

# Research on the impact of RCEP rules of origin on China's manufacturing industry

Dan Ling<sup>1</sup>, Kun Qian<sup>2,\*</sup>

<sup>1</sup>Professor of the School of Economics, Wuhan University of Technology, 430000, China

<sup>2</sup>Graduate student of the School of Economics, Wuhan University of Technology, 430000, China

**Abstract:** As an extremely important part of the RCEP agreement, rules of origin will encourage enterprises to make more use of raw materials and intermediate products in the region, and more easily reach the regional value components to enjoy the preferential tariff treatment of the RCEP. This paper first analyzes the possible impact of the RCEP rules of origin on China's manufacturing industry, and then simulates the economic impact of the implementation of the RCEP agreement on China's manufacturing industry through the Global Trade Analysis Model (GTAP). The simulation results show that: (1) China's industries with obvious industrial advantages, such as textiles and clothing, will benefit from this, but the output of some industries, such as rubber and plastic products, chemical products and drugs, will be impacted to some extent. (2) From the perspective of the import and export scale of the segmented industries, after the entry into force of the RCEP, China's imports from the member countries in the region have increased significantly in rubber and plastic products, mineral products, transportation equipment, etc., while the exports have increased significantly in food, beverage, tobacco products, textile, clothing, leather products.

**Keywords:** RCEP; Rules of origin; manufacturing GTAP model

## 1. Introduction

On November 15, 2020, the world's largest free trade zone RCEP (Regional Comprehensive Economic Partnership) was officially signed. This is the organizational way for China, Japan, South Korea, Australia, New Zealand and ASEAN to open trade markets, implement regional economic integration and trade liberalization. One of the most important provisions in the RCEP agreement is the rules of origin, which will have a significant impact on the economic activities of import and export enterprises in the future, such as logistics and transportation arrangements, industrial chain and value chain layout, legal structure arrangements and other fields. Rules of origin are also a means of trade protection to a certain extent, which plays an important role in preventing non-regional countries from carrying out circuitous trade and protecting the interests of member countries in the region. The RCEP agreement integrates the original decentralized regional rules of origin system into the unified framework of the agreement, which can more accurately and effectively identify the goods of origin to enjoy tariff preferences[1]. In particular, according to the rules of origin accumulation in the agreement, after taking full account of the differences in the main components of the value of origin of each member country, the cumulative calculation of its value can greatly improve the actual utilization rate of the preferential tax rate of the free trade

agreement. Therefore, this paper will focus on the impact of RCEP rules of origin.

In order to make the research more targeted, this paper selects China's manufacturing industry as the main research object. As the largest economy in the RCEP regional trade network, China's manufacturing trade has a significant impact on manufacturing trade in the RCEP region. However, the composition of RCEP member countries is complex and diverse[2]. In the context of the restructuring of the regional industrial chain value chain, China's manufacturing industry will inevitably face competition pressure from multiple countries. However, the signing of RCEP has also brought new cooperation models to the East Asian manufacturing network. Chinese manufacturers can make full use of RCEP's extensive influence and strong inclusiveness, reasonably adjust the pattern of manufacturing division of labor, actively explore the regional market in Southeast Asia, and transform China's trade model with RCEP economies[3]. Based on this, this paper uses GTAP model to simulate the economic impact of rules of origin on China's manufacturing industry after the entry into force of the RCEP agreement, and provides corresponding countermeasures and suggestions for China's manufacturing industry to seize the historical opportunities brought by the RCEP.

\* Corresponding author: [727321827@qq.com](mailto:727321827@qq.com)

## 2. Current situation analysis

RCEP implements rules of origin in the region, which will optimize the allocation of production factor resources in the whole region. In particular, according to the cumulative rules after the agreement comes into force, the value of origin of products of each member country can be calculated cumulatively. After reaching the standard of origin that the regional value content is not less than 40%, they can enjoy more preferential tariff treatment. The RCEP agreement has greatly enhanced the tariff preference, which will help China's manufacturing industry optimize the industrial division pattern, expand the bilateral trade scale between China and other members of the RCEP, especially Japan and South Korea, and promote the further cooperation and development of the value chain of the industrial chain in the region.

According to UNCTAD's classification of manufacturing industry, China's manufacturing industry exports to the 10 ASEAN countries reached 360 billion dollars in 2020, and the total exports to Japan, South Korea, Australia and New Zealand reached 303.9 billion dollars; Imports from ASEAN countries amounted to US \$278.1 billion, and imports from Japan, South Korea, Australia and New Zealand totaled US \$458 billion. Based on the regional dominant comparative advantage index and the trade complementarity index, this paper will analyze the competitive complementarities of RCEP member countries. This paper selects the Regional Revealed Comparative Advantage (RRCA) index to measure the export competitiveness of manufacturing segment products of each member country in the entire RCEP region.

The calculation formula is:

$$RRCA_{ic} = (X_{ic}/X_{tc}) / (X_{iR}/X_{tR}) \quad (1)$$

Among them,  $X_{ic}$  indicates the value of export commodity  $i$  of country  $c$ ,  $X_{tc}$  represents the total export value of country  $c$ ,  $X_{iR}$  indicates the value of export commodity  $i$  in the RCEP region,  $X_{tR}$  indicates the total exit value in the RCEP area. The RRCA index of manufacturing segment products of RCEP member countries calculated according to the 2021 trade data released by UN Comtrade is shown in Table 1.

Table 1. RRCA index of various manufacturing products in RCEP member countries

Industrial classification	China	Japan	Korea	Australia	New Zealand	ASEAN
Food and beverage tobacco products	0.45	0.30	0.42	0.97	4.51	2.28
Textile, clothing and leather products	1.47	0.12	0.25	0.03	0.11	0.98
Wood-paper products and printing products	1.01	0.39	0.34	0.41	6.84	1.30
Other manufacturing industries	1.54	0.69	0.56	0.47	1.45	0.43

Rubber and plastic products	0.93	1.04	1.53	0.06	0.17	1.13
minerals	0.71	0.78	0.97	4.35	0.36	1.02
Chemical products and essential drugs	0.96	1.47	1.49	0.55	0.67	0.82
Electromechanical equipment	1.15	0.90	1.00	0.08	0.16	0.97
Transportation equipment	0.77	2.93	2.10	0.13	0.21	0.49

Data source: calculated by the author according to the Incomtrade database

According to the RRCA index calculated in the above table, the export comparative advantage of China's manufacturing industry is mainly reflected in the textile, clothing, leather products, wooden products and printing products, and electronic machinery and equipment industries, while the competitiveness in the food, beverage, tobacco products, transportation equipment, and mineral products industries is relatively small. As the world's largest manufacturing and exporting country, China occupies a pivotal position in the global value chain. At this stage, although China has lost some comparative advantages in labor-intensive manufacturing, it still has comparative advantages in many manufacturing production links and technology links of the global value chain, which enables Chinese manufacturing enterprises to further integrate into the global value chain.

## 3. Model analysis

### 3.1 Introduction to GTAP model

The Global Trade Analysis Project (GTAP) is a Computable General Equilibrium (CGE) model developed by Purdue University in the United States. The model simulates and analyzes the economic impact caused by the signing of regional FTA and changes in national trade policies through data from multiple countries/sectors. GTAP simulation in this paper uses GTAP10.0 database, which contains data of 141 countries or regions and 65 industries based on 2014.

### 3.2 Research scheme design

#### 3.2.1 Country (region) division

According to the needs of the study, 141 countries or regions are divided into 10 regional groups, including China (Mainland China), Japan, South Korea, Australia, New Zealand, ASEAN, India, the United States, the European Union and other countries in the world. At the same time, due to the lack of data of Myanmar countries in the GTAP10.0 database, in this model setting, ASEAN only includes the other nine countries except Myanmar. See Table 2 for details.

In terms of variable design, after the implementation of the rules of origin accumulation in the RCEP region, the value components of each member country can be recognized as the origin of the RCEP region if the RVC is greater than 40% through the cumulative calculation, thus

enjoying preferential tariff treatment in the region. Because the changes in tariff barriers and trade facilitation can only be used as impact variables in the GTAP model at present, there are no relevant variables to simulate the impact of other terms and regulations in this model. Therefore, in order to simplify the analysis, this paper sets up a scenario, that is, assuming that after the implementation of the RCEP rules of origin, the member countries use more raw materials and intermediate products in the region in order to reduce costs, and the final export products of the manufacturing industry of the member countries have obtained the qualification of origin, under this assumption, the value-added tariff is used as the policy impact variable of the GTAP model to explore the impact of the implementation of the RCEP rules of origin on China's manufacturing industry.

Table 2. Division of regional groups

code	name	Area contained
CHN	China	Mainland China
JPN	Japan	Japan
KOR	republic of korea	the republic of korea
AUS	Australia	Australia
NZL	New Zealand	New Zealand
ASEAN	ASEAN	Singapore, Vietnam, Malaysia, Brunei, Indonesia, Philippines, Thailand, Laos, Cambodia
IND	India	India
USA	U.S.A	U.S.A
EU_ twenty-seven	European union	EU 27
Rest	Rest of the world	Rest of the world

### 3.2.2 Industry division

Since this paper mainly studies the impact on China's manufacturing industry, the 65 industries in GTAP10.0 database are divided into 10 industrial groups, including food and beverage tobacco products, textile and clothing leather products, wood-paper products and printing products, other manufacturing industries, rubber and plastic products, mineral products, chemical products and essential drugs, electronic and mechanical equipment, transportation equipment, and other industries. As shown in Table 3 below.

Table 3. GTAP10.0 Model Manufacturing Sector Classification

code	Manufacturing segment category	HS2 bit code	Coverage
FBT	Food and beverage tobacco products	15-24	Dairy products, processed rice, slaughtered raw meat, meat products, edible oil, sugar, other food products, beverages and tobacco products
TWL	Textile, clothing and leather products	42-43, 54-67	Textiles, clothing, leather products
WPP	Wood-paper products and printing products	44-49	Wood products, paper products and printing and publishing
OMF	Other manufacturing industries	97	Other manufacturing industries
RP	Rubber and plastic products	39-40	Rubber and plastic products
Coal	minerals	25-27, 68-83	Petroleum, coal products, mineral products and related products, non-ferrous metals and related products, metal products
CP	Chemical products and essential drugs	28-38	Chemical products, basic medical products
ELE	Electromechanical equipment	84-85, 90-96	Computer, electronic and optical products, electronic equipment, mechanical equipment
TRANS	Transportation equipment	86-89	Motor vehicles and parts, transportation equipment
OTH	Other industries	41, 50-53, 99	Other industries not included

Data source: According to the industry classification of GTAP10.0 database

### 3.2.3 Simulation scheme design

The RCEP agreement entered into force on January 1, 2022, so the base year of simulation is set as 2022 in this paper. In order to accurately analyze the economic impact of RCEP rules of origin on China's manufacturing industry, this paper uses the Econmap database data of the French World Economic Research Center to dynamically recurse the data of the base year 2014 of GTAP10.0 database to 2022. In order to make the analysis more accurate, it is also necessary to update the tax rate in the GTAP10.0 database. Based on the tariff commitment table after the entry into force of the RCEP and the method of Wei Jingfu (2022), this paper calculates the benchmark tax rate of the RCEP member countries on the top ten industrial groups and carries out tariff correction. On this basis, the tariff change rates of China, Japan, South Korea, Australia, New Zealand and ASEAN to other RCEP member countries on the top ten industrial groups are calculated. As shown in Table 4 and Table 5 below.

Table 4. China's benchmark tax rates for other RCEP members  
 Unit:%

industry	China-Japan	China-Korea	China-Australia	China - New zealand	China-ASEAN
FBT	17.74	17.49	17.49	14.55	13.09
TWL	9.41	10.45	10.45	12.15	15.88
WPP	4.01	5.96	5.96	0.12	1.9
OMF	12.28	12.62	12.62	10.12	10.18
RP	7.04	6.48	6.48	9.07	8.42
Coal	5.85	7.17	7.17	1.19	3.4
CP	5.69	4.69	4.69	7.09	6.07
ELE	3.67	1.71	1.71	5.07	1.84
TRANS	12.76	9.33	9.33	4.44	19.94
OTH	5.5	6.52	6.52	11.67	12.01

Data source: calculated according to the RCEP tariff commitment table and UN Comtrade database

Table 5. China's tariff reduction rate to other RCEP member countries Unit:%

industry	China-Japan	China-Korea	China-Australia	China - New zealand	China-ASEAN
FBT	60.05	39.64	87.21	73.51	41.37
TWL	84.84	78.93	99.03	92.43	98.76
WPP	4.04	1.36	0.14	0.12	2.78
OMF	98.69	99.97	95.66	84.29	80.98
RP	81.5	60.61	61.24	96.13	67.11
Coal	79.16	85.87	11.83	26.69	68.53
CP	52.8	44.74	95.71	97.62	87.03
ELE	36.17	16.79	65.34	66.39	18.6
TRANS	24.8	42.49	96.7	99.02	51.71
OTH	36.03	47.98	36.57	91.53	62.73

Data source: calculated according to the RCEP tariff commitment table and UN Comtrade database

### 3.3 Analysis of simulation results

#### 3.3.1 Changes in output of China's manufacturing industry

The output changes of manufacturing industry segments after the formal implementation of RCEP are shown in Table 6. It can be seen from the table that: first, China's food and beverage tobacco products, textile, clothing and leather products, transportation equipment, and other manufacturing sector output will increase. In addition to other manufacturing industries, the textile, clothing and leather products industry saw the largest increase in output and benefited the most, reaching 0.77%. Second, after the formal entry into force of the RCEP, the output of wood-paper products and printing products, rubber and plastic products, mineral products, chemical products, essential drugs, and electronic machinery and equipment has declined to a certain extent, and the tax reduction among the member countries of the RCEP will bring a negative effect. In general, China's industries with obvious industrial advantages, such as textiles and clothing, will benefit from this, but some industries, such as electronic machinery and equipment, rubber and plastic products, and chemical products, will be impacted to some extent. Part of the reason is that the computer, electronic and optical products, electronic equipment and mechanical equipment industries in Japan and South Korea have obvious advantages over China, and these

industries still cannot compete with Japan and South Korea, which also has a certain impact on the output of these industries in China, indicating that China is relatively weak in these industries, and needs to strengthen scientific and technological research and development as soon as possible to improve the level of industrialization and technological competitiveness. In a word, the medium-high and high-tech manufacturing industries, such as chemical products and essential drugs, electronic machinery and equipment, can enjoy preferential tariff treatment after the RCEP rules of origin come into effect, and the import costs of related raw materials and accessories have been reduced to a certain extent, but the production scale of such industries will also be impacted to a certain extent.

#### 3.3.2 Changes in the import and export scale of China's manufacturing industry

The changes in the import and export and domestic sales volume of China's manufacturing products are shown in Table 7. In terms of manufacturing imports, the import volume of China's manufacturing industry segments has increased to a certain extent, among which the textile, clothing, leather products, rubber and plastic products industries have increased by 13.57% and 9.57%, respectively. This shows that after the implementation of the rules of origin by RCEP, China's economic structure can be further optimized and upgraded, thereby reducing the import and export trade surplus of low-technology manufacturing industries. In terms of manufacturing exports, except for wood-paper products, printing products and electronic machinery and equipment, the exports of other types of manufacturing products have shown a growth trend. The largest growth in exports is in food, beverage and tobacco products (about 8.6%). From the perspective of manufacturing at different technological levels, China's low-tech manufacturing, medium-low tech manufacturing, medium-high tech and high-tech manufacturing imports increased by 5.71%, 3.05% and 2.07% respectively, and exports increased by 2.44%, 2.71% and 0.05% respectively. Compared with that before the entry into force of the RCEP Agreement, the import and export of manufacturing industry segments have achieved a small growth, but the growth of medium-high and high-tech manufacturing industry is the least.

Table 6. Change in output of manufacturing industry segment  
 Unit:%

industry	C H N	JP N	K O R	A US	N ZL	IN D	U S A	ASE AN	EU_ twe nty- seven
FBT	0.2 2	- 0. 65	0.0 9	- 0.4 9	1.7 1	0. 18	- 0. 04	- 0.46	- 0.06
TWL	0.7 7	- 3. 68	- 4.6 6	- 18. 83	- 13. 61	- 1. 26	- 0. 29	2.77	- 1.24
WPP	0.3 5	- 0. 64	- 2.5 8	0.1 7	0.2	0. 15	0. 02	2.02	0.03

OMF	1.8 3	- 5.31	- 4.11	- 14.5	- 6.12	- 0.54	- 0.09	-3.1	-
RP	0.3 4	0. 55	0.2	3.4 5	- 3.7	0. 13	0. 12	-0.1	- 0.03
Coal	0.0 1	0. 55	0.3 3	0.1 9	0.5 9	0. 01	0. 04	- 1.06	- 0.01
CP	0.1 7	0. 42	4.9 3	0.9 9	0.3 8	0. 02	0. 07	- 2.71	- 0.24
ELE	0.2 1	0. 7	0.4 6	7.4 4	2.0 1	0. 59	0. 45	-0.1	0.61
TRA NS	0.3 4	0. 16	1.9 3	4.0 6	0.4 2	0. 01	0. 09	2	- 0.29
OTH	0.0 2	0. 06	0.0 3	0.2 4	0.0 4	0. 02	0. 01	0.08	0

Data Source: Based on the simulation results of GTAP10.0 software

Table 7. Change rate of import and export and domestic sales of various manufacturing industries in China Unit:%

Industr y group	Import			Export		
	amou nt	Pric e	quantit y	amou nt	Pric e	quantit y
FBT	5.59	0.03	5.56	8.6	0.34	8.32
TWL	13.57	- 0.87	14.46	2.9	0.22	2.74
WPP	2.54	- 0.02	2.55	-2.65	0.28	-2.91
OMF	1.61	- 0.17	1.77	4.57	0.28	4.36
RP	9.57	0.05	9.47	2.86	0.25	2.66
Coal	2.21	- 0.21	2.41	2.87	0.22	2.69
CP	3.73	- 0.11	3.8	4.52	0.22	4.34
ELE	1.95	0.04	1.88	-0.52	0.21	-0.7
TRAN S	1.73	- 0.17	1.88	3.61	0.25	3.53
OTH	1.03	- 0.11	1.52	2.51	0.4	2.2

Data source: based on GTAP10.0 software simulation results

It can be seen from Table 8 below that the import of China's manufacturing industry segments from the RCEP member countries will increase. Specifically, the food and beverage tobacco products, rubber and plastic products, textile and clothing leather products industries have changed significantly. Among them, the trade volume of textile, clothing and leather products imported from Japan, South Korea, Australia, New Zealand and ASEAN increased by 6.38%, 10.65%, 10.7%, 10.36% and 15.09% respectively. At the same time, it can be seen that the import of China's manufacturing industry to countries or regions outside the region such as the United States and the European Union has decreased to a certain extent. The import of food and beverage tobacco products, rubber and plastic products, mineral products, chemical products and essential drugs to the United States, the European Union and other parts of the world all showed negative changes.

The import of China's manufacturing segments shifted to the RCEP member countries.

One reason for this situation is that Japan and South Korea are advanced material manufacturing centers, Japan has strong industrial scale and competitiveness in mechanical parts, while Australia, New Zealand and ASEAN countries are important producers of raw materials and other primary products. After the formal implementation of the RCEP agreement, the manufacturing exports of member countries have increased to some extent. On the other hand, the reason is that after the entry into force of the RCEP, the rules of regional accumulation of origin are implemented. The raw materials of other member countries put into use by enterprises of one country in the production process can be counted into the original materials of the country for the accumulation of regional value components, so that the export products of member countries can more easily enjoy the preferential tariff treatment in the agreement, thus expanding the scale of intraregional trade, Promote the adjustment of the industrial chain value chain division pattern in the RCEP region.

Table 8. Change rate of trade volume of manufacturing products imported by China from RCEP member countries Unit:%

indu stry	EU								Restof World
	JP N	K O R	A U S	N Z L	I N D	U S A	AS EA N	- twe nty- seven	
FBT	2.8 2	6.1	6.5 8	2.8 1	- 1.37	- 0.45	2.71	- 0.12	-0.36
TW L	6.3 8	10. 65	10. 7	10. 36	0. 95	0. 12	15.0 9	- 0.19	-0.44
WP P	1.8 2	3.6 9	0.6	0.1 4	0. 72	0. 53	1.79	- 0.12	-0.39
OM F	11. 15	17. 4	- 12. 91	5.7 2	- 98	- 64	8.12	- 0.28	-0.46
RP	8.4 9	8.3 4	4.9 9	7.6 1	1. 07	0. 72	4.86	- 0.17	-0.41
Coal	2.7	5.1 1	0.4 7	0.5 2	0. 1	0. 12	1.31	- 0.01	-0.16
CP	1.1 9	4.6 2	1.6 2	1.5 8	0. 61	0. 23	1.79	- 0.13	-0.22
ELE	1.5 4	1.6 8	0.9 1	1.7 9	0. 97	0. 69	0.97	- 0.15	-0.36
TRA NS	2.0 9	2.6 9	3.1 5	0.3 5	0. 51	0. 15	2.49	- 0.15	-0.18
OT H	0.2 7	2.3 5	2.0 2	1	0. 28	0. 18	2.15	- 0.15	-0.32

Data source: based on GTAP10.0 software simulation results

As can be seen from Table 9, after the formal entry into force of the RCEP agreement, the export of China's manufacturing industry to other member countries of the RCEP will increase on the whole. For Japan, the export of food and beverage tobacco products, textile and clothing leather products, rubber and plastic products, chemical

products and essential drugs will change significantly, with 4.12%, 21.27%, 4.22% and 2.75% respectively. The RCEP agreement is the first trade agreement reached between China and Japan. The scale of bilateral trade between China and Japan is huge, and the trade commodities are mainly electronic and mechanical products, automobiles and optical products. After the entry into force of the RCEP agreement, Japan mainly implemented further tariff reductions in the fields of agricultural products, food, clothing and chemical industry. The implementation of the RCEP agreement will expand the development scale of trade in goods between China and Japan, optimize the division of labor in the value chain between the two countries, and further strengthen the trade links between the two countries. It can be seen from Table 9 that among the manufacturing products exported by China to the member countries of RCEP, the decline of wood-paper products and printing products is relatively obvious, mainly due to the increase of the production costs of China's domestic paper enterprises and the decrease of the import tax rate of the primary paper and paperboard products. By 2020, the total import scale of wood-paper products will significantly exceed the export scale. In general, with the formal entry into force of the RCEP Agreement, China's manufacturing exports to the RCEP member countries will increase, and the exports of regional foreign countries, such as the United States and the European Union, will decrease accordingly, resulting in trade creation and trade transfer effects, and from the perspective of change ratio, the trade creation effect is greater than the trade transfer effect.

Table 9. Change rate of trade volume of manufacturing products exported by China to RCEP member countries Unit:%

indu stry	JPN	K O R	A U S	NZ L	IN D	U S A	ASE AN	EU_ twe nty- seve n	Restof World	
FBT	4.1 2	17. 75	1.3 8	3.0 6	0. 42	1.0 4	-0.25	- 0.19	-0.1	
TWL	21. 27	4.3 6	4.2 1	- 6.0	- 7	3. 94	4.3 1	16.5 7	- 1.97	-4.05
WPP	0.3 9	0.9 3	7.9 4	1.0 7	0. 92	0.	0	6.27	0.07	0.16
OMF	1.3 8	8.5 6	1.4 3	10. 07	1. 52	4.1 5	-4.47	- 0.91	-0.76	
RP	4.2 2	6.4 1	6.0 1	2.3 5	0. 26	1.1 1	3.12	- 0.21	-0.35	
Coal	0.4 4	3.4	3.5 3	2.9	0. 4	0.1 4	0.07	-0.1	-0.17	
CP	2.7 5	11. 35	2.2 3	2.3 1	0. 47	0.5 2	-2.14	- 0.31	-0.48	
ELE	2.1 6	1.5 7	4.3 5	0.0 9	1. 19	0.3 9	0.39	0.74	0.81	
TRAN S	0.0 5	2.2 1	6.2 5	1.9 3	0. 18	0.4 8	6.35	-0.4	-0.12	
OTH	3.0 3	0.9 2	1.1 9	0.8 5	0. 51	0. 1	1.19	0.13	0.04	

Data source: based on GTAPI10.0 software simulation results

## 4. Conclusion and suggestion

### 4.1 Research conclusion

This paper uses the GTAP model to simulate the impact of rules of origin on China's manufacturing industry after the entry into force of RCEP. The results show that:

1. The entry into force and implementation of the RCEP agreement will bring significant opportunities and challenges to the development of the manufacturing industry. From the perspective of industrial production, China's industries with obvious industrial advantages, such as textiles and clothing, will benefit from this; From the perspective of import and export scale, after the entry into force of the RCEP, China's imports from member countries in the region have increased significantly in rubber and plastic products, mineral products, transportation equipment and other industries, while the industries with larger export growth are food, beverage, tobacco products, textile, clothing and leather products. Overall, the entry into force of RCEP will help China to promote the development of new trade markets, improve the competitiveness of the manufacturing industry, accelerate the "going out" of Chinese manufacturing enterprises, and also help RCEP member countries to expand the economic and trade scale, stabilize and optimize the supply chain of the industrial chain in the RCEP region, and "introduce" the investment of RCEP member countries in China's manufacturing industry, but at the same time, China also needs to strengthen scientific and technological research and development as soon as possible to improve the level of industrialization and technological competitiveness.

2. The implementation of cumulative rules of origin is a major breakthrough of RCEP, which can effectively offset the adverse impact of the rules of origin restrictions set by CPTPP on the development of Chinese export enterprises, and at the same time make multinational companies have greater flexibility and autonomy in adjusting the layout of the industrial chain. According to the simulation results in this paper, after the implementation of the rules of origin accumulation in RCEP, Chinese manufacturing enterprises can make more use of the raw materials and intermediate products in the region, so that it is easier to reach the regional value components to enjoy preferential tariff treatment in RCEP. The import and export trade scale of Chinese manufacturing industry to most of the member countries in the region will expand, but at the same time, Chinese manufacturers of raw materials and intermediate products will also experience more fierce competition. For this reason, China should consider how to make better use of its comparative advantages to stand out in the fierce manufacturing competition in the region.

### 4.2 Countermeasures and suggestion

Based on the previous conclusions, this paper tries to put forward the following suggestions.

First, we should seize the opportunity brought by the entry into force of the agreement. By implementing rules of origin, we can enjoy preferential tariff treatment more quickly and conveniently, promote trade cooperation

among RCEP member countries, strengthen the resilience of the regional industrial chain supply chain, accelerate the reform of China's relevant institutional mechanisms, improve the management measures of origin, and improve and improve relevant business processes in a targeted manner to better enjoy the policy dividend after the agreement comes into force and implementation. Relevant manufacturing export enterprises can appropriately adjust the source of raw materials in the production of products according to the tariff reduction of goods in the RCEP agreement corresponding to the specific export products, and appropriately increase the proportion of raw materials used in the region in combination with the comparative advantages of the RCEP member countries.

Second, accelerate the promotion of high-end manufacturing in China. Quickly adapt to the new trade system and new competitive environment in the region after the entry into force of the RCEP Agreement, accelerate the process of trade liberalization, continuously improve the quality of China's products, and enhance its market competitiveness in global manufacturing trade. Relevant manufacturing enterprises in China can make full use of the preferential tariff policy of RCEP and the rules of origin accumulation to expand the export of advantageous products such as textile and clothing products, electronic and mechanical products, automobile and parts products, and open up new trade markets. In addition, after the final export products meet the standards of origin, relevant export enterprises can include them as product advantages in business cooperation, Share the benefits of tariff concessions with enterprises in the importing country by adjusting pricing.

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