Analysis of the Influential Factors of International Service Trade in China—Based on the Trade Gravity Model

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Abstract. Recently, the International Service Trade (IST) plays an increasingly vital role in the world economy. It is of great work to analyze the influential factors of IST, and to find out scientific and proper solutions to the problems in this field. This study is aimed at testifying the feasibility of applying the Trade Gravity Model (TGM) in analyzing the influential factors of IST, which suggests the amount of bilateral IST is negatively related to the distances and positively related to their GDPs; with increasing similarities in economic size of the two countries, trade in services increases; Besides, with development of their service industry of partners, the total amount of export and import in services increases. However, although the service industry in China indicates an increasingly upward trend, there is no positive relationship with the export of our service industry. Therefore, this article recommends laying emphasis on the rapid development of service industry, in order to balance the relationship between service industry and manufacture industry, promote the technology, capital, and knowledge oriented service.

Introduction

In the context of service trade, China has already gathered much more advantages in the field of labor-intensive services, such as shipping and tourism, while less reliance on information industry, computer science, finance and insurance industry, which do not have enough competitiveness in the world service trade market. In relation with trade service, it is not compatible with the knowledge, technology-oriented development trends. So more efforts should be made in the Chinese service trade to increase the competitiveness in the world services market. This paper discusses the influential factors in Chinese services trade by trade gravity model, and propose corresponding development strategy.

Analysis Influential Factors on International Service Trade based on Trade Gravity Model

The trade gravity model suggests the bilateral trade is positively related to the size of both economic entities. We introduced $r^i$ and $r^w$ in gravity model to represent the proportion of output in service sector to the total output of country i and to the whole world’s service sector output respectively. We also introduce C,\ldots, j=1,i to represent different countries, and introduce N,\ldots, k=1 to represent different categories of service products. So we use $y^i k$ to represent the output of country i’s service sector. If two countries can trade freely without any barriers, the prices of services are the same in different countries. To standardize the price as “1”, the output of service k’s prices in country i can be expressed as $y^i k$, so $Y^i = \sum_n^{\infty} = 1 y^i k$ can be used to express country i’s GDP, the world’s output can be represented as $Y\text{w} = \sum_i^C = 1 Y^i = \frac{1}{r^w} \sum_i^C = 1y^i$. Then, $s^j$ can be used to express the proportion of country j’s expense to the world’s total expense, which means if all the countries make ends meet, the proportion of country j’s GDP to the world’s GDP.
can also be expressed as $s^i$, that is $s^i = \frac{y^j}{y^w}$. Suppose all countries have similar supply and demand in service products, the services exports from country i to country j can be evaluated using the equation:

$$X_{ij}^i = s^i y_k^i$$ (1)

The service products $k$ in the equation (1) can be calculated, and the total service exported from country i to country j is:

$$X_{ij}^i = \sum_k X_{ij}^k = s^i \sum_k y_k^j = r^i s^j y^i = \frac{r^i y^j y^i}{y^w} = r^i y^w s^j s^i$$ (2)

At the same time, it can be calculated that the total amount of services exported from country j to country i is:

$$X_{ij}^j = \sum_k X_{ij}^k = s^j \sum_k y_k^j = r^j s^i y^j = \frac{r^j y^i y^j}{y^w} = r^j y^w s^i s^j$$ (3)

As what can be inferred from the Trade Gravity Model: First, the sum of proportion of service sector output in both countries are positively related to the bilateral service trade amount; Second, the proportion of service sector output of a country is positively related to the its service export.; Finally, the GDP of both countries are positively related to bilateral service trade amount.

**Conclusion of Trade Gravity Model and Developing Strategies**

Based on the standard Trade Gravity Model, we have deeply analyzed the influential factors of the service trade between two countries by illustrating a series of influential factors, such as economic size and industry structures, and shows: First, the amount of bilateral service trade is positively related to the GDPs of both countries, and is negatively related to the distance. Second, with the increasing of similarities in economic sizes of both countries, trade in service sector increases. Last but not least, after our trading partners develop their service industry, it will increase both export and import of services in our country. However, even the service industry in China shows an increasingly upward trend, but no positive relation to the export of our service industry.

According to the results of the above empirical analysis and the status quo of China's foreign service trade development, we put forward the following development strategies:

First, in the development of service trade, more emphasis should be put on the service sector, since it is so crucial to the development of macro economy. So, at the time of developing the manufacture industry, promoting the development of service sector could balance the economic structure, lead to a benign interaction. Only in this way can we further promote the rapid development of China's economy.

Second, China's service trade-related management departments should establish a sound mechanism for technological innovation, to develop and implement a sound intellectual property protection program according to the actual situation of China's foreign trade in services development, to encourage and support China's producer services enterprises in the development process to increase scientific and technological research and development efforts, to introduce foreign advanced production technology and service theory, to further enhance the comprehensive strength of China's productive service enterprises. In addition, the producer service enterprises should also be encouraged to further strengthen the communication between enterprises in different forms, such as strategic alliance, to promote the coordinated development between enterprises, and improve the "Learning by Doing" effect, to gradually strengthen their core competitiveness in the
market competition in some key areas, and to enhance their awareness of independent intellectual property rights.

Third, China's government departments should increase the technology, capital, knowledge-intensive services to support efforts for the development of China's service industry, intra-industry trade to provide a broad space for its lay a solid foundation. Technology, capital, knowledge-intensive services market demand, and the development prospects are broad, the rapid development of these industries is not only consistent with China's industrial policy requirements, but also to a large extent to improve China's service industry in the proportion of GDP, to further narrow the gap between China's service industry and the service industry in developed countries, which is conducive to promoting the development of China's foreign trade in services.

Last but not least, in China's service trade development process, we should attach importance to technological innovation, and take the road of technology, capital, knowledge-intensive growth; In addition, we can expand the scale of China's international service trade through a regional trade cooperation, and further improve the competitiveness of China's service trade in the international market.

Conclusion

In summary, the gravity model results show that a country's economic size has a direct impact on the development of its service trade. Therefore, in the development of China's trade in services, attention should be paid to the expansion of their economies of scale, while promoting industrial development, pay attention to the development of service industry, to establish of a sound mechanism for technological innovation, increase technology, capital, knowledge-intensive service industries to support and to further promote the development of China's trade in services.

References

