

Analysis of Trade Competitiveness and Trade Similarity between China and ASEAN from the Perspective of Intra-industry Trade

Jinli Tang

College of Marxism, Yuxi Normal University, Yunnan Yuxi, 653100

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Abstract: The major ASEAN countries and China are still both developing countries, which have certain similarities in economic development level, industrial structure and export trade structure. This similarity makes it possible for major ASEAN countries to compete with China in export trade to a certain extent. The strength of trade competitiveness can reflect the current situation and existing problems of a country's economy to a certain extent. Lack of competitiveness is considered as a potential factor that causes a country's crisis, and improving competitiveness is conducive to the recovery and development of a country's economy. Based on the perspective of intra industry trade, this paper analyzes the characteristics of bilateral trade development between China and ASEAN, and analyzes the bilateral trade relationship between China and ASEAN from the aspects of trade competitiveness and trade similarity. It is found that there is a great similarity between the export trade structure of China and ASEAN, and the competitiveness of bilateral trade is far more than complementarity.

1. Introduction

Since the 21st century, the relationship between China and ASEAN in political, economic and other fields has become increasingly close. Especially since the relevant agreements of China ASEAN free trade area have played a practical role, the implementation of a series of measures, such as tariff reduction, trade barrier reduction and Service Openness enhancement, has made the importance of China and ASEAN to each other rising [1]. The healthy and sustainable development of China's domestic economy has played a considerable role in the economic recovery of Southeast Asian countries after the crisis. In addition, the Chinese government's help to Southeast Asian countries during the crisis has won the trust of ASEAN countries and enhanced China's influence in Southeast Asia [2]. The strength of trade competitiveness can reflect the development status and existing problems of a country's economy to a certain extent. Lack of competitiveness is considered as a potential factor causing a country's crisis, and improving competitiveness is conducive to the recovery and development of a country's economy [3]. The main ASEAN countries and China are still developing countries, and have certain similarities in the level of economic development, industrial structure and export trade structure [4]. This similarity makes the main ASEAN countries and China in export trade may have a certain degree of competition [5]. With the rapid development of bilateral economic and trade cooperation, the trade competitiveness of China and ASEAN has also changed.

Since the 1960s, the major ASEAN countries and China's economies have taken off successively and have achieved rapid development that has attracted the attention of the world. The economic competitive relationship between China and ASEAN countries makes the China-ASEAN Free Trade Area to be established may obtain an integrated trade creation effect, and the complementary relationship will play a positive role in promoting the process of the free trade area [6]. There are great similarities in the export trade structure of China and ASEAN, and the competitiveness of bilateral trade far exceeds complementarity. The trend of convergence in the export structure between China and ASEAN is becoming more and more obvious. It reflects the similar evolutionary path of the two parties in the adjustment of the industrial transfer and transfer of the international division of labor. This means that the increasingly strong export competition between China and ASEAN has a

long-term nature. [7]. By comparing and studying the trade competitiveness of China and ASEAN, it can provide new ideas and theoretical research basis for improving the competitiveness of both sides, deepening the economic and trade cooperation between the two sides in the future, and finding new cooperation space [8]. Based on the perspective of intra-industry trade, this article analyzes the characteristics of China-ASEAN bilateral trade development, and analyzes the bilateral trade relationship between China and ASEAN in terms of trade competitiveness and trade similarity.

2. Intra industry trade level

China has the strongest comparative advantage in leather products, clothes and textiles, followed by miscellaneous manufactured goods and electronic products with lower processing degree and added value. Intra-industry trade means that a country imports and exports basically the same products at the same time. This trade phenomenon is different from the traditional inter-industry trade, and this form of trade occupies an increasing proportion in the trade of many countries, especially developed countries. Table 1 shows the comparative advantages of some export products between China and ASEAN.

Table 1 Comparative advantages of some export products between China and ASEAN

	China	Indonesia	Malaysia	Thailand
Wood products	0.51	3.26	1.21	0.58
Minerals	0.31	2.54	0.81	0.31
Leatherware	4.64	2.61	0.25	2.16
Clothing	4.26	2.4	0.81	1.69
Fresh food	0.84	1.36	0.38	2.46
Processed food	0.65	1.27	1.33	2.04
Clothing	4.39	2.37	0.88	1.69
Textile	2.54	2.38	0.52	1.26
Chemical products	0.53	0.56	0.47	0.71
Basic manufacturing	1.08	0.74	0.51	0.69
Electronic product	1.81	0.99	3.24	1.83

From the analysis of explicit comparative advantage index between China and ASEAN countries, it can be seen that the products with explicit comparative advantage between China and ASEAN are textiles and clothing products with high labor intensity, which also have high comparative advantage in electronic products, but have no significant comparative advantage in capital and technology-intensive products. Although there are differences in the explicit comparative advantage index between China and ASEAN in the selected industries and product series, their export product structures are very similar. China has obvious disadvantages in resource intensive products, chemical products, transportation equipment and non-electronic mechanical products [9]. The improvement of intra-industry trade level in consumer goods sector shows that with the improvement of economic development level between China and ASEAN, people's demand for various consumer goods is becoming increasingly diversified. Because of its rich natural resources, Indonesia has obvious comparative advantages in resource-intensive products, while Indonesia's comparative advantages in labor-intensive products such as clothing and textiles are also obvious. According to industrial economics theory, the upgrading level of a country's industrial structure is closely related to its economic development level, especially the per capita income level. Thailand's export structure is very similar to Indonesia's. As a major agricultural exporter in the world, Thailand's food industry is very competitive in the world, while its mineral products and wood products are at a disadvantage compared with Indonesia's [10]. Because the time of economic take-off, their initial economic development, resource endowment conditions, the level and speed of accumulation of production factors, the external economic environment and the economic development policies adopted by China and ASEAN major countries are not completely the same, there are certain differences in the current economic development levels of different countries. Malaysia has a strong comparative

advantage in electronic products, which may be inseparable from the Malaysian government's policy of vigorously developing high-tech products in recent years.

3. Trade similarity analysis

The export product similarity between China and ASEAN countries such as Indonesia, Philippines and Thailand is increasing year by year. The export product similarity between China and Singapore reached the highest level in 1960s and reached the lowest point in the mid-1980s. In recent years, the export similarity between the two countries has gradually increased. With the deepening of the international division of labor and the growing global value chain, the production of a product can only be finally completed through many countries and different production links. Therefore, its total value includes not only the domestic value, but also a large part of foreign value or repeated calculation items of intermediate products flowing across borders for many times.

Trade similarity index measures the similarity of products exported by any two countries or two groups of countries in the third world market or the world market, and its calculation method is as follows:

$$S(ij, w) = \left[\sum_k \text{Min} \left(\frac{X_{iw}^k}{X_{iw}}, \frac{X_{jw}^k}{X_{jw}} \right) \right] \times 100\% \quad (1)$$

Price terms of trade reflect the import capacity of a country's export unit, that is, how many units of imported goods can be exchanged for one unit of exported goods. Trade subsidy system can help individuals to develop trade opportunities, as shown in Table 2 for the empirical analysis of trade policy and trade attitude.

Table 2 Empirical analysis results of trade policies and trade attitudes

Variable	Perceptual skills	Perceived opportunity	Willingness to trade	Fear of failure
Trade education	0.075	0.344	0.066	0.299
Trade environment	0.033	0.092	0.044	0.030
Type of economy	0.031	0.084	0.081	0.053

In which s represents export similarity, I and j represent any two countries to be compared, w represents third market or world market, x represents export, and k represents product. Primary products, resources and knowledge-intensive services such as financial intermediary services. China and ASEAN have strong trade returns. In the future, we can continue to strengthen trade exchanges and cooperation in this field, realize complementary advantages and expand each other's export markets. Even after the establishment of the free trade zone and the substantial reduction of bilateral tariffs, the existing foreign trade pattern between China and ASEAN will not change greatly due to the restriction of the overall economy. The export products of various countries will still be labor-intensive or resource-intensive, and the export markets will still be concentrated in the markets of developed countries such as the United States, Europe and Japan. For example, Table 3 shows the export similarity index between China and five ASEAN countries from 2016 to 2019.

Table 3 2016-2019 China and the five ASEAN countries export similarity index

	Singapore	Indonesia	Philippines	Malaysia	Thailand
2016	38.4	46.8	42.3	41.9	56.3
2017	39.7	42.9	42.1	41.2	52.9
2018	40.2	43.5	40.5	38.2	50.3
2019	40.9	50.7	39.7	37.6	51.7

From the perspective of time, China's export similarity with Singapore and Thailand is steadily increasing, while the export similarity index with Indonesia and Malaysia fluctuates to some extent, while the export similarity index with the Philippines shows a downward trend. Despite this, the market size of China and ASEAN countries is still small on the whole. For China or ASEAN countries, each other's market does not have a pivotal position [11]. China should formulate different policies for different countries and industries in order to promote cooperation with ASEAN countries. Competition can't be completely avoided, and it can promote development, which is also respected by the theory of economic integration. The trade yield of China's exports to ASEAN countries has decreased to varying degrees, and Malaysia is the biggest one, indicating that the value of China's exports to Malaysia from abroad has increased, which may be due to the increased demand for high value-added intermediate inputs in the production of export products. The export products of China and ASEAN have great similarities, which are increasing in recent years. This also shows that China and ASEAN have similar industrial structures and compete in many fields. The convergence of export structure between China and ASEAN is becoming more and more obvious, which means that China will encounter more and more strong competition from ASEAN in the export market for a long time to come. In view of the current situation of trade revenue decomposition between China and ASEAN, China and ASEAN can formulate different strategies according to different industries in future bilateral trade cooperation.

4. Conclusions

The strength of trade competitiveness can reflect the current situation and existing problems of a country's economy to a certain extent. Lack of competitiveness is considered as a potential factor that causes a country's crisis, and improving competitiveness is conducive to the recovery and development of a country's economy. The export structure of China and ASEAN countries is similar and competitive to some extent, but it also shows great differences. From the analysis of explicit comparative advantage index between China and ASEAN countries, it can be seen that the products with explicit comparative advantage between China and ASEAN are textiles and clothing products with high labor intensity, which also have high comparative advantage in electronic products, but have no significant comparative advantage in capital and technology-intensive products. In view of the current situation of trade revenue decomposition between China and ASEAN, China and ASEAN can formulate different strategies according to different industries in future bilateral trade cooperation. China's international competitiveness in service trade obviously lags behind ASEAN countries. If China wants to enhance the competitiveness of service trade, it can start with China-ASEAN Free Trade Area. Although the bilateral trade between China and ASEAN has grown rapidly in recent years, its total volume is still relatively small, and its proportion in their respective total import and export trade is not large. With the economic development of various countries and the deepening of economic cooperation between the two sides, the bilateral trade capacity between China and ASEAN still has room to expand.

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