

Research on Sino-US Intra-Industry Trade in Service Industry

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Abstract: Firstly, this paper introduces the method to measure the degree of intra-industry trade quantitatively, and further divides the intra-industry trade according to different directions. This paper chooses the data of Sino-US trade in services from 2013 to 2018 and uses GL index to analyze it. It draws a conclusion that Sino-US trade in services is dominated by intra-industry trade. The level of intra-industry trade in transport, tourism and communication services is relatively high, while financial services, computer and information services, patent royalties and licensing fees and other services show obvious characteristics of inter-industry trade.

1. Introduction

With the decline of economic growth, countries are actively exploring new economic development models. Many scholars believe that service economy can be a new engine and driving force leading the recovery and growth of the world economy. OECD statistics show that China's service trade level is lower than the international average, which is a major disadvantage in China's current development process. However, China has enormous market potential in the service industry. Data show that China is experiencing rapid development of service trade in recent years (Miroudot and Shepherd, 2013). With the establishment of Shanghai Free Trade Area and the further elimination of barriers to international trade in services, China is actively meeting the challenges of the international market with a more open attitude. How to develop is a problem that all countries are considering. A large number of documents (Bhagwati and Jagdish, 1987; Kumar, 1990; Breinlich and Criscuolo, 2010) believe that intra-industry trade is one of the important characteristics of international trade in services. Therefore, this paper will select China and the United States as the research object, using empirical analysis method, mainly from the perspective of intra-industry trade to analyze international trade in services.

With the establishment of Shanghai Free Trade Area and the further elimination of barriers to international trade in services, China is actively meeting the challenges of the international market with a more open attitude. Since this year, China has put forward a new development strategy, taking the service economy as a new driving force to promote social progress, and vigorously supporting the development of service export and service outsourcing. At present, China has become the world's

second largest service outsourcing recipient country, and according to the current development rate, it is likely to become the largest recipient country in the near future. Thus, the status of service trade in China's foreign trade is gradually improving. As of 2018, the United States is the largest exporter of service trade in the world. However, industry statistics show that the United States still has huge export space and growth potential. Therefore, the United States can use vigorous measures to develop service trade to promote employment and revive the economy. However, due to the failure of the Doha Round negotiations of the World Trade Organization, countries have not yet reached a favorable consensus on international trade in services, which seriously restricts the development of international trade in services. Therefore, developed countries represented by the United States are actively seeking other negotiation options.

In short, the service industry is the focus of the development of today's society, but how to develop it is a problem that all countries are considering. Intra-industry trade is one of the important characteristics of international trade in services. Therefore, this paper chooses China and the United States as the research objects, uses empirical analysis method, mainly from the perspective of intra-industry trade to analyze international trade in services.

2. Research Method

At present, in the research field of intra-industry trade, most scholars choose Grubel-Lloyd index (2010) to quantify the level of intra-industry trade. The GL index can explain a country's trade pattern very well, so it is also the main measure used in this paper. The formula for calculating GL index is as follows:

$$GL_i = 1 - |X_i - M_i| / (X_i + M_i) \quad (1)$$

In this formula, i denotes a specific industry, X_i denotes the export volume of i industry and M_i denotes the import volume of i industry. The value of GL_i is $[0,1]$. The larger the value, the higher the intra-industry trade level of the industry. When the GL index is greater than 0.5, we can think that the trade of this industry mainly exists in the form of intra-industry trade. On the contrary, when the GL index is less than or equal to 0.5, the trade of this industry mainly exists in the form of inter-industry trade. Formula (1) can also be used to calculate the overall intra-industry trade level of a country's service trade. The formulas are as follows:

$$GL = \sum_i \omega_i GL_i = \sum_i \omega_i [1 - |X_i - M_i| / (X_i + M_i)] \quad i=1,2,\dots,T \quad (2)$$

Among them, ω_i represents the proportion of the import and export volume of i industry in the total import and export volume, $\sum_i \omega_i = 1$. According to the different directions of intra-industry trade, intra-industry trade can be further divided. When an industry in a country is recognized as intra-industry trade and its export is larger than its import, it is considered to be a super intra-industry trade. At this time, it is recognized as an industry with international competitiveness. On the contrary, in order to enter the super-type intra-industry trade, the international competitiveness of the industry is poor at this time.

3. Data Analysis

3.1. Overview

The data used in this paper are from the United Nations Statistical Database. The six-year service

trade data from 2013 to 2018 are selected as the object of analysis. The GL indices of China and the United States and the GL indices between China and the United States are calculated through the import and export volume under each item. The specific data are shown in Table 1.

Table 1. Statistics on the Overall Intra-industry Trade Index of Sino-US Service Industry.

Year	2013	2014	2015	2016	2017	2018
China	0.7468	0.7920	0.8195	0.7700	0.7228	0.6797
USA	0.7028	0.6945	0.6928	0.6878	0.6779	0.6901
Sino-US	0.6167	0.6550	0.6837	0.6475	0.6037	0.5824

Data Source: Based on relevant data from the United Nations Trade in Services Database.

As can be seen from Table 1, the average value of Sino-US intra-industry trade index is 0.64, which is at a high level. It can be concluded that Sino-US service trade mainly exists in the form of intra-industry trade. However, the GL index between China and the United States is lower than their respective GL index, indicating that the intra-industry trade level of services between China and the United States is lower than their respective average level, and there is still room for further development. The export of service trade in the United States is larger than that of import. In order to exceed intra-industry trade, while China is entering super-industry trade. It can be seen that compared with developed countries, China, as a developing country, still has no international competitiveness in service trade (Sampson and Snape, 2010). It is noteworthy that the GL index of the United States has been flat in recent years, but the change of China's GL index shows an inverted V shape, reaching its peak in 2008. The reason is that the change of import and export volume of the United States is relatively balanced, while after 2008, China's export growth rate is not as good as import, and the international competitiveness of service trade has further declined.

3.2. Analysis of Intra-Industry Trade in Different Industries of Service Industry

This paper chooses the data of service trade from 2013 to 2017 for analysis and calculation, and the GL index is shown in Table 2. Most industries have been affected by the financial crisis, and the GL index has a certain degree of shocks. The GL index of transportation, tourism, communication services and other commercial services is higher, which belongs to intra-industry trade, while that of insurance, finance, computer and information services, patent royalties and franchise fees, private culture and entertainment services is lower, and the main form of trade is inter-industry trade (Mattoo et.al., 2006).

Table 2. Sino-US intra-industry trade index of service trade.

Year	2013	2014	2015	2016	2017
Transportation	0.6203	0.6917	0.9220	0.9795	0.9876
Travelling	0.8264	0.7990	0.6611	0.5978	0.5328
Communication Service	0.8491	0.7898	0.8789	0.8085	0.7830
Insurance Service	0.1538	0.2712	0.9123	0.3908	0.4598
Financial Service	0.1322	0.1715	0.2970	0.1674	0.1683
Computer and Information Service	0.5596	0.4444	0.3891	0.4126	0.4010
Fee for Exploitation of Patent and Franchise	0.1108	0.1111	0.1189	0.1059	0.1003
Other Business Service	0.5714	0.9048	0.9087	0.9927	0.9615
Private, Cultural and Entertainment Service	0.6328	0.4817	0.4950	0.4000	0.4026

Data Source: Based on relevant data from the United Nations Trade in Services Database.

3.2.1. Analysis of Intra-Industry Trade in Transport Industry

The GL index of transport industry experienced a leap in 2008, rising by 33%, reaching 0.99 by 2010, which is a high level of intra-industry trade. Driven by trade in goods, China's transport service trade is experiencing rapid development. Although China's transport industry has been in a deficit, the export growth rate has exceeded the import rate. By contrast, the transportation industry in the United States has matured, growing slowly, and the impact of the financial crisis on the United States far exceeds that of China (Sapir, 2010). This series of reasons led to the rise of GL index of Sino-US transport service trade, and the trend of intra-industry trade became more and more obvious.

3.2.2. Analysis of Intra-Industry Trade in Tourism Industry

China and the United States have abundant tourism resources. Tourism trade has been in surplus all the year round and has strong international competitiveness. The trade in tourism services between China and the United States is a surplus of the United States and a deficit of China. Although both China and the United States are large countries in tourism service trade, the average consumption level of American tourists to China is lower than that of Chinese tourists to the United States, and the foreign exchange earning level of Chinese tourism is not high (Dee, 2005). The reason is that with the rapid growth of China's GDP, Chinese people have stronger consumption capacity, and because of the change of ideas and tariff differences, Chinese tourists are more inclined to buy high value-added goods abroad.

3.2.3. Analysis of Intra-Industry Trade in Financial Services

The GL index of financial services has been at a very low level. There is a high deficit in financial services projects in China, and the deficit is expanding. It can be seen that there is a significant gap between China's financial industry and developed countries. However, with the continuous opening of China's financial market, the United States Financial institutions have actively entered the market, making use of their advanced technology, perfect management model and international visibility to continuously expand market share. On the contrary, the process of Chinese financial institutions entering the United States is not smooth, but with the overseas expansion of Chinese enterprises and the improvement of the international status of RMB, Chinese financial institutions are also actively trying to go abroad.

3.2.4. Analysis of Technology-Intensive Intra-Industry Trade

The average GL index of computer and information services between China and the United States in five years is 0.44, while the average of patent fee and royalty fee is lower, 0.11, which does not belong to intra-industry trade. Compared with developed countries such as the United States, China's technological level is still relatively backward. Most of the products produced in China are in the mature and recession period. During this period, the products have changed from technology-intensive to capital-intensive (Kimura, 2006). Therefore, China's export of patent fees and licensing fees has been at a low level. In the process of undertaking American service outsourcing in our country, information technology outsourcing has always occupied a very large proportion. With abundant human resources and low development costs, China has great advantages in the development and production of non-core information services. Therefore, the form of inter-industry trade in technology-intensive industries between China and the United States will not change much in a short time.

4. Conclusion and Suggestions

4.1. Conclusion

Sino-US intra-industry trade in service industry is generally a relatively high form of trade, but there is a certain gap between China and the United States in terms of their respective overall trade level. This shows that the technological differences between China and the United States are still large, and the proportion of vertical division of labor is greater than the average level of the two countries. Within the various sectors of service industry, in general, the level of intra-industry trade in technology-intensive industries is generally lower than that in labor-intensive industries. The GL index from 2013 to 2018 shows that the main industries in the form of intra-industry trade are transport services, communication services, tourism services and other commercial services, accounting for 78% of the total trade between China and the United States, while the other industries mainly exist in the form of inter-industry trade, mainly in the form of vertical division of labor.

From the point of view of dynamic change, the GL index of transport industry is increasing year by year, and the level of intra-industry trade is rising continuously. The GL index of tourism industry is declining year by year, and the trend of vertical division of labor is gradually obvious. Generally speaking, there is no obvious trend of expansion or reduction of Sino-US intra-industry trade in services (Francois, 2010).

4.2. Suggestions

At the end of this paper, we propose three suggestions to help China improve its advantage in Sino-US intra-industry trade in service industry as following:

(1). Improving the structure of intra-industry trade in services

China's trade in services is still in the initial stage of development. The intra-industry trade between China and the United States is mainly concentrated in labor-intensive industries such as transportation, tourism and communications, while the technology-intensive industries mainly rely on imports. China has exploited the international low-end market with cheap labor, but the added value of the market is low and has become saturated. Therefore, China should actively adjust the trade structure of service industry, promote product innovation and refinement, and enhance the level and level of products while consolidating its inherent advantages. China can adopt the policy of regional differentiation. In developed coastal areas, while guaranteeing the advantages of transportation and tourism, China can promote the trade of financial and insurance services, reduce trade barriers, actively study foreign advanced business models and enhance its competitiveness. In economically underdeveloped areas, China can take preferential measures such as taxation to guide the healthy development of service industry. In areas rich in tourism resources, we should increase investment and publicity in tourism, standardize the behavior of tourism practitioners, create a good tourism atmosphere, encourage scientific research in areas rich in educational resources, and promote the evolution of research results into market products, so as to inject new force into product innovation. China needs to change the idea of emphasizing goods over services and putting services in an important position of development.

(2). Opening up China's Service Industry in an orderly and gradual manner:

At present, there are still many barriers to trade in service industry in China. In the long run, reducing trade barriers will help the development of service industry in China. However, the immediate and comprehensive opening of service industry will strike at immature industries in the short term. Therefore, the opening of service industry in China should be carried out step by step in an orderly manner. While opening up the market step by step, China should strengthen the

construction of relevant domestic laws and systems, provide different policy guidance according to the development status of different industries in service industry, pay attention to the international rules and standards of service trade, actively guide our service industry to access international standards smoothly, and reduce the number of enterprises in China. Barriers to the world.

(3). Continue to optimize the income distribution system, reduce the gap between the rich and the poor, strive to improve the per capita income level and promote domestic demand:

At present, the gap between the rich and the poor is large, domestic demand is insufficient and consumption structure is unreasonable, which will hinder the development of China's service trade. With the rapid development of China's economy, the income level of Chinese residents has been greatly improved, but there is still a gap with developed countries, which leads to insufficient demand for service industry. The fundamental way to develop service industry trade is the development of China's economy. With the improvement of the level of economic development, China's service industry trade, and the level of development will also increase.

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