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Research on the Dynamic Change of Comparative Advantage of China's Service Trade

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Abstract: The service trade develops quickly in China and the scale of which is increased. The main body of China's service trade is transportation and travel. Meanwhile, the deficit in China's balance of service trade is widened and China's service trade lags behind the China's goods trade and the service trade in some country. It's important to assess the dynamic change of the comparative advantage of China's service trade for improving the competitive of China's service trade. The TC index and RCA index are used to evaluate the dynamic change of the comparative advantage of China's service trade. The conclusions are drawn that China's service trade in whole has comparative disadvantage, the comparative advantage of transportation is biggest in all service sectors, the comparative advantages in new services sectors such as financial service and insurance service are smaller than other service sector, the comparative advantages in transportation and travel are decreasing. Some measures should be taken to enhance the comparative advantages of China's service trade, which consist of perfecting the rules and laws of China's service trade, promoting science and technology innovation, opening more China's service sectors.

keywords: service Trade, comparative advantage, dynamic change, TC Index, RCA Index

1. INTRODUCTION

With the development of economic globalization, trade liberalization and facilitation, the service trade has become the new economic growth pole and important pillar in China. In 2013, the value of China's service trade was 5396.4 hundred million dollars, which was only smaller than America and German. Although China has become an important country in service trade, the level of China's service trade is lower the average level of world and lags behind dramatically the developed country of service trade. It's important to evaluate the competitive advantage of China's service trade for improving the international status of the China's trade.

Many scholars study the competitive and comparative advantage of service trade. Ana Bobirc and Paul Gabriel Mielans (2007) used RCA index and the index of relative export performance to evaluate the international competitive of European service trade with the samples of Bulgaria and Romanian, the result showed that transportation and travel had comparatives.^[1] Gary Hufbauer (2007) used RCA index to analyze the amount and structure of Indian service trade, and the result showed that Indian service trade had better competitive.^[2] Lee (2007) thought that China, Japan and Republic of Korea should open further service trade to advance its competitive.^[3] Hong Shiqin and He Shuzi (2012) studied China, Japan and Republic of Korea's comparative advantage with RCA index. The result indicated that China's comparative advantage was weak as a whole, there was still a large gap among China, Japan and Korea.^[4] Wang Qing (2014) compared the overall situation and the division on the Sino-US trade in services separately based on IIT, RCA, CA, etc. The results show that, China's service trade was lopsided and at a competitive disadvantage in professional service area compared with the US, such as communication, banking and insurance, royalties and license fees, etc. ^[5] Li Aiwen and Xiao Ya (2014) compared the service trade comparative advantage of Sino-Japan with TC index, and pointed out that China's service trade had competitive advantage in natural resources and labor-intensive service

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area compared with Japan while Japan's service trade had competitive advantage in capital and technology-intensive service area compared with China. [6] Cheng Zusong (2014) studied the comparative advantage of China's service trade and its dynamic change from 1997 to 2012, and uses the panel data unit root test and other methods on the stability test. The results showed that, the comparative advantage of six products of the service trade in our country, such as travel and construction is not stable. The dynamic comparative advantage have not yet achieved a stage of stable convergence. [7]

According to the literates, most scholars compared the comparative advantage of China's service trade to other country, a few scholars studied the dynamic change of comparative advantage of China's service trade. The paper analyzes the status of China's service trade, evaluates the dynamic change of comparative advantage with TC index and RCA index, puts forward some suggestion to improve the development of China's service trade.

2. THE STATUS OF CHINA'S SERVICE TRADE

2.1 The scale of service trade was growing.

China's service trade develops quickly and the scale of service trade was growing. The value of service trade grow from 44 hundred millions in 1982 to 504 hundred millions in 1998, and the value in 1998 was twelve times as many as which in 1982. The value of service trade was 5396 hundred millions in 2013, which was 122 times more than that in 1982 and 10 times more than that in 1998. It's also can be found in table 1 that the export trade and import trade were growing separately from 1998 to 2013.

The status of China's service trade in world become more and more important. In 2013, China's service trade was second to America and German and lied the third place in world service trade., China's exports of services lied the fifth place in world and worse to America, England, German and France, China's imports of services is only second to America.

Table 1 Value of China's service trade in 1998- 2013

unit: hundred million

	Exports	Imports	Total	Surplus		Exports	Imports	Total	Surplus
1998	239	265	504	-26	2006	914	1003	1917	-89
1999	262	310	572	-48	2007	1217	1293	2509	-76
2000	301	359	660	-58	2008	1464	1580	3045	-116
2001	329	390	719	-61	2009	1286	1581	2867	-295
2002	394	461	855	-67	2010	1702	1922	3624	-220
2003	464	549	1013	-85	2011	1821	2370	4191	-549
2004	621	716	1337	-95	2012	1904	2801	4706	-897
2005	739	832	1571	-93	2013	2106	3290	5396	-1184

Data come from 《China statistics of trade in services 2014》

2.2 The deficit in China's balance of service trade was widened.

China's imports of services were more than China's export of services in every year, and the deficit in China's balance of service trade was widening from 1998 to 2013. The deficit was increased from 26 hundred millions in 1998 to 1184.6 hundred millions in 2013(table 1). Some service sectors were surplus and others were deficit. The surplus in consulting, computer & information services, construction services, other business services were separately 169.5 hundred millions, 94.5 hundred millions, 67.7 hundred millions and 195.5 hundred millions. The deficit in travel, transportation, royalties & license fees, insurance services were separately 769.2 hundred millions, 566.8

hundred millions, 201.5 hundred millions, 181 hundred millions.

2.3 The scales of every service sectors were different.

Some service sectors developed fast and the other developed slowly in China's service trade. It's can be seen from table 2 that travel and transportation take up a large slice of China's service trade. More than 50% of the total exports of services and about 60% of the total imports of services come from the area of transportation and travel in every year from 2009 to 2013. Each proportion of communication services, financial services, film, audio visual in China's imports of services and in China's exports of services was very small which was less than 1%. In 2013, the share of travel taken up was 39.1% in China's imports of services while the share of film, audio visual was only 0.2%, and the share of travel taken up was 24.5% in China's exports of services while the share of film, audio visual was only 0.1%. The gap between travel and film, audio visual was very large.

Table2 The proportion of the main service sectors in service trade

unit: %

	2009		2010		2011		2012		2013	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
Transportation	29.5	18.3	32.72	20.1	33.9	19.9	30.6	20.4	28.7	17.9
Travel	27.6	30.9	28.6	26.9	30.6	26.6	36.4	26.3	39.1	24.5
Communication services	0.8	0.9	0.6	0.7	0.5	0.9	0.6	0.9	0.5	0.8
Construction services	3.7	7.4	2.6	8.5	1.6	8.1	1.3	6.4	1.2	5.1
Insurance services	7.2	1.2	8.2	1.0	8.3	1.7	7.4	1.7	6.7	1.9
Financial services	0.5	0.3	0.7	0.8	0.3	0.5	0.7	1.0	1.0	1.4
Computer & information service	2.0	5.1	1.5	5.4	1.6	6.7	1.4	7.6	1.8	7.3
Royalties & license fees	7.0	0.3	6.8	0.5	6.2	0.4	6.3	0.5	6.4	0.4
Consulting	8.5	14.5	7.9	13.4	7.8	15.6	7.1	17.6	7.2	19.3
Advertising, media	1.2	1.8	1.1	1.7	1.2	2.2	1.0	2.5	1.0	2.3
Film, audio visual	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1
Other business services	11.9	19.2	8.9	20.9	7.7	17.7	7.0	14.9	6.3	19.1

Data come from 《China statistics of trade in services 2014》

2.4 China's service trade was lagged.

First, China's service trade lagged behind China goods trade. The value of China's goods trade was 41600 hundred millions which take up 88.5% share of the total value of China's foreign trade in 2013. The value of China's service trade was 5396 hundred millions which only takes up 11.5% share of the total value of China's foreign trade in 2013. The value and share of service trade was 6.7 times less than which of goods trade. It was very different between China's service trade and goods trade. China's service trade was deficit while China's goods trade was surplus in every past years. Second, the value of China's service trade lagged behind developed country in service trade. In 2013, the value of American service trade was 5396 hundred millions which was twice as many as China's and the exports of American service was 6629 hundred millions which was triple as many as China's. Third, the proportion of service trade in foreign trade was small in China. In 2013, the proportion in China was 11.5%, the proportion in world was 19.6%. The proportion in India, Egypt, Denmark, Ireland was separately 26.5%, 23.4%, 28.4%, 38.3%, 57.3%. So the proportion of service trade in foreign trade in China was not only smaller than which in world but also smaller than which in some developing country.

3. THE DYNAMIC CHANGE OF COMPARATIVE ADVANTAGE OF CHINA'S SERVICE TRADE

The statistic data and TC index, RCA index are used to study the dynamic change of comparative advantage of China's service trade.

3.1 The dynamic change of comparative advantage of China's service trade evaluated by TC

3.1.1 The description of TC index

TC index is a trade competitive index, which expresses the ratio of the gap between imports and exports to the total of imports and exports. ^{[8][9]} TC index is an important index to evaluate the trade competitive in a country or in an area, TC index is used to study the comparative advantage of China's service trade. The formula of calculating TC index is:

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

In the formula, TC is the index to evaluate comparative advantage of China's service trade, X is the exports of service, M is the imports of service, i is the year evaluated.

When TC is used to evaluate the comparative advantage of the service sector, X is the exports of service sector, M is the imports of service sector.

The scope of TC index is [-1,1]. If $TC > 0$, service trade have advantage, more bigger of the value of TC index more better of the advantage. If $TC < 0$, service trade have disadvantage and more smaller of the value of TC index more worse of the advantage. If $TC = -1$, it's showed that there is no exports of service and there is only imports of service in the country; If $TC = 1$, it's showed that there is no imports of service and there is only exports of service in the country. If $TC > 0$ in some continuous years, the comparative advantage of China's service trade is stable.

3.1.2 The comparative advantage in whole China's service trade

The TC index was calculated with the statistic data concerned from 2003 to 2012. Chart 1 shows the value of TC index in each year.

It can be seen from chart 1 that the value of TC index was less than 0 in every years from 2003 to 2012, which suggested that China's service trade had disadvantage. The value of TC index was increasing slowly before 2008 which suggest that the comparative advantage of China's service trade was becoming better slowly from 2003 to 2008. The value of TC index was decreasing after 2008 which shows that the comparative advantage of China's service trade was becoming worse after 2008. The value of TC index in 2008 was influenced probably by the Olympic Games. The Olympic Games hold in Beijing promoted the development of China's service trade. The value of TC index in 2012 was four times less than which in 2008.

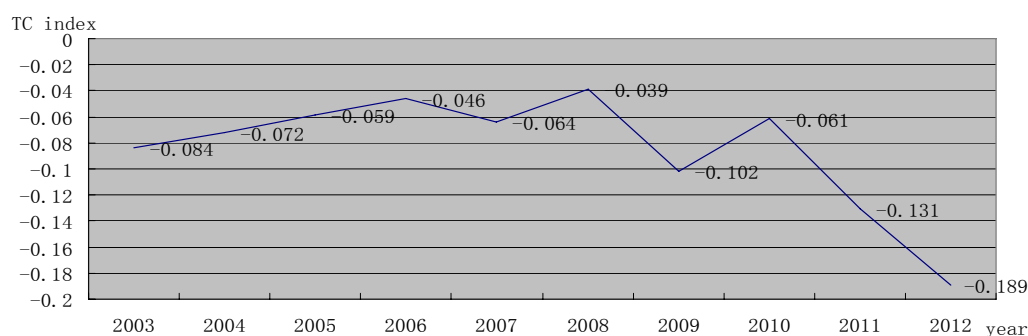


Chart 1 the values of TC index of China's service trade in 2003-2012

3.1.3 The comparative advantage in each China's service sector

The value of TC index in China's every service sectors were calculated by the formula(1) and the results were set to table 3. Some conclusions can be drawn from table 3. First, in each year of 2008-2012, the value of

royalties & license fees was smallest in all the service sectors, so the comparative advantage of royalties & license fees was worst in China's services; the values of construction services and computer & information service were bigger than the other service sectors, so the comparative advantage of construction services and computer & information service were stronger than other service sectors in China. Second, the values of TC index in construction services, computer & information service, consulting, advertising, media, other business services were higher than 0 and had the tendency of increasing from 2008 to 2012, which show that construction services, computer & information service, consulting, advertising, media, other business services had comparative advantage and the advantage were improving from 2008 to 2012. Third, the values of TC index in transportation and insurance services were less than 0 from 2008 to 2012, which suggested that transportation and insurance services had comparative disadvantage. Transportation was the most important sector in China's service trade, so the disadvantage of transportation can affect the competitive of China's service trade in whole. Some measures should be taken to improve the competitive of transportation. Forth, the values of TC index in travel, film, audio visual were bigger than 0 in 2008, so travel, film, audio visual had comparative advantage in 2008. From 2009 the values of TC index in travel, film, audio visual were less than 0 and had the tendency of decreasing, so travel, film, audio visual had comparative disadvantage and the competitive were decreasing from 2009. The drop of competitive in travel was concerned with the rising of travel abroad in China. Finally, the values of TC index in financial services were negative in most years, so financial services had comparative disadvantage in past years. The values in financial services had the tendency of increasing which show the competitive in financial services was improving. The values of TC index in communication services were positive except 2009, so communication services had comparative advantage except 2009. Since the value of TC index in 2010 was biggest in all the past years, the comparative advantage of communication services was stronger in 2010 than which in other years.

Table 3 the value of TC index in China's service sectors

	2008	2009	2010	2011	2012
Transportation	-0.1342	-0.3280	-0.2980	-0.3868	-0.3763
Travel	0.0608	-0.0483	-0.0900	-0.1993	-0.3417
Communication services	0.0193	-0.0047	0.3518	0.1837	0.0424
Construction services	0.4060	0.2345	0.4816	0.5959	0.5438
Insurance services	-0.8042	-0.7526	-0.8024	-0.7348	-0.7217
Financial services	-0.2850	-0.2484	-0.0207	0.0642	-0.0104
Computer & information service	0.3278	0.3365	0.5147	0.5203	0.5799
Royalties & license fees	-0.8952	-0.9253	0.8802	-0.9038	-0.8889
Consulting	0.1454	0.1625	0.2027	0.2088	0.2511
Advertising, media	0.0632	0.0838	0.1715	0.1833	0.2628
Film, audio visual	0.2428	-0.4822	-0.5021	-0.5299	-0.6360
Other business services	0.0587	0.1361	0.3489	0.2772	0.1847

The value of TC index were calculated according to the concerning data coming from 《China Statistical Yearbook》 (2008-2012)

3.2 The dynamic change of comparative advantage of China's service trade evaluated by RCA

3.2.1 The description of RCA index

RCA index, that is revealed comparative advantage index, was raised by an American economist in 1965 to evaluate the competitive of trade.^[10] RCA index is the ratio of two data. The first datum is the ratio of the

exports of one goods to the total foreign trade in a country. The second datum is the ratio of the exports of one goods to the total foreign trade at the world. If the ratio is bigger than 1, that shows the goods it have advantage; if the ratio is smaller than 1, that shows it have disadvantage.^[11] The formula which calculate RCA index is:

$$RCA = \frac{X/Y}{W/M} \quad (2)$$

In the formula, RCA is revealed comparative advantage index, X is the exports of service in the country that is evaluated, Y is the value of foreign service in the country that is evaluated, W is the exports of service in the world, Y is the value of foreign service in the world.

If RCA index is used to evaluate the advantage of the service sector, X is the exports of service sector in the country that is evaluated, W is the exports of service sector in the world.

It can be seen from the formula (2) that RCA index is affected by exports. if the exports is great, the advantage will be evident. According to the standard of Japan external trade organization, if the value of RCA index is more than 2.5, the comparative advantage is good; if $0.8 < RCA < 2.5$, the comparative advantage is in the middle level; if the value of RCA index is less than 0.8, the comparative advantage is bad.^[12]

3.2.2 The comparative advantage in whole China's service trade

The values of RCA index in whole China's service trade were calculated by the formula (2). The value of RCA was less than 0.8 at every years, which showed China's service trade in whole had comparative disadvantage. The values of RCA index were decreasing from 2003 to 2006 which show the comparative advantage was dropping from 2003 to 2006. The value of RCA index were increasing from 2007 to 2012 which show the comparative advantage was improving from 2007 to 2012. (chart 2)

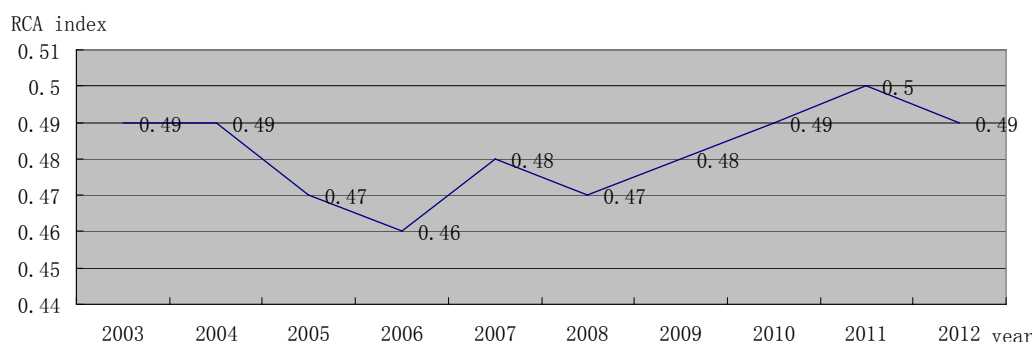


Chart 2 the values of RCA index of China's service trade in 2003-2012

3.2.3 The comparative advantage in each China's service sector

The comparative advantage in each China's service sectors were calculated by formula (2). Some conclusions can be drawn from the results. First, the values of RCA index in transportation, construction service, other business service, travel were more than 0.8 in the past years, which show that transportation, construction service, other business service, travel had advantage. The values of RCA index in transportation, construction service, other business service were increasing from 2006 to 2010, so the comparative advantage in transportation, construction service were rising. The values of RCA index in travel were decreasing from 2006 to 2010, so the comparative advantage in travel was going down. The value of RCA index in computer & information service, insurance services were less than 0.8, so computer & information service had comparative disadvantage in the past years. The values of RCA index in computer & information service, insurance services had the tendency of increasing, so the comparative advantage in travel were improving and computer & information service, insurance services will have comparative advantage in future. Third, the values

of RCA index in communication services was fall from 1.01 to 0.31, which show the comparative advantage changed into comparative disadvantage in communication services. Finally, Since the values of RCA index in financial services, royalties & license fees were smaller than other service sectors, the comparative advantage in financial services, royalties & license fees were worse than other service.

4. Conclusions and suggestions

4.1 Conclusions

Some conclusions can be drawn from the analysis and the values of TC index and RCA index.

First, the scale of China's service trade was rising and the main body of service trade were transportation and travel. Meanwhile, the deficit of China's service trade was widening, the development of China's service trade lagged behind China's goods trade and the service trade of other country.

Second, the value of TC index was less than 0 and the value of RCA index was less than 0.8 in China's service trade, so China's service trade in whole had disadvantage. Since the value of TC index and RCA index had the tendency of rising, the comparative advantage of China's service trade in whole was improving.

Third, according to the value of TC index and RCA index, construction service was the competitive sector in China's service, the competitive of transportation and travel which were the main body of China's service was decreasing gradually, the competitive of financial services and insurance services were worse than other service sector.

4.2 Suggestions

4.2.1 The rules and laws about service trade should be improved.

China's service trade develops later than goods trade and develops faster than goods trade. The laws and rules delay and it can't guarantee the development of China's service trade yet. The perfect laws not only can advance the investment to China's service trade but also can enhance competitive surroundings which can improve the development of technology intensive service trade.

4.2.2 Technology innovation in service trade should be promoted.

China should increase the share of technology intensive service sectors and decrease the share of labor intensive service sectors.^[13] Technology is very important to improve the competitive of China's service trade. The development of some technology intensive service sectors such as insurance service, financial service, computer & information service lag behind other service sectors. Technology innovation in technology intensive service sectors can advance the development of these sectors, so technology innovation can optimize the structure of service trade.

4.2.3 More service field should be opened.

Many service sector don't open which isn't match the development of service trade in world. China already possess the condition to open more service field with the development quickly of service trade. New rules are made by the developed countries and the promise of opening services is carried out gradually by China.^[14] China has prepared to open more service field. The building of Shanghai Free Trade Zone in 2013 is an important mark of further opening China's services.^[15]

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