Comparative Analysis on Service Trade Competitiveness of the BRICS

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Abstract—**Competitiveness is a kind of comprehensive ability which is reflected by the competition or comparison among the participants. It's a relative index, generally described with "strong" or "weak", but it's difficult to accurately measure out. Paper selects the most suitable index by AHP to analyze service trade competitiveness of each country through 2005-2014 service trade data, mutually compares competitive advantages of all departments of trade in services in five countries, points out their competitiveness, weaknesses and provides suggestions for promoting common development.**

Keywords—Service trade; the BRICS; Service trade index; Competitiveness

I. INTRODUCTION

From 1990 to 2014, the BRICS economies have been growing at a rapid growth. According to the data of the world trade organization, in 2014, the economic growth rate of China, Russia and India (7.7%, 3.5% and 3.2% respectively) were higher than the average growth rate of the global economy (3.1%), although Brazil and South Africa were slightly lower than the average, they are still much higher than the average level of developed economies (1.2%). The economic output of the BRICS accounted for 27% of the world economy, the total foreign trade volume accounted for 19% of the total world trade,and they have become the most representative of the emerging economies.

With "the Belt and Road" infrastructure construction projects carried out smoothly, the trade channels between China and most countries are opened up, trade barriers is weakened, and economic exchanges will become increasingly close, which is an extraordinary opportunity for the BRICS development. Therefore, under the background of "the Belt and Road", how to make full use of advantages, learn from other's strong points and close the gap, and seize the opportunity to promote the rapid development of the BRICS is a subject with realistic significance.

Scholars have made a lot of research and discussion on the service trade of the BRICS by using different theories and methods:

Research on the measure index of service trade competitiveness. Fang Xiaojing, Dan (2012) did a research on the current situation of service trade in Brazil by net exports index of service trade and proposed that Brazil's trade in services didn't make a great contribution to the international trade, which accounted for the proportion of trade in services is also small [4]. Service trade has long been in the state of trade deficit. Zhang Xin, Cui Riming (2011) showed their results through comparative advantage index: Chinese and Russian exports mainly concentrated in the traditional labor - intensive industry, and have a certain complementarity, the proportion in other modern service trade are relatively small, lacking of competitiveness [13]. Wang Hui (2015) used service trade volume index to analyze the BRIC countries status and made a conclusion: in terms of service trade, China, India, Brazil and Russia have different comparative advantage [9]. At the same time, there has a huge service trade market space between China and other BRIC countries.

Research on the different directions of service trade competitiveness. Hoekman (1992) used the international market share index to study competitiveness of trade in services between developed and developing countries,and suggested developing countries take the initiative to cooperate with developed countries in order to seek common development [1]. Wang Ping (2010) focused on the study of factors that influence the overall trade in services [10]. Meanwhile, Luo Feng, Wang Huiyan (2015) proposed that the level of manufacturing industrial efficiency will also affect the development of producer services [14].

In summary, research on the BRIC countries service trade competitiveness has a certain foundation, but there are still some shortcomings, mainly in the following aspects: First, the existing literature mostly focused on comparative study in service trade competitiveness between the two countries (China and other BRIC countries) or the BRIC countries, seldom analyzed the whole BRICS. Second, the existing literature mostly selected one or a plurality of trade competitiveness index as the analysis tools to compare the service trade competitiveness of the BRICS, whose results were different, and also didn't indicate the selected indicators

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can be representative and accurate, lacking the convincing results.

In view of the above reasons, paper is based on service trade analysis of China and the other BRIC countries, by determining the optimal index of service trade competitiveness to longitudinally analysis each service trade sectors competitiveness of BRICS, and summarize service trade characteristics and problems, which has practical significance for the BRICS Trade in Services.

II. STUDY DESIGN

The paper selects the international Market Share index (MS), Revealed Comparative Advantage Index (RCA) and Trade Competitive advantage index (TC) three commonly used indicators as analytical tools, through hierarchical analysis method to find optimal index to measure the international competitiveness of the BRICS in each department of service trade, and tries to get a more accurate evaluation of the BRICS trade in services in a relatively uniform basis.

A. Index Selection

International market share. The international market share is a proportion that shows one product of a country's total exports accounted for the world total export of similar products, which can reflect the changes of one industry or product international competitiveness [5]. The increase in the proportion indicates the enhancement of country's export competitiveness in the industry or product. Its specific formula is:

$$MS_{ij} = E_{ij} / W_i \qquad (1)$$

(1), MS_{ij} represents the international market share of products i in country j, E_{ij} represents the total exports of products i in country j, W_i refers to the total world exports of products i. The greater the share of the international market, the stronger the international competitiveness of service trade in this country, otherwise weaker [11].

Revealed comparative advantage index. Revealed comparative advantage index is the ratio between a country's exports product account for its total exports and world of such good accounted for the proportion of the world's total exports [6]. Its specific formula is:

$$RCA_{ij} = \left(X_{ij} / X_{tj} \right) / \left(X_{iw} / X_{tw} \right) \qquad (2)$$

(2), RCA_{ij} represents the revealed comparative advantage index of product i in country j, X_{ij} represents the exports value of the country's export products i, X_{tj} represents the total value of exports of country j, X_{iw} represents the value of exports in the world exports of product i, X_{tw} represents the total value of world exports. If RCA more than 1.25, it indicates that the country's service has strong competitive, if RCA less than 1.25, the country's service trade competitiveness is weak [7].

Trade competitive advantage index. Trade competitive advantage index refers to the difference between a country's import and export trade accounted for the proportion of total imports and exports [8]. Its specific formula is:

$$TC_{ij} = \left(X_{ij} - M_{ij} \right) / \left(X_{ij} + M_{ij} \right) \qquad (3)$$

(3), TC_{ij} represents trade competitive advantage index of product i in country j, X_{ij} means the country's J exports of products i, M_{ij} represents j country's imports of i products trade volume. If TC greater than zero, it said the country's production efficiency of the product is higher than the international level, the greater the value of TC, the greater the advantage. On the contrary, if TC less than zero, it said that the country is a net importer of the product, this product is at a disadvantage in the international competition [12].

The data source of this paper is mainly Statistics Database UN, Service Trade WTO, and China Statistical Yearbook 2015. According to the classification of the service trade from database, the service trade sectors include: transport, tourism, communications, construction, insurance, finance, computer and information, patents and licensing, other business services, etc.

B. Analysis Method

Due to differences in the analysis results of each service trade index, we can't be intuitive to analyze the competitiveness of the BRICS, so we need to select the most representative index from these indicators. For determining the weight of each index and evaluation to obtain the optimal index, the common methods include: fuzzy comprehensive evaluation, analytic hierarchy process, TOPSIS, etc. Taking into account that the process of the analytic hierarchy process is simple and easy to operate, and the decision method is practical, so the article select the analytic hierarchy process, using software Yaahp10.3.

III. EMPIRICAL RESULTS AND ANALYSIS

As shown in Table 1, the results of the index weights are arranged in descending order: Trade competitive advantage index, Revealed comparative advantage index, International market share index, the weight values are 0.4786, 0.3118, and 0.2096 respectively. Therefore, the optimal index for evaluating the competitiveness of service trade is the trade competitive advantage index. This paper uses the TC index to analyze the competitiveness of each service trade sector of the BRICS.

TABLE I.   INDEX WEIGHT OF DECISION GOAL

altern ative	Trade competitive advantage index	Revealed comparative advantage index	International market share index
Weigh t	0.4786	0.3118	0.2096

The analysis results of TC index show that, in 2005-2014, China has a certain competitive advantage in the transportation, tourism and other traditional service trade

sectors, trade competitive advantage index data is relatively stable in recent years, if the economic structure does not have a major adjustment, it can be expected that the development of the two industry will continue to maintain the status quo. Communication sector is extremely unstable and volatile; in terms of insurance, patents and licensing, especially financial and other modern service trade, trade competitive advantage index has been less than 0.50 for many years, obviously lacking of competitiveness, although the TC index in the computer and information industry has risen slightly in recent years, it still can't get rid of the plight of the industry net imports, which also shows the future development direction of Chinese service trade. However, other business services show a strong competitive advantage, 2010-2014, TC index has averaged more than 0.7.

For Brazil, since the perennial influenced by the political situation of civil unrest, hinder the development of the country's financial sector, with weaker competitive advantage, but Brazil has maintained a strong competitive edge of tourism, construction and services also have a certain competitiveness [2]. At the same time, the country is not satisfied with the traditional advantages, and it explore new growth points in other business services, computer and information and other modern services industry.

Computer and information industry has been the main force of the export of India service trade, TC index is relatively stable, maintained at more than 1.02, indicating that the country has a very strong competitive advantage in the computer industry. Meanwhile, the development of industrial structure in India has kept balanced in recent years, its insurance, finance and other modern service industry competitiveness have been significantly enhanced. It is not difficult to discover India is looking for a new growth point for injecting new vitality to the service industry. In addition, India doesn't have the international competitiveness in the construction, patent and licensing, the share of other business services is low.

Russia has the advantages of convenient land, sea and air routes, the transportation industry has been the main service trade export force, which can be seen it has the absolute transport service industry advantage [3]. Moreover, thanks to Russian beautiful scenery, the tourism industry is also superior. In modern service trade such as insurance, financial and computer fields, TC index is smaller. This trade structure is not conducive to the long-term development of Russian service trade.

South Africa's tourism resources are extremely rich, and it's the main source of foreign exchange of service trade, and has the higher the level of competitiveness. More standardized market and sound banking system have attracted a lot of investment institutions, so its financial, insurance and other modern trade development are more developed, trade structure is more optimized. In contrast, in terms of patents and licensing, insurance, the value of TC index are negative, lacking comparative advantage.

IV. CONCLUSION

Although the service trade of the BRICS takes up a very small proportion of the world share and overall level of this industry is not high, they have developed rapidly in recent years, and have great development potential and space. This paper through selecting the optimal service trade competitiveness index to comparatively analyze the five countries service trade department, draws the following conclusions:

First, in terms of the service trade structure, the country's industrial structure are unbalanced, Brazil, India and South Africa have relatively good development in modern service industry, India reflects the relatively strong competitiveness of trade in services, the world service trade structure needs to be optimized.

Second, the service trade index shows that that the BRICS in the field of service trade does not exist a significant competitive relationship, but a complementary relationship. For instance, China and Russia have the superiority of traditional service trade industry. Brazil has a comparative advantage in other business services and other modern service trade. India shows obvious competitiveness in the computer and information department. South Africa has a strong service trade export competitiveness of tourism.

Third, at present, China and other BRIC countries in the service trade cooperation exist some problems, such as unreasonable trade structure, low open degree. Therefore, it should be adjusted from the macro aspect. Government departments should play a major role in supporting the service industry, optimize the industrial structure, and improve the degree of openness, so as to promote the development of China's service trade.

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