

Research on Determinants and Potential of Goods Trade between China and ASEAN Countries under “the Belt and Road” Initiative

Xiaomeng Shi*, Lian Wang

School of Economics and Management, Nanjing University of Science and Technology, Nanjing, China

*Corresponding author: sxm1472186202@163.com

Abstract. The trade between China and ASEAN countries has been very close since ancient times. Taking China and ASEAN countries as research objects, this paper analyzes the current situation and changing trend of China's and ASEAN countries' trade in goods based on the import and export data of both sides from 2001 to 2018. By using the trade gravity model, this paper empirically analyzes the determinants of trade in goods between China and ASEAN countries, and further calculates the trade potential of goods between China and ASEAN countries. The empirical results show that the GDP of China and ASEAN countries has a positive impact on bilateral trade, while the geographical distance between trading countries has a negative impact on bilateral trade. In terms of trade potential, China's trade in goods with more than half of the ASEAN countries still has a huge potential for expansion and a broad prospect for trade in goods.

Keywords: “The Belt and Road”; Ten ASEAN countries; Gravity model; Determinant; Trade potentialities.

1. Introduction

Since ancient times, China and ASEAN countries have had frequent trade exchanges, which benefits from natural geographical advantages, similar national cultures and trade customs. In 2002, China and ASEAN began to negotiate a number of free trade agreements, including Dispute Settlement Mechanism Agreement, goods trade agreement and service trade agreement, so as to promote trade exchanges and development between the two sides by reducing tariff and non-tariff barriers. In 2011, ASEAN became China's third largest trading partner after the United States and the European Union. In 2013, China put forward the “the Belt and Road” initiative, which further consolidated the foundation of cooperation with ASEAN countries and strengthened bilateral economic and trade cooperation. Based on the consensus of developing and building the “the Belt and Road”, China and ASEAN countries have made joint efforts and achieved remarkable results. According to the data released by the General Administration of customs, ASEAN will surpass the EU and become China's largest cargo trading partner in 2020. Many data show that ASEAN is increasingly becoming a very important link in China's construction of the “the Belt and Road”, and also the most remarkable region in China's current high-quality joint construction of the “the Belt and Road”.

With the tide of economic globalization, opportunities and challenges coexist in the trade between China and ASEAN countries. As a whole, the trade volume between the ten ASEAN countries and China is rising. However, there are great differences in the trade situation between countries and China. Under the background of the “the Belt and Road” initiative, based on the current situation of goods trade between China and ASEAN countries, it is of great strategic significance to promote the trade development and economic and trade cooperation between China and ASEAN countries by analyzing the influencing factors of goods trade between the two sides and deeply tapping the potential of goods trade between China and ASEAN countries.

2. Literature review

As for the research on trade between China and ASEAN countries, there are some research achievements both at home and abroad, and the research has its own emphases. Shi et al. (2019), starting from the perspective of trade relations and measuring the degree of trade integration, concluded that China has relatively close trade ties with ASEAN countries on the whole. Lin et al. (2019) focus on the trade effect caused by China's direct investment in ASEAN countries. According to the gravity model, it is concluded that China's direct investment in ASEAN countries has a significant promoting effect on the import and export of ASEAN countries. Zhang et al. (2019) empirically analyzed the trade efficiency and trade potential of cultural products between China and ASEAN countries by using the stochastic frontier gravity model, and concluded that the overall efficiency of cultural trade between China and ASEAN countries is relatively high and there is a certain trade potential. Yang and Martinez-Zarzoso (2014) used gravity model to study the trade creation and trade diversion effects of CHINA-ASEAN Free Trade Area on exports, and analyzed four categories of products, including agricultural products, manufactured products, chemical products, and machinery and transportation equipment. SUN and LI (2018) analyzed the trade profit margin of China's agricultural exports to ASEAN by using the trade data of agricultural products between China and ASEAN from 2000 to 2015, and further analyzed its determinants through the enhanced gravity model. The results show that the main growth source of China's agricultural exports to ASEAN has changed from extensive growth before the formal establishment of CAFTA in 2010 to intensive growth after the formal establishment of CAFTA. Foo et al. (2020) discussed the potential impact of China's "One Belt and One Road" policy on the trade flows of ASEAN countries and China, and the empirical results show that the "One Belt and One Road" policy initiative may become a mechanism for China and ASEAN countries to promote trade facilitation in the next few years.

In recent years, more and more research results have been produced on the Belt and Road Initiative. Soyres et al. (2019) studied the impact of transport infrastructure projects of the BELT and Road Initiative on transport time and trade costs based on the latest data of completed and planned BELT and Road transport projects. The results show that the Belt and Road Initiative will significantly reduce transport time and trade costs. And belt and Road economies located along the construction project corridors stand to benefit the most. Yu et al. (2020) used the dual difference method to test the impact of the "Belt and Road" Initiative on China's export potential to countries along the "Belt and Road". The results showed that after the launch of the "Belt and Road" Initiative, China's export potential to countries along the "Belt and Road" significantly increased, especially the export of capital-intensive industrial products. Bird et al. (2020) focused their research on Central Asia. The author developed a computable spatial equilibrium model in Central Asia and used it to analyze the possible impact of the "Belt and Road" Initiative on central Asia's economy.

It is an important way to promote the development of trade to study the influencing factors and trade potential of bilateral trade in international trade. Baniya et al. (2020) first used geographic reference data and GIS analysis to calculate the bilateral trade time before and after the belt and Road Initiative, and then used gravity model and comparative advantage model to estimate the impact of the improvement of bilateral trade time on bilateral export value and trade pattern. Mayinur et al. (2019) used the trade gravity model to calculate the main factors affecting bilateral agricultural trade between China and Pakistan and conducted an empirical study on them. As for the application of trade potential, Zhang et al. (2011) used the trade gravity model to empirically analyze the different influences of distance, population, economic scale, policies and other factors on bilateral agricultural trade, further measured the potential of Trade in agricultural products between China and Africa, and pointed out the key points of cooperation. Specifically, in the study of ASEAN trade potential, Jiang et al. (2015) empirically tested the creation effect of import and export trade between China and ASEAN countries by constructing the gravity model of import and export trade, and further estimated the import and export trade potential between China and ASEAN countries. In general, there are some problems in the research on trade between China and ASEAN countries in domestic and foreign literature, such as the data are not novel enough and the sample time span is small.

3. Current status analysis

According to Figure 1, from 2001 to 2018, the volume of trade in goods between China and ASEAN countries showed an overall upward trend. The total import and export volume of trade in goods increased from USD 41.591 billion in 2001 to USD 589.748 billion in 2018, an increase of 14.18 times and an increase of over USD 500 billion. In terms of stages, the total import and export volume of goods trade maintained a rapid growth trend from 2001 to 2008. After a brief decline in 2009, steady growth began to resume in 2010. After five consecutive years of growth from 2010 to 2014, there was a slight decrease again in 2015 and 2016, and the growth began to recover from 2016 with rapid growth. From the perspective of import and export, the export and import value of goods trade between China and ASEAN countries almost kept a synchronous growth trend from 2001 to 2011, and the import value was always greater than the export value. In 2012, the export value exceeded the import value for the first time and the gap kept widening. The import value had a long period of stable stage from 2011 to 2016, and recovered the trend of rapid growth after 2016.

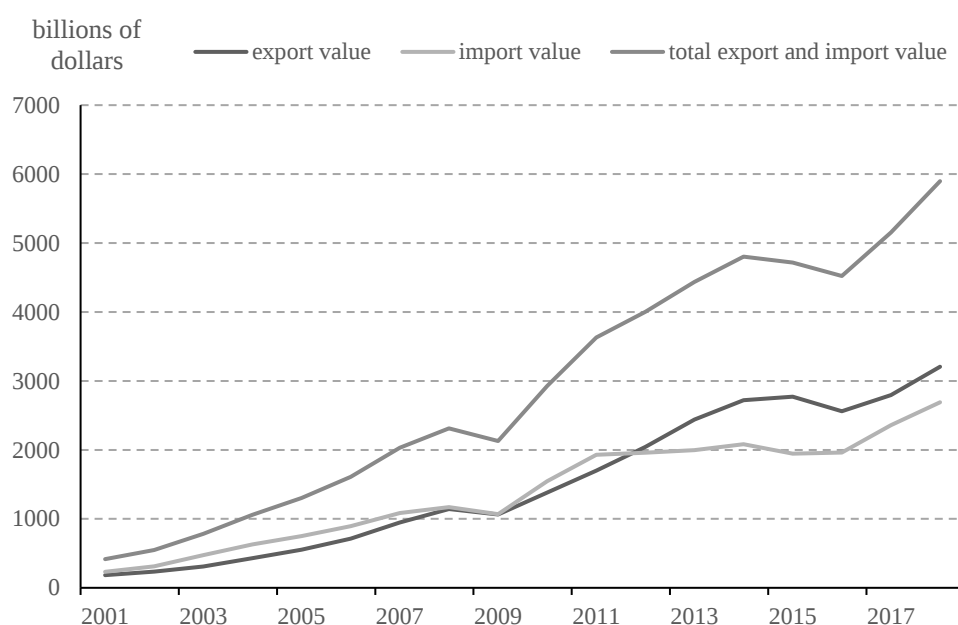


Figure 1. Trade in goods between China and ASEAN countries from 2001 to 2018

There are obvious differences between China and ASEAN countries in the trend of total trade in goods import and export. According to Figure 2, the total import and export volume of goods trade between China and Vietnam has the fastest growth rate and the largest growth range, rising every year from 2001 to 2018, and surpassing Malaysia to become the country with the largest trade volume of goods with China among ten ASEAN countries in 2016. By 2018, Vietnam's total trade in goods with China reached us \$148.103 billion, ranking first among the ten ASEAN countries. Malaysia, Thailand, Singapore, Indonesia and the Philippines have all witnessed a significant increase in the total import and export volume of goods trade with China in the past 20 years. However, Brunei, Myanmar, Laos, Cambodia and China's total import and export of goods trade grew slowly compared with other countries, always at a low level. Taking 2018 as an example (Figure 3), the import and export volume of goods trade between Vietnam and China accounted for 25.11% of the total import and export volume of goods trade between ASEAN countries and China, far ahead of other countries. Secondly, Malaysia, Thailand, Singapore and Indonesia all accounted for more than 10% of their imports and exports in goods trade. Brunei and Laos account for less than 1% of the total imports and exports of goods between ASEAN countries and China, which is related to the economic strength of the trading countries and the geographical gap between China and China.

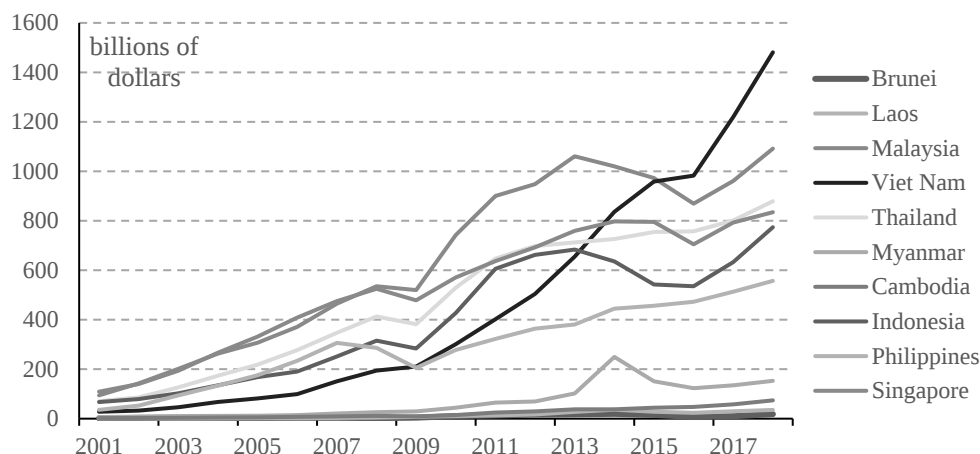


Figure 2. Change of total import and export volume of goods trade between China and ASEAN countries from 2001 to 2018

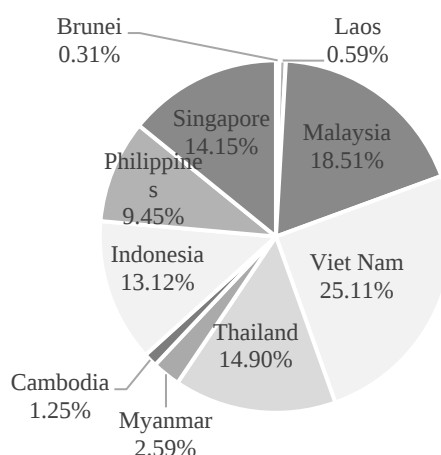


Figure 3. Proportion of total trade volume of goods between China and ASEAN countries in 2018

4. Methods

4.1 Data

This paper selects the balanced panel data of goods trade export volume between China and ASEAN countries from 2001 to 2018 for multiple linear regression analysis, including Brunei, Laos, Malaysia, Vietnam, Thailand, Myanmar, Cambodia, Indonesia, the Philippines and Singapore. The sample time span is 18 years. GDP, population, distance and whether the countries have a common official language are selected as explanatory variables. See Table 1 for data sources and explanations.

4.2 Model construction and variable description

The gravity model was originally derived from Newton's law of universal gravitation, which states that the force of gravity between two objects is proportional to the physical mass and inversely proportional to the distance between the objects. Two scholars, Tinbergen (1962) and Poyhonen (1963), were the first to apply gravity model to the study of international trade. According to the trade gravity model, the bilateral trade volume between two countries or two regions is directly proportional to the total economic volume between the two countries, and inversely proportional to the distance between the two countries. Subsequently, scholars have successively added other factors into the trade gravity model to analyze their influence on the trade volume and trade potential of the two countries. In addition to economic aggregate and distance, factors such as the population of the two sides of trade, whether they are bordering or not also affect the trade flow of the two sides.

Considering the cultural similarity between China and Southeast Asian countries, whether China has the same official language is related to the cost of communication and indirectly affects the trade volume between the two countries. In this paper, "whether to have the same official language" is introduced into the model as a dummy variable. The original multiplier model was transformed into the natural logarithm form, and the natural logarithms of all variables except dummy variables were taken.

Therefore, this paper will use the logarithmic form of trade gravity model to conduct an empirical study on the influencing factors of goods trade between China and ASEAN countries. The basic form is as follows:

$$\ln EX_{ijt} = \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln POP_{it} + \beta_4 \ln POP_{jt} + \beta_5 \ln DIS_{ij} + \beta_6 LANG_{ij} + \mu_{ijt}$$

Where, EX_{ijt} represents China's export of goods trade to Country j in period t ; GDP_{it} and GDP_{jt} represent the GDP of China and country j in period t respectively. POP_{it} and POP_{jt} represent the total population of China and country j in the period t respectively. DIS_{ij} represents the geographical distance between China and country j , based on the distance between the capitals of the two countries; $LANG_{ij}$ represents whether China and country j have the same official language, it is recorded as 1 if China and country j have the same official language, and it is recorded as 0 otherwise. β_1 、 β_2 、 β_3 、 β_4 、 β_5 、 β_6 were regression coefficients of corresponding explanatory variables. t stands for year; μ_{ijt} is the error term. See Table 1 for the meanings, expected symbols and theoretical explanations of the explained variables and explanatory variables.

Table 1. Trade gravity model variable meaning, expected symbol, theoretical description and data source

Explanatory variable	Variable meaning	Expected symbol	Theoretical explanation	Data sources
EX_{ijt}	Indicates the export volume of China's goods trade to country j		China's export volume of goods to country j in t period.	UN COMTRADE (United States dollars)
GDP_{it}	Indicates China's GDP in t period	+	It indicates China's potential supply capacity and demand level. The larger GDP represents the larger economic scale and greater trade volume.	World Bank Database (in US dollars)
GDP_{jt}	Indicates the gross domestic product of country j	+	Same as above.	World Bank Database (in US dollars)
POP_{it}	Indicates the total population of China	uncertain	The increase of population increases consumption demand, and may also reduce international trade due to the deepening of domestic division of labor.	World Bank Database (unit: person)
POP_{jt}	Represents the total population of country j	uncertain	Same as above.	World Bank Database (unit: person)
DIS_{ij}	Indicates the geographical distance between China and the country j	-	The greater the distance between countries, the higher the transportation cost of trade, which is unfavorable to international trade.	CEP II database (unit: km)
$LANG_{ij}$	Represents whether China and country j have the same official language	+	Having the same official language can reduce communication costs and promote international trade.	-

5. Results

In the empirical analysis of panel data, mixed regression model, fixed effect model (FE) and random effect model (RE) are generally used for testing respectively. The mixed regression model does not make any distinction between individuals and sections in panel data and uses the least square method to estimate. The fixed effect model (FE) is suitable for the same direction and similar size of coefficient effect. Random effect model (RE) refers to the regression of fixed coefficients as random variables. The judgment of mixed OLS and fixed model is generally judged by F test. If $\text{Prob}>F$ is infinitely close to 0, it means that the null hypothesis is rejected and the fixed model is selected for regression. Next, the Hausman test is used to determine which model is better between fixed effects model (FE) and random effects model (RE). If the null hypothesis is rejected by Hausman test, the fixed effects model is selected, indicating that the fixed effects model is superior to the random effects model. On the contrary, Hausman tests if the null hypothesis is accepted. The random effects model is used. In this paper, f-test was performed on mixed OLS and fixed effects model. Since $\text{Prob}>F$ is infinitely close to 0, it indicates that fixed effects model is superior to random effects model. Then Hausman test is used to select fixed effects model (FE) and random effects model (RE), and the test results show that the original hypothesis is accepted. Therefore, random effects model (RE) is selected to analyze the influencing factors of goods trade between China and ASEAN countries.

Table 2. Regression results of influencing factors of goods trade export between China and ASEAN countries

Variable	Mixed OLS	Fixed effect model FE	Random effect model RE
$\ln GDP_{it}$	1.231*** (3.71)	1.499*** (6.83)	1.219*** (5.59)
$\ln GDP_{jt}$	0.213** (2.25)	0.067 (0.53)	0.227* (1.84)
$\ln POP_{it}$	-2.942 (-0.32)	4.178 (0.77)	-2.774 (-0.51)
$\ln POP_{jt}$	0.095*** (4.11)	-4.289*** (-4.28)	0.047 (0.42)
$\ln DIS_{ij}$	-0.763*** (-6.99)	-	-0.789*** (-3.45)
$LANG_{ij}$	0.678*** (6.84)	-	0.580 (1.16)
C	49.448 (0.27)	-40.887 (-0.39)	47.034 (0.43)
Number of samples	180	180	180
Adjust R ²	0.925	0.924	0.915
F-statistic	355.0	502.7	1873.29
Prob(F-statistic)	0.0000	0.0000	0.0000
Hausman test			accept

As can be seen from the regression results of random effects model (RE), P value is 0.0000, adjusted R^2 is 0.915, the overall significance of the model is very high, and the fitting effect is very good. It can be seen from the regression results of all explanatory variables that China's GDP (GDP_{it}), the economic scale of ASEAN countries (GDP_{jt}) and the geographical distance between China and ASEAN countries have a significant impact on China's export of goods trade, and the sign of the regression coefficient is in line with the theoretical expectation. The signs of the two explanatory variables, total population of China (POP_{it}) and total population of ASEAN countries (POP_{jt}), are opposite, indicating that the impact of population on trade scale is uncertain. The symbol of the common official language ($LANG_{ij}$) is in line with expectations, indicating that the common official language has a positive impact on trade. From the regression results of all explanatory variables:

(1) The economic scale of China and ASEAN countries (GDP_{it} and GDP_{jt}) has a positive influence on the export of Goods trade between China and ASEAN. The signs of the regression coefficients of the two variables are consistent with the theoretical expectation, and pass the significance test at the significance level of 1% and 10%, respectively. From the regression coefficient of the two variables, it can be seen that China's economic aggregate is a major influence factor driving

China's goods export to ASEAN countries. The larger the economic scale is, the stronger the supply capacity is, which is consistent with the reality. The GDP of the importing country represents the economic aggregate of the importing country and, to a certain extent, the import demand of the importing country. The larger the economic aggregate of ASEAN countries is, the higher the demand level is, thus increasing the export trade between China and ASEAN countries. The regression result is consistent with the actual situation. The regression coefficients of economic aggregate of China and ASEAN countries are 1.219 and 0.227 respectively, indicating that if the economic scale of China and ASEAN countries increases by 1%, the export value of Goods from China to ASEAN countries will increase by 1.219% and the import value of goods from ASEAN countries will increase by 0.227%.

(2) The population of China and ASEAN countries (POP_{it} and POP_{jt}) have opposite effects on the trade of goods. The number of Chinese population has a negative impact on the export of goods trade, and the regression coefficient is -2.774, which is not statistically significant. The population of ASEAN countries has a positive influence on the import of goods trade, with a regression coefficient of 0.047, which is not statistically significant. On the one hand, a larger population means a larger domestic market, richer resource endowment, more diversified output, and a higher degree of domestic division of labor, thus reducing dependence on foreign markets and international trade. On the other hand, a larger population also indicates greater domestic demand, which may lead to greater imports and exports of goods.

(3) The distance between China and ASEAN countries (DIS_{ij}) has a negative impact on bilateral trade in goods, and the symbol is consistent with the theoretical expectation, and the regression coefficient passes the significance test at the significance level of 1%. It shows that if the distance between China and ASEAN countries increases by 1%, the export of goods to ASEAN countries will decrease by 0.789%. The regression results show that the greater the distance between China and ASEAN countries, the greater the obstruction of China's goods export to ASEAN countries, which is consistent with the fact. On the one hand, the economic distance between the two sides of trade is directly related to the transportation cost of goods. The greater the distance, the higher the transportation cost, thus affecting the export flow of China to ASEAN countries. On the other hand, the longer the distance, the longer the transport time, and the greater the probability of loss in the transport process. The geographical distance coefficient has a great impact on China's export trade with ASEAN countries, which may be due to the relatively low development of ASEAN countries' economic strength compared with China, thus resulting in higher transportation and trade costs.

(4) The regression coefficient of the dummy variable $LANG_{ij}$ is 0.580, which is consistent with the theoretical expectation. Although it does not have statistical significance, it has certain reference value. Among the ten ASEAN countries, Malaysia, Thailand, Singapore and Myanmar have listed Chinese as their official language. According to the analysis of the current situation, the trade in goods between Malaysia, Thailand, Singapore and China has been at a relatively high level in recent years. Having a common official language has a positive impact on trade by reducing communication costs to some extent.

6. Calculation and analysis of trade potential

According to the regression results of the stochastic effect model, the theoretical trade value between countries can be estimated, and the ratio between the actual trade value and the theoretical trade value is the trade potential. The trade potential is calculated as follows:

$$TP_t = \frac{TV_t}{SV_t}$$

Where, TP_t represents the potential of trade in goods between China and ASEAN countries in period t ; TV_t represents the actual value of trade in goods between China and ASEAN countries in

period t ; SV_t represents the theoretical value of trade in goods between China and ASEAN countries in period t . If the trade potential is less than 0.8, it is called the trade potential is huge, indicating that the trade potential between the two countries has a huge space for development. If the trade potential is between 0.8 and 1.2, it belongs to the pioneering type of trade potential, indicating that the trade potential of the two countries still has some room for expansion. If the trade potential is greater than 1.2, the trade potential is under potential, and there is almost no room for the trade potential between the two countries to increase.

Based on the regression results of stochastic effect model, this paper obtained the estimated result of export trade potential coefficient between China and ASEAN countries in 2018 through the ratio of actual trade volume to theoretical trade volume, as shown in Table 3.

Table 3. Calculation of trade potential types between China and ASEAN countries in 2018

Country	Actual value of trade	Theoretical value of trade	Trade potentialities	Types of trade potential
Brunei	1597616589	1033854361	1.545301397	Underpotential
Laos	1455739477	2181070779	0.667442566	High potential
Malaysia	45848411856	57931092435	0.791430127	Huge potential
Vietnam	84015798650	33519837885	2.506450029	Underpotential
Thailand	42974255961	81877547424	0.524860078	Huge potential
Myanmar	10567874244	15904268382	0.664467801	Huge potential
Cambodia	6022950063	2596396278	2.319734516	Underpotential
Indonesia	43246345320	90554849931	0.477570725	Huge potential
Philippines	35111186384	46591603980	0.753594712	Huge potential
Singapore	49817841244	53015038795	0.93969263	Potential development

According to the calculation results in Table 3, the trade potential between China and Malaysia, Laos, Thailand, Myanmar, Indonesia and the Philippines belongs to the type of huge potential, and there is still a great potential of goods export trade to be explored. While Singapore is a potential development type, which has developed certain export trade but still has room for further expansion. Brunei, Vietnam and Cambodia belong to the potential deficiency type, which means that China's goods export trade with them has been developed to a large extent, so we should find other ways to recreate the potential of export trade. On the whole, China's export trade potential with more than half of ASEAN countries is still to be developed.

7. Conclusions and policy recommendations

7.1 Main research conclusions

At first, this paper analyzes the present situation of trade in goods between China and ASEAN countries, second choose 2001-2018 China's exports of goods for ASEAN countries data, using the trade gravity model empirically the influence trade in goods between China and ASEAN countries determinants, and according to the empirical results respectively estimates the potential trade of China and ASEAN countries, the main conclusions are as follows:

First, from the perspective of the total import and export trade of goods between China and ASEAN countries, the import and export of goods between China and ASEAN countries has been in a steady growth trend in the past two decades, and since 2012, the total export has been greater than the total import, in a trade surplus state. Second, from all countries of the ASEAN countries, cargo import and export trade between China and ASEAN countries differ greatly, polarization state on the whole, Malaysia, Thailand, Singapore, Indonesia, the Philippines occupied with most of our trade in goods, Brunei, Burma, Laos, Cambodia and other countries is low. Thirdly, the empirical results of

trade gravity model show that the GDP of China and ASEAN countries will have a positive impact on the import and export trade of goods between China and ASEAN countries, while the geographical distance between China and ASEAN countries will have a negative impact on the import and export trade of goods. The impact of the population of the two sides on the trade of goods is uncertain, and the use of a common official language by the two sides of the trade will promote the development of the trade of goods import and export. Fourth, through the calculation of the trade potential between China and ASEAN countries, it can be concluded that the trade potential between China and more than half of ASEAN countries is still to be developed, and the trade prospect of goods is broad.

7.2 Policy Suggestions

Since China's accession to the World Trade Organization in 2001, foreign trade has gradually played an important role in China's economic development, and Now China has become a big foreign trade country. Against such a background, China and ASEAN countries should make good use of the Belt and Road Initiative, strengthen communication and cooperation, foster strengths and circumvent weaknesses, maximize favorable conditions while actively reducing the impact of adverse factors, improve economic and trade efficiency and promote the development of trade in goods. China and ASEAN countries should develop their own economy and further promote the development of foreign trade. From the perspective of the overall trade between China and ASEAN countries, we can vigorously develop the transportation infrastructure between China and ASEAN countries, improve the level of trade facilitation, so as to reduce the transportation cost and loss cost caused by long distance, and reduce the adverse impact. In addition, based on the similarities with ASEAN countries in culture and habits, China can carry out language popular science education related to ASEAN countries in border provinces and cities, expand the influence of Chinese, improve the popularity of Chinese in ASEAN countries except Malaysia, Thailand, Singapore and Myanmar, so as to reduce the cost of trade communication. From the perspective of goods trade with ASEAN countries, China should carry out goods trade with ASEAN countries according to different types of trade potential. For Malaysia, Indonesia, Thailand and other countries with great trade potential, the characteristics of trade should be analyzed in detail to reduce trade barriers so as to maximize the development of China's trade potential in goods with them. Countries whose trade potential has been developed to a greater extent can find another way to further explore trade space through signing trade agreements and other ways, so that bilateral trade can develop at a higher level.

References

- [1] Baniya S, Rocha N, Ruta M. Trade effects of the New Silk Road: A gravity analysis[J]. *Journal of Development Economics*, 2020, 146:102467.
- [2] Bird J, Lebrand M, Venables A J. The Belt and Road Initiative: Reshaping economic geography in Central Asia?[J]. *Journal of Development Economics*, 2020, 144:102441.
- [3] Foo N, Lean H H, Salim R. The impact of China's one belt one road initiative on international trade in the ASEAN region[J]. *North American Journal of Economics and Finance*, 2020, 54:101089.
- [4] Jiang G, Huo Q. Trade creation effect and trade potential of China ASEAN Free Trade Area—An Empirical Analysis Based on gravity model panel data[J]. *Contemporary Economic Management*, 2015,37(2):60-67.
- [5] Lin C W, Tan N, He C T. Study on the trade effect of China's direct investment in ASEAN countries[J]. *International Economic and Trade Exploration*, 2019,35(4):60-79.
- [6] Maynur, Zhao J. Research on the growth characteristics and influencing factors of China Pakistan agricultural products trade—An Empirical Analysis Based on Trade Gravity Model[J]. *Price Monthly*, 2019(11):32-37.
- [7] Poyhonen P. A Tentative Model for the Volume of Trade between Countries[J]. *Weltwirtschaftliches Archive*, 1963(90):93-100.

- [8] Shi C, Zhang J h. Research on trade relations and trade potential between China and ASEAN countries–Based on the extended trade gravity model[J]. Guangxi Social Sciences, 2019(5):64-71.
- [9] Soyres F D, Mulabdic A, Murray S, et al. How much will the Belt and Road Initiative reduce trade costs?[J]. International Economics, 2019, 159:151-164.
- [10] Sun Z I, Li X D. The trade margins of Chinese agricultural exports to ASEAN and their determinants[J]. Journal of Integrative Agriculture, 2018, 17(10):2356–2367.
- [11] Tinbergen J. Shaping the World Economy: Suggestion for an International Economic Policy[M]. The Twentieth Century Fund,1962.
- [12] Yang S, Martinez-zarzoso I. A panel data analysis of trade creation and trade diversion effects: The case of ASEAN–China Free Trade Area[J]. China Economic Review, 2014, 29:138-151.
- [13] Yu L, Zhao D, Niu H, Lu F. Does the belt and road initiative expand China's export potential to countries along the belt and road?[J]. China Economic Review, 2020, 20:101419.
- [14] Zhang H, Xie J. Determinants and potential of China Africa agricultural trade–An Empirical Study Based on gravity model[J]. International Trade Issues, 2011(3):45-51.
- [15] Zhang X, Wang Z T, Chen Y H. Analysis on trade efficiency and potential of cultural products between China and ASEAN countries[J]. Statistics and Decision Making, 2019,35(13):150-153.