

Analysis of Competitiveness in Steel Distribution Industry between China and Japan

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Received: February 15, 2016. Revised: February 20, 2016. Accepted: March 15, 2016.

Abstract

Purpose – This paper reviews the change of steel export-import structure between Japan and China by the courtesy of international business reference index and stress to analyze comparative advantage under the circumstance of time-series evaluating database by 3 indexes.

Research design, data, methodology – Per economic phase, both China-Japan have mutually a complementary base. Under this kind of view point, the reason why to conduct this study is to realize how this 2 country's trade competitiveness should be improved and strengthened.

Results – Under this research data and analysis outcomes, bilateral intra-economy's potential supplementation is enormous. Additionally, expected benefits from here are so sufficiently assured as we compare them with any other regional economic integrated society.

Conclusions – When we review our economic point of view, Northeast economic cooperations between China and Japan can provide a chance for industrial technological cooperations not only in steel business but also in other business areas. Come to think of the circumstance to accelerate competitions between 2 country's industries past time and acknowledge concrete resource supplier including expanding export market and diversification.

Keywords: Steel Distribution Industry, Market share, International Trade Structure, Revealed Comparative Advantage, Trade Specialization.

JEL Classifications: F14, F17, L62, L92.

1. Introduction

From the past years, the Northeast Asian countries are geographically, politically, important that is why Korea is regarded one of the key countries strategically as adjacent countries have been quarreled to seize Korean peninsular which means the

country who occupies Korean peninsular is to secure bridgehead towards direction of ocean or is to secure bridgehead toward direction of Continent. Under the such current situations, if economic, cultural and social exchanges including cooperations are reinforced in the Northeast area and a Pacific Northwest coast, bright aspects will be come true as follows; communication costs and transportations expenditures can be saved including transaction costs involved in business cooperations can be saved, too.

Furthermore, common and comprehensive cultural elements will provide abundant sound circumstances to increase regional international business activities including intra-industry trade, of which may dedicate to the expansion of bilateral supply and demand.

Particularly, both China and Japan among Northeast Asian countries have lots of common and similar cultural, social behaviors such as language, lifestyle practices, and customs as Japan has been dominating north-east asian countries during past war period which we all know well how Japanese imperialism had done colony countries. However, during even colony era, the colony trade was existed which was unique way to maintain its countries international trade business activities for the national wealths.

Therefore, the geographical long historical exchange experiences including economic aspect made the two country complementary relations. Namely, that is why Japan is in a position to supply with a lot of capital and advanced scientific technology and knowhow(Asgari, 2015) while China is in a position to give with competitive labor cost(wages) and current medium-level experienced accomplishments instead of low-level working accomplishments.

Current potential complementary capabilities between China and Japan could be evaluated infinite, of which the anticipated profits coming out from here also should be assured sufficiently by comparing to any other locally economic society in the global community.

When we understand above historic exchanges and cooperations, it is easy to understand that pretty much positive effects are anticipated that Northeastern asian countries economic exchanges will supply not only chance for industrial technological supports and exchanges, especially, between 2 partners but also to increase export market, especially, for steel industry as well as to secure diversifications for the stable resources suppli-

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ers or for the stable finished goods market. Therefore, the object goal of this research is reviewing international business hierarchy to intensify two countries economic supports and exchanges as well as to evaluate factors that influence international business hierarchy and system in order to figure out problems of international business behaviors and to look for the way how to increase international business activities(Baygi, 2015) between 2 countries – China and Japan. Let me explain this paper's overall contents briefly as follows; Chapter 2 will give you explanations how this paper has reference statistic data as well as related previous research, of which empirical analysis is conducted. Chapter 3 will suggest you to evaluate hierarch system of China-Japan steel industry by way of international general business and trade database and statistics. Chapter 4 will provide you real analytic data after calculating each items one by one in the all the tables to establish how 2 country's international business and trade relationship are proceeded based on statistic database of UN COMTRADE including Market Share Index, International Trade Specialization Index and Revealed Comparative Advantage Index. Conclusively, Chapter 5 will you summary analysis outcomes for this study with up-to-date calculated database including mentioned whole research conclusions.

2. Precedent research and statistic data

Regarding to watch international business decisive elements between 2 countries, it needs to evaluate these kinds of international business determinant, the specific elements should be recognized. Nonetheless, presently, there are huge and enormous unrecognized elements as well as enormous diversifications are existed, of which it is not available for us to verify specifically. Therefore, when we cast up our eyes into international business hierarchy and system for the mentioned research point, namely, analysis of international business decisive factor and analysis period is from 2000 to 2014. From 2000 to 2007 and 2014 are limited for both 2 countries' international business decisive factor analysis because recent statistical database about actual worldwide business activities and accomplishments are not opened with official announcement or it is hard for us to get that kinds of informations and statistic data(Lee, 2015). When we review previous study about this paper work references, there are Lee(2015) by trade specialization index, Lee(2014) by revealed comparative advantage index and Ranieri(2007) by market share index, of which all of these research papers were done through empirical analysis method according to statistical database with a focus on international business analysis between China and Japan are investigated for the assessment objective. Therefore, China and Japan's basic situation are regarded as they are a counterpart country and the standard country will be designated into China for this paper research and the reference statistical data for this study are mainly coming from international organizations such as UN Comtrade, of course, other data are coming from domestic trade related public organization such as Korea Customs Office and

Korea International Trade Association. However, data coming from both domestic and international trade institutions were totally used after specific each item's calculation by excel instrument(Lee, 2014) or electronic calculator in order to get exact and actual real figure and table code. And additionally, the statistic data is conceptional matter as a statistic database about transportation exchanges between national economy and other countries. In order to differentiate what is what to make concept for the commodity, the commodity that is coming into territory or coming out from territory to expand a certain country's physical resources or to decrease a certain country's physical resources are only counted on for record. On the contrary, in case the commodity that simply pass on a certain country territory or the commodity temporarily coming-in or coming-out commodity are not into count on for international business statistics database because these kinds of commodities are never expanding or decreasing the amount of a certain country's physical national wealth.

3. Present status and characteristic for China-Japan steel industry

China economy has been changing from government-led economy as a social communist economy to open or to allow a part of the private sector, from the economic hierarchy system of the hardware to the software-oriented economic hierarchy system, from planned market, protection and regulation social market to in a sense, open market system. Furthermore, the trend of enterprise activities has been also modified from focusing on the inside market to the worldwide international market. Furthermore, today, globalization has emerged as a buzzword not only in the China society but also world community(Mehyaoul, 2015). In case we cast up our eyes on globalization as a aspect of company behaviors, many kinds of value-added chain like component supply, development & research, marketing activities and productions are shifted from domestic-oriented subject to world-oriented subject. Therefore, there is one of important thing to be considered as domestic market should be changed as follows: Currently, many markets in the world society, domestic production type and overseas exporting type are overseas production strategies to get the low salary foreign labor worker. These kinds of business activities should be modified into the optimal resources allocation under the global circumstance standardization to make ends for production factors' optimal combination(Fry, 2006) as a globalization strategy. These kinds of works must be re-considered because China-Japan economy should everlastingly develop and in the circumstance of borderless unlimited competition era(Hausmann, 2011) under the WTO system, we need also survival strategy to survives in the world competitive market.

<Table 1> China's Import & Export amount in Steel Market

(Unit: USD 1,000, M/T)

period	country	Product	HS	export weight	export amount	import weight	import amount	trade balance
2000	china	steel	72	2,154,586	1,203,292	3,726,490	759,324	443,938
2001	china	steel	72	2,696,631	1,252,533	1,653,690	408,071	844,462
2002	china	steel	72	2,675,488	1,465,071	1,452,013	456,832	1,008,237
2003	china	steel	72	4,656,112	2,684,940	2,264,512	783,338	1,901,601
2004	china	steel	72	4,061,564	3,396,385	5,099,798	2,632,052	764,333
2005	china	steel	72	3,826,433	3,820,816	7,642,707	4,029,331	-208,513
2006	china	steel	72	3,340,543	3,129,058	10,213,208	5,079,093	-1,950,032
2007	china	steel	72	3,167,062	2,958,619	12,753,901	7,946,479	-4,987,861
2008	china	steel	72	3,223,865	3,613,931	13,981,912	14,207,138	-10,593,186
2009	china	steel	72	4,426,268	3,609,375	5,646,106	4,240,916	-631,545
2010	china	steel	72	3,809,327	3,793,663	8,414,132	6,306,813	-2,513,148
2011	china	steel	72	4,117,457	4,339,853	9,761,715	8,630,423	-4,290,575
2012	china	steel	72	3,834,196	3,637,765	9,781,097	7,408,585	-3,770,817
2013	china	steel	72	4,203,958	3,639,805	9,489,633	6,749,543	-3,109,736
2014	china	steel	72	4,341,866	3,906,571	13,039,475	8,903,103	-4,996,535
total	-	-	-	54,535,343	46,451,683	114,920,388	78,541,036	-32,089,352

Source: own

<Table 2> Japan's Import & Export amount in Steel Market

(Unit: USD 1,000, TON)

Period	Country	Product	Code	export weight	export total amount	import weight	import amount	trade balance
2000	Japan	steel	72	2,705,133	1,163,132	7,230,698	2,651,322	-1,488,188
2001	Japan	steel	72	2,309,681	799,618	8,382,020	2,410,913	-1,611,297
2002	Japan	steel	72	1,826,182	639,217	11,069,827	3,231,196	-2,591,978
2003	Japan	steel	72	1,993,028	954,765	10,825,855	4,016,469	-3,061,705
2004	Japan	steel	72	2,305,439	1,617,626	11,606,207	5,849,519	-4,231,895
2005	Japan	steel	72	2,771,848	2,172,866	10,514,173	6,341,484	-4,168,618
2006	Japan	steel	72	2,519,536	1,874,456	12,148,785	7,228,305	-5,353,848
2007	Japan	steel	72	2,787,649	2,422,327	12,783,545	8,320,771	-5,898,446
2008	Japan	steel	72	2,861,928	2,943,644	11,555,532	10,766,974	-7,823,331
2009	Japan	steel	72	1,867,578	1,680,935	13,597,157	8,151,598	-6,470,665
2010	Japan	steel	72	2,793,636	2,859,596	14,267,036	10,151,676	-7,292,081
2011	Japan	steel	72	3,675,195	4,058,097	11,776,007	10,200,713	-6,142,617
2012	Japan	steel	72	3,802,586	3,489,371	13,066,358	9,367,942	-5,878,572
2013	Japan	steel	72	3,536,982	2,726,939	12,460,414	7,906,163	-5,179,225
2014	Japan	steel	72	3,827,798	2,889,090	10,953,191	7,045,941	-4,156,852
total	-	-	-	41,584,186	32,291,678	172,236,799	103,640,987	-71,349,308

Source: own

Now, it is available to evaluate steel business only.

When we review above <Table 1> and <Table 2>, it is easy for us to figure out from 2000 to 2004, china has trade surplus in steel industry that means Chinese steel business is pretty much competitiveness against world steel market even though trade deficit started from 2005, however, its trade deficit is not

growing till 2014 which is available that I think one of crucial factor is low labor cost and competitive labor wage compared to those of advanced countries, of which is one of key factor that China should take advantage of, on the other hand, in terms of Japanese case, Japan has been always minus(-) international business for total study time serial from 2000 to 2014 which

means Japanese steel industry is disadvantage in world market and Japanese steel industry is not competitive at all. Furthermore, in terms of steel business, Japan made steel business as a national key industry to export steel from 1980's under the long-term basis.

Japan has well operated worldwide export marketing networks while Japanese enterprises have been huge foreign joint-venture investment to foreign countries.

When we call overseas investments, there are 2 kinds investments such as financial asset and direct investment, therefore, Joint-venture investment is one of the direct investment. it means that enterprise is operating itself with local capital and financial asset such as loan. This company is only to take advantage itself instead of involving enterprise management while direct investment means to get into company management by holding company's stocks. y keeping stock.

The enormous finance which is transferring into developing country is not simply brisk.

It is in a sense, positive effects of international business balance in the Japanese steel industry. Namely, it is shifted from labor-fortified NICs industry into capital-fortified business industry. It means that it is not a single industry is transferred but it is national wealth is changed to dedicate national wealth expansion(Lee, 2015) through economic enlargement.

4. Structural analysis of steel industry between China-Japan

4.1. Empirical analysis model for China-Japan steel industry

When we would like to know industry competitiveness between China and Japan, we usually like to use traditional analytic methods. In this paper, market share index, international trade specialization index and revealed relative advantage index are conducted in this survey.

Each calculated examined index for industry competitiveness could be one of part analysis way to stare only one side as well as drawback is implied. Nonetheless, to see the international business hierarchy and systems coming from industrial competitiveness is much more helpful.(Klugman, 2011).

Index of market share evaluate competitive relationships of international market between 2 countries by comparative market share competitiveness analysis indicator to compare which country is more dominating a certain country's product market.

To think over unique bilateral transaction of exporting and importing countries instead of considering the world's total trade flows are a major weak points in the trade specialization index on the other hand, even though revealed comparative advantage index indicates export country's realized competitiveness, there is one problem that import digesting power like import country's market circumstance is not considered at all.

Additionally, it has one of wrong concept that international business transaction is achieved at the point when import demand of import country's import demand meets export country's

supply power. However, revealed comparative advantage index has disadvantage when comparative export ratio in the exporting country is taken into account as a whole. we can verify a detailed calculation method together with index resulting from mentioned calculation and additionally, to make in-depth analysis about China-Japan complementary relationship, we can evaluate trade specialization degree(Mizuno, 2011) through qualitative method rather than quantitative method.

$$\text{<Formular> } TSI = \frac{X_i - M_i}{X_i + M_i}$$

(Xi : Export of certain industry, Mi : Import of certain industry)

What if TSI is +1, it is perfect international export business specialization whereas, if TSI is -1, it is perfect international import business specialization and as it is signal of relative comparative merit in the export field category, it is another marker to analyze between the two countries or in the world for a special market, It is available to verify TSI theory by commodity, by one country at a certain time zone together with time series period comparison, concurrently, that is nice experimental work to show bilateral international business or labor work field category and system and

The most widely verified data index to notice export competitiveness of a certain goods is the research method of Revealed Comparative Advantage index(RCA).

In case a certain country exports a particular product containing revealed comparative advantage ratio index(Sim, 2012) to other countries, it is coming from a assumption that this country has export competitiveness and verified RCA ratio has merit to analyze 2 country's competitiveness with a separated economic environments. If RCA index is bigger than 1, it means this product has comparative merit rather than other products in his this country and Revealed Comparative Advantage(RCA) index can be calculated as following formular,

$$\text{<Formular> } RCCAi = \frac{EX_i / WEX_i}{TEX / TWEX} \times 100$$

EXi : i industry's international export business volume from a special country.

WEXi : i industry's international export business volume against world total market.

TEX : a certain country's total whole export volume amount.

TWEX : export amount of total whole products against world.

Guess RCA verified ratio is smaller than 1, the data indicates this commodity has comparative demerit rather than other products in this country and in the beginning, RCA index is recognized calculation method of alternative comparative advantage according to the present environments of availability to take relative production cost or relative price data. Accordingly, it is understood comprehensive indicator of comparative merit possibility based on relative price movement coming from factor endow-

ments difference and technical factors.

It indicates relative accomplishments(Vollrath, 2011) instead of a particular theory of comparative advantage containing market share resulting from economic size and possibility of international business shift.

We quote the theoretical meaning of market share as follows; “Regarding to market share, it is available for us to check out market share by the courtesy of sales whole amount in the market with a example as follows;

Suppose there 4 companies as A, B, C and D. Mentioned countries whole amount for each month are as follows: U\$5000, U\$6000, U\$7000 and U\$8000 respectively and

We assume there are market share as follows; Company A will be $U\$5000 / (U\$5000 + U\$6000 + U\$7000 + U\$8000) = 0.19$

Company B will be $U\$6000 / (U\$5000 + U\$6000 + U\$7000 + U\$8000) = 0.23$

Company C will be $U\$7000 / (U\$5000 + U\$6000 + U\$7000 + U\$8000) = 0.27$

Company D will be $U\$8000 / (U\$5000 + U\$6000 + U\$7000 + U\$8000) = 0.31$ “(Hausmann, 2011),

Thus, we can comprehend the company that dominates the major market share is company D which it has 31% in this product item or this industry. Market share’s competitiveness can be understood that ratio of mentioned country’s total whole export to a certain market and it is comprehended if its ratio is higher, its country is more comparative advantage and by the courtesy of above 3 comparative index for competitiveness (Ranieri & Gibellieri, 2007), let me examine competitiveness of China-Japan steel industry at next chapter.

4.2. Empirical analysis result for China-Japanese Iron Industry category

4.2.1. RCA Index for China-Japan Steel Industry

Now, more details are followed, RCA index for China-Japan Steel Industry will be calculated as follows;

<Table 3> China Steel Export Amount to Japan

Year	Trade direction	Main	Partner	HS Code	Trade volume
2000	Export	China	Japan	72	\$535,524,436
2007	Export	China	Japan	72	\$1,849,836,126
2014	Export	China	Japan	72	\$1,478,008,961

Source: Own

<Table 4> World Total Steel Export Amount

Year	Trade direction	Main	Partner	HS Code	Trade volume
2000	Export	world	world	72	\$124,899,440,018
2007	Export	world	world	72	\$418,826,218,475
2014	Export	world	world	72	\$403,503,121,080

Source: Own

<Table 5> China Total Export Amount to Japan

Year	Trade direction	Main	Partner	HS Code	Trade volume
2000	Export	China	Japan	Total	\$34,989,286,124
2007	Export	China	Japan	Total	\$83,695,570,583
2014	Export	China	Japan	Total	\$50,112,926,037

Source: Own

<Table 6> World Total Commodity Export Amount

Year	Trade direction	Main	Partner	HS Code	Trade volume
2000	Export	world	world	total	\$6,276,808,094,407
2007	Export	world	world	total	\$13,384,408,506,551
2014	Export	world	world	total	\$17,940,598,454,575

Source: Own

<Table 7> RCA Index for China-Japan Steel Industry

Year	① China Steel Export against Japan/World Total Steel Export	② China Total Export against Japan/World Total Commodity Export	RCA (= ①/②)
2000	0.004287645	0.005574376	0.769170413
2007	0.004416715	0.006253214	0.706311219
2014	0.003662943	0.002793269	1.311346113

Source: Own

As we can understand above <Table 7>, if a certain business’s RCA ratio is bigger than 1, it is understood it has comparative merit rather than other industries or if verified ratio is less than 1, it has demerit rather than the other business categories, therefore, the calculated RCA index of 2000 is 0.769170413 which means that china steel industry has comparative demerit rather than other industries against Japan(Lee, 2015). Per the verified RCA index in 2007 is 0.706311219 and of 2014 is 1.311346113 respectively, when we review index data by time serial analysis, Chinese steel industry has high comparative disadvantage against that of Japan from 2000 to 2007. However, optimistically, we can figure out that Chinese steel industry has been getting stronger from 2014 as china has comparative advantage against Japanese steel industry(Lee, 2014).

4.2.2. Trade Specialization Index for China-Japan Steel Industry

According to relative comparative merit data in export field category, it is verified data for assessing bilateral or against world-level market competitiveness, therefore, per reviewing <Table 10>, even though chinese steel export amount value to Japan has been higher than US\$1.3billion during time serials statistic way from 2000 to 2007, Japan steel export volume against China also has been increasing more than US\$5billion(namely, over 3 times larger rather than China for 7 years. When we see <Table 10>, Japan data index & figures indicate the plus(+) marks, which means it is closer to +1, we can acknowledge that Japanese export specialization degree is high.

<Table 8> China Steel Export Amount to Japan

Period	Trade flow	Main	Partner	HS Code	Trade volume
2000	Export	China	Japan	72	\$535,524,436
2007	Export	China	Japan	72	\$1,849,836,126
2014	Export	China	Japan	72	\$1,478,008,961

Source: Own

<Table 9> Japanese Steel Export Amount to China

Period	Trade direction	Main	Partner	HS Code	Trade volume
2000	Export	Japan	China	72	\$2,138,513,492
2007	Export	Japan	China	72	\$7,119,857,469
2014	Export	Japan	China	72	\$6,622,590,775

Source: Own

<Table 10> China Specialization Index to Japan

Year	①China Steel Export Amount to Japan - Japanese Steel Export Amount to China	②China Steel Export Amount to Japan + Japanese Steel Export Amount to China	TSI (= ①/②)
2000	-\$1,602,989,056	\$2,674,037,928	-0.599463844
2007	-\$5,270,021,343	\$8,969,693,595	-0.587536384
2014	-\$5,144,581,814	\$8,100,599,736	-0.635086535

Source: Own

<Table 11> Japan Specialization Index against China

Year	①Japanese Steel Export Amount against China-China Steel Export Amount against Japan	②Japanese Steel Export Amount against China+China Steel Export Amount against Japan	TSI (= ①/②)
2000	\$1,602,989,056	\$2,674,037,928	0.599463844
2005	\$5,270,021,343	\$8,969,693,595	0.587536384
2012	\$5,144,581,814	\$8,100,599,736	0.635086535

Source: Own

4.2.3. Competitiveness by Market share for China-Japan Steel Industry

Under the traditional international trade way, it is recognized that oversea transaction is conducted between 2 individual countries and finally, geographical and institutional obstacles including transportation expenditure, customs rate are not under calculation and under these supposition, international business is determined by price differency and Traditional hypothesis provide reason that this price discrepancy is each country's production condition's difference and nevertheless, realistic life in the a lot of countries has factors(shipping fee, customs tariff) that influence price including non-price factors(cultural homogeneity and historical factors) and so, real life's trade direction is affected by non-relative plus factors and It is market share analysis to in-

dicating trade flow under a lot of countries and it has assumption for market share analysis that international business direction is affected not only by country's relative plus structure but also by non-relative plus factor, So, trade flow's determining element is indicated by measuring total ex-ante import & export volume including ex-post total import & export volume, in other words, market share evaluation is review for 2 country's trade direction by calculating level between A country and partner country B in the world society market, movement between B country's import product structure and A country's domestic export product structure(WTO, 2016).

Let me briefly explain the definition of Market share as follows;

It is also said what it called market dominant rate. Market share is used as a major indicator to express a certain industry's degree of monopoly.

We must realize the reason that occupying rate is an important one in the every enterprises because occupying rate is to show its enterprise's reputations in their oversea and domestic market while decreasing of occupying rate will weaken CEO's position affected by financial institutes caution.

Occupying rate is evaluating barometer to measure enterprise's accomplishments together with profit rate and surplus amounts, especially, it is the only one, sole measurement in case brand new product which business sales profit can not be expected.

When we review both <Table 12> and <Table 13> at the same time, steel export amount of China has 11 digit figure while Japan's total export amount is bigger than that of China as the gap between 2 countries is approximately 9.4billion US dollars even though both country's total export amount has been increasing continuously during whole research period. Additionally, when we examine actual steel export amount, China & Japan both have 11 digit figure, however, it is US\$55,482,404745 in 2014 China, on the other hand, that is US\$33,383,028,002 in Japan, that means there is approximately US\$22.1billion gap amount in final research year(Lee, 2015).

<Table 12> China Steel Export Amount to World

(Unit: USD)

Period	Trade direction	Main	Partner	HS Code	Trade volume
2000	Export	China	world	72	\$3,590,033,568
2007	Export	China	world	72	\$39,958,005,049
2014	Export	China	world	72	\$55,482,404745

Source: Own

<Table 13> Japan Steel Export Amount to World

(Unit: USD)

Period	Trade direction	Main	Partner	HS Code	Trade volume
2000	Export	Japan	world	72	\$12,959,839,028
2007	Export	Japan	world	72	\$30,148,180,997
2014	Export	Japan	world	72	\$33,383,028,002

Source: Own

<Table 14> World Total Steel Export Amount

(Unit: USD)

Period	Trade direction	Main	Partner	HS Code	Trade volume
2000	Export	world	world	72	\$125,240,541,418
2007	Export	world	world	72	\$419,363,667,278
2014	Export	world	world	72	\$406,638,909,195

Source: Own

<Table 15> Market Share for 2 country's Steel Industry

(%)

Period	Trade direction	China	Japan	Competitiveness based on market share
		(China Steel Export Amount to World/World Total Steel Export Amount)	(Japan Steel Export Amount to World/World Total Steel Export Amount)	
2000	Export	0.028665	0.103479583	Japan
2007	Export	0.095282	0.071890303	China
2014	Export	0.136441	0.082095017	China

Source: Own

Furthermore, when we review market share in <Table 15> during whole research period from 2000 to 2014, China's market share are 0.028665 in 2000, 0.095282 in 2007, 0.136441 in 2014, respectively while Japan's market share are 0.103479583 in 2000, 0.071890303 in 2007, 0.082095017 in 2014. Therefore, conclusively, we can easily find out that Japan's steel industry is dominating China's steel industry in 2000. However, from 2007, China is always overwhelmingly dominating Japan's steel industry. Finally, China's steel industry has excellent competitiveness against Japan's steel industry according to calculated mentioned database.

5. Conclusions

Nowadays, Korea's steel quantity per each steel consumer is 1,162kg(2013) which is world top 1 and it is bigger than those of China(479kg), Japan(485g), USA(285kg).

From 2000, Korea's production increase ratio is diminishing down because of Chinese's over-supply in the worldwide steel business category that major countries have to chase down quality development by fortifying competitiveness and high-quality products.

This study empirically analyze how China-Japan steel trade dependent relationship is shifted during over 13 years(2000, 2007, 2014) through market share, international trade business specialization index and revealed relative plus index. By the courtesy of this index database, we can see import & export hierarchy and system element of 2 countries. Now, summary of this paper work resulting from empirical analysis as follows;

First, when we review market share during whole research

period from 2000 to 2014, China's market share are 0.028665 in 2000, 0.095282 in 2007, 0.136441 in 2014, respectively while Japan's market share are 0.103479583 in 2000, 0.071890303 in 2007, 0.082095017 in 2014. Therefore, conclusively, we can easily find out that Japan's steel industry is dominating China's steel industry in 2000. However, from 2007, China is always overwhelmingly dominating Japan's steel industry. Finally, China's steel industry has excellent competitiveness against Japan's steel industry according to calculated mentioned database.

Second, even though chinese steel export volume against Japan has been higher than US\$1.3billion through time-serial statistic database from 2000 to 2007, Japan steel export volume against China also has been increasing more than US\$5billion(namely, over 3 times larger rather than China for 7 years). According to verified database, we can understand that Japanese export specialization degree is high.

Third, RCA index of 2000 is 0.769170413 which means that china steel industry has comparative demerit rather than other business industries against Japan. As the verified RCA index of 2007 is 0.706311219 and of 2014 is 1.311346113 respectively, when we count on statistic data on time serial statistic evaluation, Chinese steel industry has high comparative disadvantage against that of Japan from 2000 to 2007. However, optimistically, we can figure out that Chinese steel industry has been getting stronger from 2014 as china has comparative advantage against Japanese steel industry.

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