The impact of RCEP Agreement on the Import and Export Trade between China and Other Partner Countries

Guanhui Wang*, Ming Ma

wgh@tjfsu.edu.cn*, newhop@126.com

School of International Business, Tianjin Foreign Studies University, Tianjin, 300204, China

Abstract. By extending the trade gravity model and introducing explanatory variables such as distance, population and real effective exchange rate, this paper evaluates the impact of RCEP framework on the import and export trade between China and other countries. The results show that the increase in the GDP of the ten ASEAN countries is more significant than that of Japan, South Korea, New Zealand and Australia in promoting import and export trade with a large gap among the 14 countries; On the contrary, the growth of the population has restrained the import and export trade.

Keywords: RCEP import and export trade, ASEAN, Trade Gravity Model

1. Introduction

Members of RCEP account for 30% of the world economy, and their economic and trade activities are more active[1], which will increase their contribution to the world economy. To be specific, RCEP network itself can form a good closed-loop industrial chain. China, Japan and South Korea have relatively advanced technology, ASEAN countries have relatively cheap labor, and Australia and New Zealand have relatively rich natural resources, etc. the overlapping territorial advantages and the low logilistic cost and the transitional guarantee system for the less developed members enable the further relation in the member country's production, promote the deep integration and development of the value chain, and the embedment in the global industrial chain[2].

2. Literature Review

The signing of the RCEP agreement took a long time and was of great significance to the global economic layout. Ren Zeping (2020) believes that under the wave of "anti

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globalization", the implementation of RCEP is a major victory of free trade and globalization. China has made remarkable achievements on the road of reform, opening up and foreign cooperation. He expects the world to have more open, transparent, mutually beneficial and win-win free trade agreements, and China, the United States and the world to join hands to promote the restoration of globalization. Ping Liqun (2020) believes that the signing of RCEP will end East Asia's long-term imbalance between "mature production network, close intra regional trade" and "lack of overall economic cooperation institutional arrangements", which is more conducive to the recovery of the trade and investment in the Asia Pacific region in the post epidemic era. China's one belt, one road, is also conducive to improving the global division of labor in China's manufacturing sector. Zhang Yan (2020) thinks that RCEP is conducive to the reconstruction of regional value chains and promotes the development of "One Belt and One Road" policy[3-6].

RCEP has integrated and expanded a number of free trade agreements among 15 countries, reduced tariff and non-tariff barriers, unified regional rules, and promoted the development of import and export trade among countries within the framework. Li Zhiyuan and Lin Yichun (2021) believe that the intra industry division of labor between China and RCEP countries will be further deepened, and the inter industry trade will also provide more choices to meet the needs of the consumers.Ping Liqun (2020) believes that the signing of RCEP will end the long-standing imbalance between "mature production network, close intra regional trade" and "lack of overall economic cooperation institutional arrangements" in East Asia, and convey to the world the broad consensus of Asian countries on opposing trade protectionism, adhering to multilateralism and promoting economic integration. In the post epidemic era, when the principle of building production network changes from "efficiency" to "efficiency based on safety", the institutional guarantee of RCEP will provide a more stable and predictable economic environment for the region, which is conducive to enhancing the confidence in building production network in the region, reducing transaction costs, and improving the overall social well-being of countries in the region,We will promote economic integration in the Asia Pacific region.Hu Zhiyuan (2019) believes that in the future, the trade volume between China and ASEAN will enter a new stage, the trade pattern between the two sides will be more and more in-depth, and the trade issues between the two sides are not only about the trade development between the two sides, but also affect the trend of the world trade pattern. In the study of trade gravity model, Cui Xinsheng and Li Fang (2020) built a trade gravity model between China and its trading countries after calculating the Trade Facilitation Index. Through the analysis, we know that trade facilitation can reduce the trade cost between China and its trading partners, and promote the import of all kinds of Chinese products. Zhang Pengfei and Tang Yun one (2020) classified the income level of the countries along the "One Belt, One Road", concluding that the high-income countries could promote the rapid development of trade by improving the digital key application technology and establishing the regulatory rules[7-10].

To sum up, combined with the focus of existing literature analysis, in the background of surging trend of world trade protectionism and unilateralism, damage to the multilateral trading system, aggravation of Global trade friction, and the impact of the epidemic situation, RCEP members will face new opportunities and challenges. How will China's import and export trade with other trading partners be affected?Based on the trade gravity model, this

paper will quantitatively analyze the impact trend of RCEP agreement on China's import and export trade with other trading partners.

3. Model and Data Description

According to the traditional trade gravity model (1), we can know that the trade volume between the two countries is directly proportional to the GDP of the two countries, and the distance between the two countries is inversely proportional. Among them, IMP_{ij} represents the volume of trade between I and J, GDP_i GDP of country I, GDP_j The GDP of country j, DIS_{ij} represents the linear distance between two countries.

$$IMP_{ij} = \frac{GDP_i \times GDP_j}{DIS_{ij}} \tag{1}$$

This paper selects the data of the import and export volume of ten ASEAN countries including Indonesia, Cambodia, Myanmar, Laos, Vietnam, Brunei, Thailand, Singapore, Philippines and Malaysia, and four countries including Japan, South Korea, Australia and New Zealand from 2010 to 2019 with China, the GDP and GDP of each country, the liner distance between the captital of each with Beijing, the capital of China, the total population and the real effective exchange rate of RMB to prefect the traditional trade grivity model. The linear model is shown in (2), and the definition of variables and data sources are shown in Table 1.

$$\ln\ (\text{Trade}) = \alpha_0 + \alpha_1 \ln(\text{GDP}_c) + \alpha_2 \ln(\text{GDP}) + \alpha_3 \ln(\text{Pop}) + \alpha_4 \ln(\text{Internet}) + \alpha_5 \ln(\text{Distance}) + \alpha_6 \text{Bor} + \alpha_7 \text{Develop} + \beta \tag{2}$$

Table 1. Variable definition and data sources.

Variable name	Representative meaning	Data sources
Trade	Total imports and exports of 14 countries and China	China's Statistical Yearbook
GDP_c	China's GDP	World Bank Database
GDP	GDP of 14 countries	World Bank Database
Pop	Population of 14 countries	World Bank Database
Distance	The linear distance between the capitals of 14 countries and Beijing, the capital of China	CEPII
REER	real effective exchange rate of RMB	World Bank Database, undadat
Bor	Are ASEAN countries bordering on China	Google Maps
Develop	Are ASEAN countries developed countries	Wikipedia

Among the above variables, the real effective exchange rate is a very important economic indicator, which is usually used to measure the international competitiveness of a country's

trade goods, can be used to study the early warning indicators of currency crisis, and can also be used to study the living standards of residents in a country relative to another country. In the specific empirical process, effective exchange rate is usually divided into nominal effective exchange rate and real effective exchange rate. Nominal exchange rate is the exchange rate calculated without price index adjustment. Due to the consideration of some domestic financial problems, such as the floating currency value caused by inflation, the nominal exchange rate can not accurately express the currency value ratio of the two countries, so the actual foreign exchange conversion ratio can only be calculated through the foreign exchange rate in the market. The real effective exchange rate is determined by the supply and demand of the currencies of the two countries. In the foreign exchange market, the currencies of the two countries can be regarded as two kinds of goods. Their relative prices are determined by their respective supply and demand, and have nothing to do with the prices of the two countries. Their relative prices, calculated by their nominal exchange rate and the prices of the countries and determined by the supply and the damand of the foreign exchange market, can reflect the competitiveness of a country's products. Using the direct pricing method, the real exchange rate (REER) is equal to the product of the foreign commodity price (CPI *) multiplying the nominal exchange rate (E), and then divided by the domestic commodity price (CPI):

$$REER=ER\times CPI^*/ CPI \tag{3}$$

4. Analysis of Regression Results

First, after LM Test on all data, the result shows that we strongly reject the hypothesis that "there is no individual random effect", that is to say, we should choose "random effect" for regression analysis between "random effect" and "mixed effect". All regression results are shown in Table 2. Regression analysis. The second column of the table shows the regression results of the whole sample of 14 countries except China under the RCEP framework. Among the 14 countries, Myanmar, Laos and Vietnam are the countries bordering on China's territory, and the third column of the table shows their return. Among the 14 countries, Japan, South Korea, Australia, New Zealand, Brunei and Singapore are developed countries, which are regressed in the fourth column of the table.

Table 2. Regression analysis.

	(1)
VARIABLES	LTrade
LGDPc	0.255***
	(6.10)
LGDP	0.858***
	(14.08)
LPop	-0.642***
	(-15.60)

REE	0.000
	(0.06)
LDistance	-0.050
	(-0.34)
o.Bor	-
Develop	-1.353***
	(-19.48)
Constant	-2.821*
	(-1.84)
Observations	50
R-squared	0.962
F test	0
r2_a	0.956
F	230.5
	(1)
VARIABLES	y

Generally speaking, the trade volume between the two countries is directly proportional to the GDP of the two countries, and if the GDP of one of the 14 countries increases by 1%, the import and export volume of China and that country will increase by 0.255%, which means that the GDP is still a key indicator of a country's production capacity. In contrast, China's GDP promotion has no such significant effect on the trade volume between the two countries as compared with ASEAN countries. From the data alone, the status of RCEP members in the trade network is not equal. China, Thailand, Malaysia, Singapore, Japan, Vietnam and Malaysia are in the center and sub center, while the Philippines, Brunei, Myanmar, Cambodia and Laos are on the edge. The status of RCEP member countries in import and export trade is not equal. China, Thailand, Malaysia, Singapore, Japan, Vietnam and Malaysia are in the center and sub center, while the Philippines, Brunei, Myanmar, Cambodia and Laos are in the edge.

From the regression results, the population growth of the 14 countries has a negative effect on the development of their trade with China, especially in Brunei and Singapore, where the population growth will significantly inhibit the trade between the two countries and China. First of all, Singapore and Brunei have the ninth and tenth largest labor force in the ten ASEAN countries. Due to the land area and other factors, the total number of labor force is very limited. Moreover, combined with the higher literacy rate and labor participation rate of the two countries, the higher education level promotes the development of labor force towards knowledge intensive force, and the labor cost is increasing. The regression results show that the reason why the effect of real effective exchange rate is not significant is the lack of real effective exchange rate data of Cambodia, Myanmar, Laos, Vietnam and Brunei in recent ten years.

Transportation cost is a key part of trade cost. The linear distance between the capitals of the two countries is an index to measure the trade cost of the two countries. Obviously, the increase of the straight-line distance between the two countries will bring certain obstacles to the trade between the two countries. If we consider the actual geographical factors, if the land of the two sides is not contiguous and the shipping route is relatively long, the cheaper rail transportation and shipping will be affected to a certain extent, and the increase of transportation costs will inhibit the trade of common commodities between the two countries. According to the regression results, for each 1% increase in the linear distance between Myanmar, Laos, Vietnam and Beijing, the import and export volume with China will decrease by 0.050% in obvious curbing effect.

5. Conclusion and Suggestion

By extending the trade gravity model and introducing explanatory variables such as distance, population and real effective exchange rate, this paper evaluates the impact of RCEP framework on the import and export trade between China and other countries. The results show that the increase in the GDP of the ten ASEAN countries is more significant than that of Japan, South Korea, New Zealand and Australia in promoting import and export trade with a large gap among the 14 countries; on the contrary, the growth of the population has restrained the import and export trade. Based on this, the following suggestions are made:

1. The goods China does not have a comparative advantage should be imported more vigorously and the enterprises should be encouraged to step to the overseas markets. On the one hand, the results above show that the efficiency of bilateral trade between China and RCEP partners is much lower than that of export trade. Therefore, it is necessary to strengthen the import of products that China does not have comparative advantage, and strengthen industrial division and cooperation, such as SITC-0 and SITC-3 in order to release more bilateral trade potential between China and RCEP partners; On the other hand, going out will directly or indirectly expand the scope of China's export market, which is the main carrier to further enhance the trade efficiency and potential between China and RCEP partners. Therefore, China should make full use of the accumulated rules of the original production site in RCEP region, optimize the configuration of the existing industrial chain in the country, and encourage domestic leading enterprises in agriculture and mineral resources to actively go out and establish strategic alliances with ASEAN and Australia's local powerful enterprises to jointly develop local resources. It not only establishes a reliable channel for the inflow of related goods for China's future economic development, but also provides a carrier of the trade potential.

2. The key to increasing the reciprocal coefficient of RCEP import and export trade is to promote the trade links between the border nodes of the Philippines, Brunei, Myanmar, Cambodia and Laos and the central nodes. Optimize the RCEP trade network and make its cooperating network more symmetrical, so that most countries can get their own corresponding benefits from it, which is more conducive to promoting the mutually beneficial cooperation among the 14 member countries.

3. Research data show that China is an extremely important core node in RCEP import and export trade, and the signing of RCEP is not only conducive to China's export, but also

conducive to enhancing China's status and influence in the international economic network. China's export value and entry value increase year by year, which indicates that other countries's dependence on China's export as well as China's trade dependence on RCEP members will be higher and higher, and China's import and export trade relations with other 14 countries will be closer and closer. At this time, we need to develop a complete system and mechanism to resist risks, in order to prevent the economic and policy risks caused by the increasing trade dependence.

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