

Research on the Impact Measurement and High-Quality Development of Manufacturing Trade between Jiangsu Province and Rcep Key Countries

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Abstract: Based on the import and export trade flows of manufacturing between Jiangsu Province and RCEP countries from 2010 to 2019, a trade gravity model is constructed to empirically analyze the impact of manufacturing trade between Jiangsu and RCEP countries. The research results show that the GDP, trade openness, industrial added value and industrial product tax rate of RCEP countries have a significant role in promoting Jiangsu's manufacturing trade. It is proposed that Jiangsu manufacturing industry should strengthen scientific and technological innovation around “stuck neck” technology, promote the deep integration and development of “two industries”, build an independent and controllable advanced manufacturing system, and enhance the international competitiveness of Jiangsu manufacturing industry.

1. Introduction

With the development of economic globalization and trade facilitation, the manufacturing trade exchanges between countries and regions in the world are frequent, the trade flow is gradually rising, and the trade structure is improving day by day. However, due to the outbreak of the new crown epidemic in 2019, the international political order is undergoing important changes, and the development of global trade and investment liberalization has been hindered. Moreover, the rise of hegemonism and power politics, coupled with the implementation of trade protectionism in some developed countries, promotes the return of local enterprises, making the development of global manufacturing trade difficult. As a major manufacturing province in China, Jiangsu Province has made important achievements in its economic development, and its driving force mainly comes from its strong manufacturing innovation and development capabilities. The manufacturing industry in Jiangsu Province has a large overall scale, complete categories, and a relatively high level of development of advanced manufacturing. Of course, the traditional manufacturing industry in Jiangsu still occupies a major position. The traditional manufacturing industry faces the problems of transformation and upgrading and the core technology is “stuck”, and the core competitiveness of the high-tech industry is insufficient.

The RCEP free trade zone agreement, which will take effect on January 1, 2022, will face important opportunities and challenges for the national (including Jiangsu) manufacturing industry. The RCEP Free Trade Zone is the world's largest integrated market, covering multi-level, multi-angle and all-round trade fields. The signing of the RCEP agreement has improved the trade and investment facilitation of Jiangsu's manufacturing industry, and improved the “gold content” of the network of Jiangsu and other free trade zones in my country. , Realize the new development pattern of domestic and international dual circulation, better realize the opening of the system, Promote the construction of a high-level open economic system. Therefore, to study the actual situation of the import and export trade between Jiangsu's manufacturing industry and RCEP countries, and to explore the main influencing factors of the import and export trade between Jiangsu's manufacturing industry and RCEP countries, will help improve the trade situation between Jiangsu's manufacturing industry and TCEP countries and promote the high quality of Jiangsu's manufacturing industry. The development has important theoretical and practical significance.

2. Literature Review

The RCEP initiative has been highly concerned by the academic community since it was proposed, and in-depth research has been carried out and rich research results have been obtained. At the same time, the RCEP agreement also brings opportunities to Jiangsu's manufacturing and agricultural development, but also faces challenges from other RCEP member states^[1]. The construction of the free trade zone is conducive to further optimizing the foreign trade structure of Jiangsu. Build a new platform for Jiangsu to expand its opening to the outside world in the new era. However, the subsequent effective implementation and timely upgrading of RCEP will also face challenges from practical issues such as member differences and interests, and it is still necessary to continuously promote its deepening and expansion in a gradual and flexible way⁽¹²⁾. Domestic scholars have formed relevant research results on the impact measurement of RCEP trade. It mainly focuses on the research on the impact of international trade on Jiangsu or other economies under the design of the RCEP system. For example, Du Qianyi and Guo Qing^[4] used the dynamic GTAP-FDI model to analyze the impact of RCEP on the global economy and trade through empirical research; Liang Yixin^[5] used the recursive dynamic GTAP model to simulate the impact of RCEP on Jiangsu's macroeconomic and related factors. industry impact, This paper analyzes its mitigation effect on the negative impact of Sino-US trade frictions; Du Yunsu and Liu Yanping^[6] focus on the global manufacturing industry, and simulate the impact of RCEP on the division of labor in the world's manufacturing industry through the GTAP model, and find that RCEP has an impact on the division of labor in the world's manufacturing industry. Significantly affected. Foreign research on the impact measurement of the new trade agreement RCEP has also achieved certain results. It is believed that the economic benefits obtained by each member state affect the degree of implementation of the agreement. For example, Zainuddin et al.^[7] re-evaluated the impact of non-tariff measures on the bilateral exports of the Regional Comprehensive Economic Partnership (RCEP) countries, and found that the non-tariff measures related to the Sustainable Development Goals had different impacts on trade. Shu et al.^[8] used cluster analysis and Poisson Quasi-Maximum Likelihood (PQML) gravity model to study the phenomenon of trade blocs and the relationship between trade and shipping, using hierarchical cluster analysis and tree diagrams to identify bilateral trade intensity and traffic volume, it is found that the entry into force of RCEP will promote the growth of trade in East Asia and the demand for logistics and maritime services.

Gravity models are mainly used to empirically study the factors that affect bilateral trade flows. It is generally believed that Tinbergen^[9] and Poyhonen^[10] were the first to use the gravity model to study international trade. They explored the bilateral trade flow and came to the same result, that is, the bilateral trade flow of the two countries is proportional to the total economic volume, It is inversely proportional to the distance between the two countries. Later studies added the population variable to the gravity model and found that the population is positively correlated with the trade scale. Nowadays, the trade gravity model has become the main tool to study international trade flow. Empirical researchers can introduce other influencing variables according to the differences between countries and regions, and explore the direction and magnitude of the influence of this factor.

The research on trade efficiency and trade impact measurement between China and RCEP member countries can help countries understand trade issues and improve trade environment and conditions. At present, the RCEP agreement is further advanced, and the design of the zero-tariff system is gradually implemented, but at present, there is a lack of research on these aspects by domestic and foreign scholars. A small number of scholars have carried out macro and multi-perspective discussions from the national and social levels, but less research has been done on the micro and regional levels. For example, Baier and Bergstrand^[11] conducted an empirical analysis on the endogeneity of FTA variables, and found that the impact of FTA on trade flow was five times that of the original, and the FTA doubled the bilateral trade of the two members after 10 years on average. In 2020, Cycad proposed that it is necessary to clarify the focus, implementation methods and time nodes of the zero-tariff system, which must be targeted^[12]. Liu Bing and Chen Shumei's research concluded that the realization of zero tariffs in the RCEP region has a significant positive

change in the economic aggregate, welfare level and trade scale of member countries^[13]. Many people propose how to set open access clauses in preferential trade agreements, especially how to deal with its relationship with tariff reduction arrangements, which will directly affect the multilateralization of agreements and the process of regional economic integration [14].

To sum up, the relevant research literature provides a useful reference for exploring the impact of manufacturing trade between Jiangsu Province and major RCEP countries, but there are also some shortcomings. The impact of the RCEP agreement on Jiangsu's manufacturing trade is seldom analyzed from a micro perspective; there are few empirical studies on the factors that affect trade between China and RCEP member countries. therefore, This study will evaluate the impact of Jiangsu's manufacturing trade in the context of RCEP; and combine the trade gravity model to explore the factors that affect trade between China and RCEP member countries, so as to be more targeted for Jiangsu's economic system reform and opening to the outside world, as well as Jiangsu's Provide scientific policy advice on how to adapt to the international trade pattern under the new RCEP situation.

3. Analysis on Import and Export Trade of Jiangsu Province's Manufacturing Industry and Rcep Countries

The Regional Comprehensive Economic Partnership (RCEP) was initiated by ASEAN in 2012. It took 8 years and more than 30 rounds of negotiations. It was reached by 15 economies including China, Japan, South Korea, Australia and New Zealand proposed by ASEAN. agreement. The RCEP free trade zone is currently the free trade zone with the largest population, the largest trade flow, and the most trade efficiency and potential in the world.

Characteristics of import and export trade between manufacturing and RCEP countries in Jiangsu Province. Jiangsu Province is located in the eastern coastal area, with flat land, a large population, and a developed regional economy. The regional GDP in 2020 is 10271.898 billion yuan, and the secondary industry accounts for 43% of the province's GDP. Therefore, it is also a major manufacturing province in my country. In 2020, the total trade in goods between Jiangsu and RCEP member countries will reach 1.66 trillion yuan, It accounts for 37.2% of the province's total trade in goods. From 2015 to 2019, the top three countries with the largest foreign trade volume in Jiangsu Province were South Korea, Japan, and Australia. increasing year by year. In 2019, the total import and export volume of Jiangsu Province reached 629.470 billion US dollars, Among them, the trade volume of goods between Jiangsu and RCEP member countries accounted for 36.89% of the province's total. \$232.2104 billion (shown in Figure 1). In addition, Jiangsu is also an important direct investment destination for RCEP countries, carrying out cross-border cooperation projects, such as: Jiangsu Taihu Cambodia International Economic Cooperation Zone (Cambodia Westport Special Zone is the two major national-level overseas industrial parks in Jiangsu Province), China-South Korea Yancheng Industrial Park, China-Singapore Cooperation Suzhou Industrial Park, etc. These projects play a leading role in demonstration and are the depth of follow-up development. An indispensable trading platform for cooperation. Therefore, the trade volume between Jiangsu and RCEP countries will become larger and larger, Trade dependence will rise.

With the implementation of the RCEP agreement, the regional cumulative rules of origin have put forward higher requirements for the Jiangsu manufacturing industry to re-distribute the supply chain in the Asia-Pacific region. Finally, the system design of zero tariffs on more than 90% of goods has put forward a new challenge for Jiangsu manufacturing enterprises to face international competition. Higher requirements, high value-added products, will be exported to Jiangsu at low prices, The traditional price advantage of similar products in Jiangsu will be greatly reduced, and the low-priced agricultural products and labor-intensive manufactured products of the new five ASEAN countries will enter the Jiangsu market more easily, which will also have an impact on such products in Jiangsu. The implementation of the Regional Comprehensive Economic Partnership (RCEP) has ushered in new opportunities, new requirements and new missions for Jiangsu's manufacturing industry.

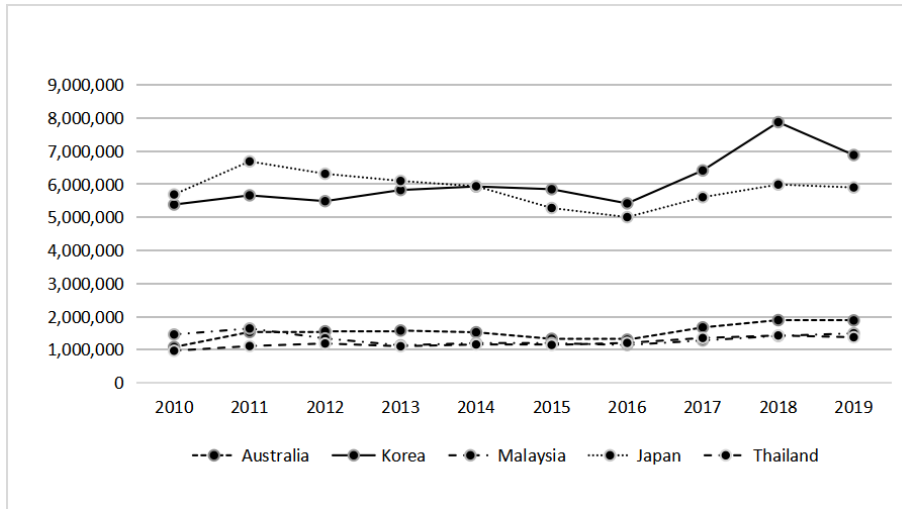


Fig.1 Import and Export Trade Trends between Jiangsu Province and Major Rcep Countries

4. Empirical Analysis of Jiangsu Province’s Manufacturing Industry and Rcep Countries’ Import and Export Trade

(1)Model Construction Choices: The Original Model and Improvements to the Trade Gravity Model

The trade gravity model is widely used in international trade research. The basic expression of the trade gravity model can be expressed as:

$$TT_{ij} = \frac{A(Y_i^{a_1} Y_j^{a_2})}{Dis_{ij}^{a_3}} \quad (1)$$

Among them, TT_{ij} is the total export trade volume of country i to country j in a certain period of time, A is a constant, Y_i is the GDP of country i , Y_j is the GDP of country j , and Dis_{ij} is The distance between the capitals of country i and country j .

Based on the gravity model, this paper further improves the trade gravity model on the basis of previous research and the bilateral trade situation between Jiangsu Province and RCEP countries. This paper introduces “population”, “industrial product tax rate” and “trade openness”. , four new explanatory variables of “industrial added value” are introduced into the gravity model, The model is linearly transformed by taking the natural logarithm on both sides to:

$$LnTT_{ijt} = a_0 + a_1 LnY_{jt} + a_2 LnPOP_{jt} + a_3 LnDis_{ij} + a_4 Lntar_{jt} + a_5 Lnopen_{jt} + a_6 Lniva_{jt} + \varepsilon_{ijt} \quad (2)$$

Let $a_0, a_1, a_2, a_3, a_4, a_5, a_6$ be the parameters and ε_{ijt} be the residual term. $Y_{et al}$ is the GDP of the RCEP countries, and the expected sign is positive; $POP_{et al}$ is the population of the RCEP countries, and the expected sign is expected to be positive; Dis_{ij} is the maritime distance between Nanjing and the capital of the RCEP country; tar is the industry Product weighted average tax rate; $open$ is the degree of trade openness, measured by the ratio of total import and export divided by GDP, and the expected sign is positive; iva is the industrial value added of a country, and the expected sign is positive.

(2)Data source and processing

Due to too many missing data, the data of Jiangsu Province and RCEP countries from 2009 to 2019 were removed and the data of Jiangsu Province and RCEP countries were removed for regression analysis. The trade flow data between Jiangsu Province and other countries comes from the “Jiangsu Statistical Yearbook 2010~2020”; the data on the total import and export volume, GDP, industrial added value, and weighted average tax rate of industrial products of RCEP countries

come from the World Bank; The shipping distance between Jiangsu and RCEP countries comes from the port website (<http://port.sol.com.cn/licheng.asp>), and the unit is nautical miles.

(3)Result analysis

Table 1 Analysis of Regression Results

variable	Regression coefficients
constant	-12.988
$\square\square\square\square$	0.410
$Lntar_{jt}$	0.057
$Lnopen_{jt}$	0.977
R^2	0.949

The multiple regression results show that the R^2 of the model is 0.949 (see Table 1), and the model can explain 94.9% of the regression equation, indicating that the regression model has a good fitting effect. The linear relationship between the dependent variable and the independent variable is significant; the t value of the regression result is large, indicating that the sample difference is significant, indicating that the coefficient of this regression equation is significant and statistically significant. Since distance is an unchangeable variable and population changes little, the two explanatory variables, distance and population, are deleted. The four explanatory variables of GDP, trade openness, industrial added value and weighted average tax rate of industrial products in the trade gravity model are all significant at the 5% significance level, and the F test of the model also meets the overall explanatory power requirements of the explanatory variables. Therefore, the expression of the trade gravity model between Jiangsu and RCEP countries can be obtained:

$$LnTT_{ijt} = -12.988 + 0.410LnY_{jt} + 0.057Lntar_{jt} + 0.977Lnopen_{jt} + 0.618Lniva_{jt} \quad (3)$$

From this, it is concluded that there are many factors affecting the bilateral trade between Jiangsu Province and RCEP countries, and variables such as the total GDP, population, and trade openness of RCEP countries have all had a positive impact. ①In terms of the influence of variable parameters, the regression coefficient of GDP in RCEP countries is 0.410, and it is very significant. For every 1% increase in GDP, the import and export volume will increase by 0.410%.It shows that the economic size of RCEP countries has a positive and significant impact on the import and export trade between Jiangsu and RCEP countries, but the coefficient is not large. It can be seen that the economic size as an independent variable is significant, but its importance is relatively low compared to other variables. It can be shown that Jiangsu can also maintain good economic and trade relations with countries with smaller economies in the RCEP countries.②The regression coefficient of distance between RCEP countries is also small, and the concomitant probability is greater than the significant level. Most countries in the RCEP agreement are located in Asia, and the relative distance difference between them is small, so the impact of distance is not high, and the impact on trade flow is not high. smaller. ③ The regression coefficient of industrial added value is 0.618, which is consistent with the original expected results, indicating that the industrial added value of RCEP countries, It is beneficial to the economic development of import and export trade, and it also shows that the import and export of industrial products is an important component of international trade.

(4)The regression coefficient of trade openness of RCEP countries is 0.977, and the t test is also very significant, indicating that trade openness plays an important role in the trade process between Jiangsu and RCEP countries. The greater the volume of trade.

(5) The regression coefficient of the weighted average tax rate of industrial products among RCEP countries is 0.057, which on the surface has a certain positive impact on the trade volume, because the increase in the tax rate will lead to an increase in the country's export trade volume, but in the long run, a high tax rate will restrict imports trade volume, which in turn affects the overall import and export trade volume, and from the numerical point of view, the regression coefficient is small and close to zero, The impact on trade flows is small.

5. Conclusions and Recommendations

Combined with the trade gravity model, the data of the import and export of trade between Jiangsu Province and RCEP countries from 2010 to 2019 were used, and the population, trade openness, industrial product tax rate and industrial added value were added as new explanatory variables. First, the trade status between Jiangsu Province and RCEP countries was analyzed. , through multiple linear regression to analyze the factors affecting trade. The following conclusions can be drawn:

Jiangsu's import and export trade with RCEP countries is mainly affected by the RCEP countries' GDP, population, trade openness, industrial product tax rates and industrial added value. According to the regression results, the industrial added value of the RCEP countries has the greatest impact, followed by the trade openness of the RCEP countries, the GDP of the RCEP countries, that is, the economic scale of the RCEP countries, is an important factor affecting the volume of trade. Jiangsu has a deep trade influence and great trade potential with RCEP countries. According to the calculation results, even the RCEP countries have higher industrial product tax rates in their trade, failing to play the expected low tariff level to promote international trade. Based on the research results, the following countermeasures are proposed:

(1) Strengthen investment in scientific and technological innovation and enhance the competitiveness of the manufacturing industry

Jiangsu's economy ranks among the top in the country, but the technological innovation ability of manufacturing enterprises is weak, and the core competitiveness is insufficient. The main reason is that Jiangsu's manufacturing industry has less investment in technological innovation, insufficient scale, and over-reliance on traditional industries. Therefore, Jiangsu's manufacturing industry must vigorously strengthen the development of intelligent manufacturing and high-level service-oriented manufacturing. Promote the digital and intelligent transformation of the manufacturing industry. Enterprises should strengthen investment in technology, pay attention to investment in research and development funds, pay attention to personnel training, strive to cultivate more independent brands and independent technologies, strive to strengthen well-known brands, and cultivate independent innovation brands^[15]; Combined with the actual consumption situation in Jiangsu Province, guide local enterprises Import products that are more competitive in price from RCEP member countries, Complementary goods and services. Internally, it will achieve independent innovation-driven development, and externally, it will actively introduce and learn foreign advanced technology and experience, and promote the high-quality development of international trade in Jiangsu Province.

(2) Expanding trade openness and improving the trade and business environment

Jiangsu can take advantage of the opportunity of RCEP member countries to set up multiple free trade zones, so as to deepen international trade cooperation, innovate trade cooperation methods, vigorously attract foreign investment from RCEP countries, and promote the development of new trade formats, so as to establish a diversified and convenient area. Partnerships. With the help of Jiangsu's good open concept, profound awareness of the rule of law, and active market economy, Gradually explore and establish a business environment characterized by competitive neutrality. Jiangsu can learn from the experience of the Beijing Free Trade Pilot Zone, pay attention to the service trade practice of the Hainan Free Trade Port, keep an eye on the country's first negative list for opening up service trade, and actively explore the deep opening of the service sector in Jiangsu Province to develop international competitiveness. service-based manufacturing trade.

(3) Improve the trade policy system and reduce the tax rate of manufacturing products

The economic development and bilateral trade between Jiangsu and RCEP countries are highly complementary and competitive, but there are also high tariff barriers. Therefore, in terms of export and import, we should strengthen cooperation with RCEP countries, actively promote the implementation of the zero-tariff system in regions or some industries, actively consolidate and develop future economic and trade relations, and build a good free trade zone environment. The government can strengthen support and guidance for enterprises, increase financial subsidies, provide a variety of preferential policies, and make full use of policy means to guide Jiangsu's manufacturing industry to develop import and export trade relations with high-level countries or

regions in the world, and fully force Jiangsu's manufacturing industry. Industry transformation and upgrading.

(4) Promote the integrated development of “two industries” and build an independent and controllable advanced manufacturing system

In order to benchmark the world's advanced manufacturing goals, Jiangsu should formulate a policy to guide the development of the digital economy to empower the manufacturing industry to promote the continuous improvement of the production efficiency of advanced manufacturing. Promote the in-depth integration and development of the “two industries” of advanced manufacturing and modern service industries, and actively explore the optimal path for the integration and development of “two industries” in key industries, Guide the manufacturing industry to give full play to the important supporting role of the new generation of information technologies such as the Industrial Internet and big data. Accelerate the advancement of the digital economy to empower the manufacturing industry to upgrade and upgrade, promote the digital and intelligent transformation of the manufacturing industry, increase the degree of opening up of the manufacturing industry, and carry out technological innovation around the “stuck neck” technology to build a self-controllable advanced manufacturing system.

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