining, and the average carbon emissions of "Belt and Road" countries are lower, and (2) the average carbon emissions of China for the past five years were 10,818 million tonnes, approximately 47 times higher than the average carbon emissions of "Belt and Road" countries which was 228 million tonnes, displaying a much higher emission rate in comparison to the aforementioned countries.

4. Trade Gravity Model and Description of Variables

4.1 Model Description

The gravity model, widely used in the field of international trade, posits that the size of trade flow between two countries primarily depends on their total economic volume and distance. There are no subjective evaluations included in the above text. The information is presented in clear, concise, and comprehensible sentences, with necessary technical terms explained upon first use. The structure is logical, with clear causal connections between the statements. The language used is clear, objective, and free from biases, making use of passive and impersonal construction, high-level language, and technical terms. Standard sentence structures with precise word choices are employed and the text is free from spelling, grammar, and punctuation errors. The model's basic formula is as follows: where denotes the trade volume between country i and country j, is a constant variable, and represents the total economic volume of the two countries measured typically in terms of GDP.

4.2 Variable Screening

The dependent variable in this paper is the trade volume of new energy vehicles between China and the "Belt and Road" countries. The independent variables considered are the total economic volume, total population, carbon emissions, and per capita income of the "Belt and Road" countries.

1) Gross Domestic Product (GDP)

GDP reflects the size of a country's economy. The larger the GDP of the trading parties, the stronger the potential import and export capacity and the larger the trade volume. Theoretically, the increase in GDP between China and the Belt and Road countries will promote the expansion of new energy vehicle trade.

2) Per capita income of Belt and Road countries (AG)

New energy vehicles are non-essential goods, and their consumption is related to people's income. The per capita income of importing countries will directly affect the demand for imported new energy vehicles, and an increase in income means an improvement in the standard of living and quality of life, which in turn will stimulate people's consumption of imported new energy vehicles and new energy vehicles with certain influential brands.

3) Population size of Belt and Road countries (POP)

The import and export trade of new energy vehicles is also affected by the population size of the importing country. The larger a country's population, the greater its immediate and potential consumer demand. Theoretically, an increase in the population size of China and the Belt and Road countries will synergistically lead to an increase in the scale of trade in new energy vehicles.

4) Carbon emission ($C0_2$)

Carbon emissions caused by climate warming, energy crisis and other issues, leading to the rise of new energy vehicle market, new energy vehicles gradually replace fuel vehicles, becoming the mainstream car on the market. Therefore, the specific impact of carbon emissions on the export of

new energy vehicles depends on the size of the positive and negative effects.

5. Model Construction and Data Processing

5.1 Model Construction

Based on the above analyses and research objectives, this paper constructs an extended gravity model with logarithms on both sides of the equal sign to obtain the following equation:

$$lnY_{ijt} = \beta_0 + \beta_1 lnGDP_{it} + \beta_2 lnGDP_{jt} + \beta_3 lnAG_{ijt} + \beta_4 lnPOP_{it} + \beta_5 lnPOP_{jt} + \beta_6 lnCO2_{ijt} + v_{it}$$

where is a constant, i denotes China, j denotes "Belt and Road" countries, i.e., importing countries, and t is the year. The larger the market size of a country, the stronger the demand, and thus the larger the scale of import and export; and is the core explanatory variable, which represents the carbon emissions of China and the Belt and Road countries in year t. The core explanatory variables are the carbon emissions of China and the "Belt and Road" countries in year t, which are obtained from the General Administration of Customs of China, the Energy Data Network of the United States, and other control variables from the World Bank database.

5.2 Data sources and processing

Carbon emissions in this paper refer to the carbon dioxide produced by the country's consumption of fossil fuels, and the country-level carbon dioxide emissions used in the empirical study were obtained from the U.S. Energy Data Network, which refers to carbon dioxide emissions produced by a country's use of coal, oil, and natural gas, and is based on a standard global average conversion factor.

The definition of the scope of new energy vehicles is referenced to the "Rules for the Administration of New Energy Vehicle Manufacturing Enterprises and Product Access" published by China's Ministry of Industry and Information Technology (MIIT) in 2017, which officially defines a new energy vehicle as one that uses a new type of powertrain with non-conventional automotive fuels as a source of power, which is mainly classified into three categories, namely, pure electric vehicles (BEVs), hybrid electric vehicles (HEVs), and fuel cell vehicles (FCEVs). Until 2017, China's Customs subdivided new energy on the Harmonised System, and after checking the Customs HS codes, this paper sets the research scope of new energy vehicle models as 870220-870240 and 870340-870380 in the Customs HS Chapter 87.The definitions of the specific vehicle types and the corresponding Customs codes are shown in Table 1, with reference to Chen et al. (2019).[13]

Excluding countries with more missing data, 52 countries along the "Belt and Road" in 2017-2021 were finally selected as the research sample (see Table 2 for details).

6. Empirical Results and Analysis

This paper presents an empirical analysis of the effect of carbon dioxide emissions on the trade efficiency of China's new energy vehicles in 52 countries along the "Belt and Road" from 2017 to 2021. We construct an extended gravity model of trade and estimate the parameters using Stata14.0 software. Our study comprises two models, one describing China's exports of new energy vehicles to the "Belt and Road" countries and the other concerning the exports of "Belt and Road" countries to Chinese new energy vehicles. The Stata14.0 software was used to estimate the parameters, comprising two models analysing China's export of new energy vehicles to the "Belt and Road"

countries and the export of new energy vehicles from the "Belt and Road" countries to China. Insignificant regression coefficients were excluded from consideration, and the stepwise regression method was applied to screen the regression equations with better fit. The resulting information is available in Table 3.

6.1 Empirical results

1) China's exports to Belt and Road countries

The core explanatory variable "Belt and Road" countries carbon emissions coefficient sign is positive, and the coefficient value is 14.88, indicating that "Belt and Road" countries every 1% increase in carbon emissions, China's total exports of new energy vehicles will increase by 14.88%; then Seeing other explanatory variables, such as GDP, per capita national income and population size of the "Belt and Road" countries, the GDP, population size and per capita national income of the "Belt and Road" countries are all significant at the 5% level and the coefficients are positive. For every 1% increase in GDP, China's export trade volume of new energy vehicles will increase by 24.37%; for every 1% increase in population size, China's export trade volume of new energy vehicles will increase by 16.81%; for every 1% increase in per capita income, China's export trade volume of new energy vehicles will increase by 35.45%, which indicates that the improvement of a country's production capacity and consumption capacity will promote China's export trade of new energy vehicles. This indicates that an increase in a country's production capacity and consumption ability will promote China's export trade of new energy vehicles.

Table 3: Descriptive statistics of the model variables

Variable	Mean	Standard deviation	Minimum	Maximum
Yit	5.655e+08	7.634e+08	1.424e+08	1.923e+09
Yjt	3.255e+09	2.002e+09	8.924e+08	5.467e+09
GDPjt	817.5	23.825	778.3	840.1
GDPit	1400.182	168.11	1188.62	1641.77
POPit	140806.4	527.732	140011	141260
POPjt	63573.8	2946.166	60151	67524
AGit	0.01	0.001	0.008	0.012
AGjt	0.026	0	0.025	0.026
CO2it	10810.8	378.247	10415	11420
CO2jt	227.8	5.167	220	232

2) Belt and Road countries' exports to China

In the regression results of Model 2, the R^2 value is 0.9928 and the adjusted R^2 value is 0.9712, indicating that the estimated model and the actual observations are well fitted. The F value is 45.91, indicating that the linear relationship between the independent variables and the dependent variable is significant, and the DW value is 1.737, indicating that there is no autocorrelation among the independent variables , as shown in Table 4.

In the regression results of Model 2, the signs of the coefficients of the explanatory variables are all positive and significant at the 5% level. The coefficient value of the core explanatory variable, China's carbon emissions, is 19.24, indicating that when China's carbon emissions increase by 1%, the total trade volume of new energy vehicles imported to the Belt and Road countries will increase by 19.24%. Other explanatory variables, such as GDP, population size and national income per capita, have coefficient values of 6.16, 20.81 and 6.82, respectively, indicating that a 1% increase in GDP, population size and national income per capita will increase China's imports of new energy

vehicles by 6.16%, 20.81% and 6.82%, respectively.

Table 4: Results of the model regression

Varible	Department of numerical values	Model 1 T-value	P Value	Department of numerical values	Model 2 T-value	P Value
β_0	-256.5823	-6.95	0.006*	-5250.531	-2.28	0.026**
lnGDPit	8.062332	3.90	0.030**	6.160509	4.41	0.022**
lnGDPjt	24.37603	2.43	0.025**	20.94056	3.16	0.092**
lnPOPit	---	---	---	20.8121	11.70	0.001*
lnPOPjt	16.81321	2.89	0.015**	---	---	---
lnAGit	---	---	---	6.817263	3.86	0.061**
lnAGjt	35.45316	2.13	0.034**	---	---	---
lnCO2it	25.03677	6.20	0.025**	19.23582	2.68	0.075**
lnCO2jt	14.87825	7.48	0.005*	---	---	---
R2	0.9491			0.9928		
The adjusted R2	0.9322			0.9712		
F Value	55.99			45.91		
DW Value	1.843			1.737		

Note: *, * * indicate significant levels of 1% and 5%, respectively; "- - -" indicates that the variable was not included in the model.

6.2 Analysis of results

1) China's exports to Belt and Road countries

The regression coefficient of China's GDP is positive, which is in line with the expectation. t-value is 3.9, when China's GDP increases by 1%, China's exports to "Belt and Road" countries increase by 8.06%, which is larger than the increase of GDP. The regression coefficient of the population size of "Belt and Road" countries is positive, indicating that the increase in the population size of "Belt and Road" countries will promote China's export of new energy vehicles to "Belt and Road" countries. When the population size of "Belt and Road" countries increases by 1%, the trade value of China's export of new energy vehicles to "Belt and Road" countries increases by 16.81%, and the increase in export value is larger than the increase in population size.

The regression coefficient of carbon emissions in Belt and Road countries is positive, indicating that the positive effect of carbon emissions on China's new energy vehicle export trade is greater than the negative effect. Carbon emissions promote the development of the economy and trade in new energy vehicles, and their negative trade effect is not yet apparent in the short term. If the carbon emissions of the Belt and Road countries increase by 1%, the total trade volume of new energy vehicles exported from China to the Belt and Road countries will increase by 14.88%, and the increase in export volume is greater than the increase in carbon emissions. The reason for this situation is that when the carbon emissions of the "Belt and Road" countries increase, it will stimulate the domestic attention and development of the new energy industry, and when the supply of the domestic industry is insufficient, they will consider importing related products such as new energy vehicles from abroad, so economic growth will increase carbon emissions, and the increase in carbon emissions will promote the trade of new energy vehicles, if not taken into account, the trade of new energy vehicles will increase by 14.88%. Therefore, economic growth will increase carbon emissions, and the increase in carbon emissions will promote the trade of new energy

vehicles, if we do not take into account the environmental pollution, the increase in carbon emissions in the "Belt and Road" countries is conducive to China's exports of new energy vehicles.

2) "Belt and Road countries export to China

In Model 2, the regression coefficient of China's GDP is positive, consistent with expectation, with a t-value of 4.41, when China's GDP increases by 1%, the export of new energy vehicles from Belt and Road countries to China will increase by 6.16%; the regression coefficient of China's per capita income is positive, with a t-value of 3. The regression coefficient of China's per capita income is positive, with a t-value of 3.86, and when China's per capita income increases by 1%, the export of new energy vehicles from Belt and Road countries to China increases by 6.82%. The regression coefficient of China's population size is positive, which is in line with the expectation, and the t-value of population size is 11.7. When China's population size increases by 1%, the new energy vehicles imported to the Belt and Road countries will increase by 20.8%, and the increase in export value is larger than the increase in population size.

The regression coefficient of carbon emissions is positive, indicating that the increase of carbon emissions in China has a positive impact on the import of new energy vehicles. For every 1% increase in carbon emissions, China's imports of new energy vehicles from Belt and Road countries will increase by 19.24%. The reason is that, on the one hand, economic development will increase a country's carbon emissions, and on the other hand, an increase in carbon emissions will stimulate a country's new energy and other green industries, so an increase in China's carbon emissions will promote the import of new energy vehicles. New energy vehicles from Belt and Road countries.

3) Measuring the trade potential of new energy vehicles between China and the Belt and Road countries

An important application of the gravity model is to measure the bilateral or multilateral trade potential, i.e. the ratio of actual trade to the fitted value of the gravity model. If the actual trade volume of two countries or regions exceeds the predicted trade volume of the gravity model, it can be assumed that there is a close trade relationship between the two countries or regions; on the contrary, it can be assumed that the trade relationship between the two countries or regions is not close enough, i.e. there is a large trade potential.

According to the comparison between the actual trade flow value and the simulated value, the Belt and Road countries can be divided into three types: huge potential, potential development and potential reconstruction.

First, the huge potential type, at present, the ratio of the actual value to the fitted value is less than or equal to 0.8, and the existing potential for expanding the scale of trade with such trading partners is very large; second, the potential development type, at present, the ratio of the actual value to the fitted value is between 0.8-1.2, and the potential for developing trade in new energy automobiles between China and "Belt and Road" countries has not yet been fully exploited, and there is still a large potential for development. The third is the potential remodelling, at present, the ratio of the actual value to the fitted value is greater than or equal to 1.2, at present, the existing potential for expanding the scale of trade has been exhausted, and the main idea for the further development of trade relations is to simultaneously maintain the existing positive factors, and develop and cultivate other factors to promote the development of trade.

As can be seen in Figure 1, the trade potential of China's exports of new energy vehicles to the "Belt and Road" countries ranges from 0.8 to 1.2, indicating that the two belong to the potential to open up the type of relationship between the two, in the new energy automobile trade has a larger space for development; and "Belt and Road" countries export China's new energy vehicle trade. The trade potential value of "Belt and Road" countries' exports of China's new energy vehicles falls between 0.5-2.0, with large fluctuations, indicating that China and some of the "Belt and Road" countries belong to the huge potential type, while with another part of the country belongs to the

potential remodelling, and for the latter is to maintain the existing trade level. For the latter, it is to maintain the current trade level and develop other factors that can promote the trade of new energy vehicles.

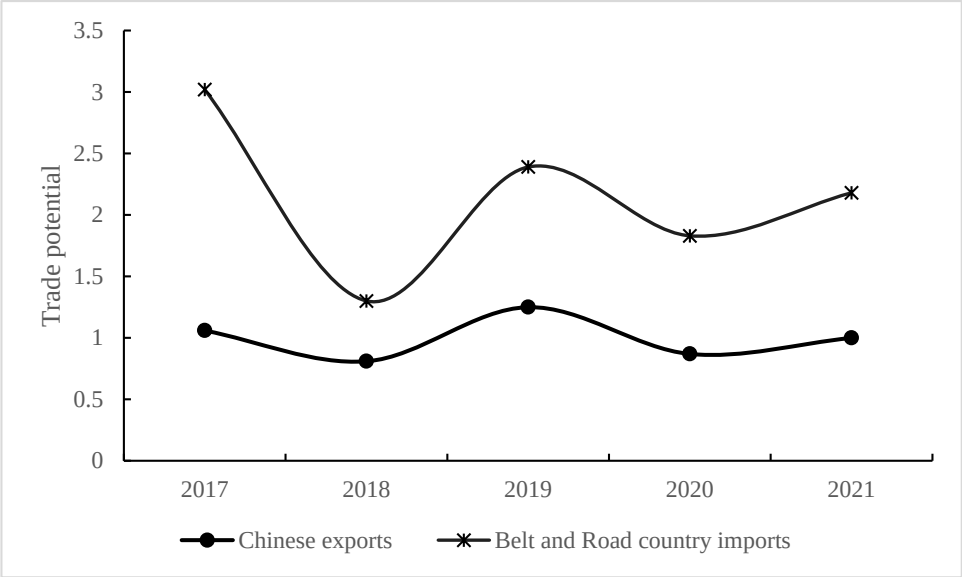

Figure 1: Trade potential chart

7. Conclusion

Based on the databases of the World Bank and the US Energy Data Network, this paper analyses the trend of China's exports of new energy vehicles to the "Belt and Road" countries from 2017 to 2021, and then examines the impact of carbon emissions on the efficiency of export trade and the mechanism of trade potential by using the trade gravity model.

First, in terms of the current status of new energy vehicle trade, the total value of new energy vehicle trade between China and "Belt and Road" countries will reach US$584,925,000 in 2022, which is nearly six times the total value of trade in 2017, with the largest increase in 2019 and 2021, which are 252% and 148% higher than the previous year, respectively. In 2021, China's new energy automobile industry accelerated into the "fast lane", strong export growth, new energy automobile exports "Belt and Road" countries for the first time the total trade reached a record high, the total trade amounted to 1,923,030,000 US dollars, an increase of 704%. The total trade volume of new energy vehicles exported to Belt and Road countries reached a record high for the first time, with a total trade volume of US$1,923.03 million, a year-on-year growth of 704%. The scale of China's exports of new energy vehicles to Belt and Road countries has shown a high growth rate, indicating that China's exports of new energy vehicles to Belt and Road countries have shown a growing trend with broad prospects for future development.

Second, in terms of trade potential value, the average trade potential of China's new energy vehicle exports to Belt and Road countries is hovering around 1. In 2017, the average trade potential of China's exports to Belt and Road countries was 1.06, and by 2021, the average trade potential of China's exports to Belt and Road countries will be 1.0, with little change overall, indicating that both sides still have a large trade potential to tap. In 2017, the average trade potential value of China's exports to the "Belt and Road" countries was 1.06, and by 2021, the average trade potential value of China's exports to the "Belt and Road" countries will be 1.0, with little change overall, which belongs to the potential development type of relationship, indicating that both sides still have large trade potential to be tapped, and China should do a good job in strengthening economic and

trade cooperation with the "Belt and Road" countries and creating a favourable trade environment. China should do a good job in strengthening economic and trade cooperation with Belt and Road countries, creating a favourable trade environment, removing trade barriers and promoting trade in new energy vehicles.

Finally, among the factors affecting China's new energy vehicle exports to the Belt and Road countries, carbon emissions and economic factors such as per capita income and GNP of the Belt and Road countries have a significant positive impact on China's new energy vehicle exports.

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