

Evaluation of Competitiveness in Auto Distribution Industry between Korea and Russia*

Jae-Sung Lee**

Received: July 15, 2015. Revised: July 25, 2015. Accepted: August 15, 2015.

Abstract

Purpose - This study undertakes to examine the automotive trade structure between Korea and Russia to accelerate economic cooperation and pinpoint trade discrepancies to increase trade volume through improved policies, eventually finding ways for trade expansion.

Research design, data, and methodology - To analyze trade decision factors for both countries, the Index of trade specialization invented by trade specialization theory, is used. Although specific factors should materialize in the trade decision analysis, realistically, concrete explanations are difficult as many unsolved factors are involved as well as their complexities

Results - First, to assess comparative market competitiveness, the Index describes A value/B value, representing the Korean versus the Russia market share and the Korean market share versus the world. Second, the index shows that Korea is taking comparative advantage of its export specialization. Third, the RCA indices show considerable improvement compared to 2000.

Conclusions - This research used a quantitative approach to examine trade specialization and examined a comparative advantage index of market share to see how inter-trade relations have changed over the past 10 years.

Keywords: Trade Specialization, Revealed Comparative Advantage, Market Share.

JEL Classifications: F14, F17, L62, L92.

1. Introduction

Korea's car output is expected to increase in 2015, according to an industry outlook jointly released by Korean government

and the Korea Automobile Manufacturers Association. The global automobile industry is showing signs of recovery thanks to US and European economic recovery and steady economic growth in China and India. However, demand could still shrink due to economic recession in emerging markets, the MOTIE said in its statement. In 2015, the country's vehicle production and exports are expected to rise, thanks to continued growth in exports to North America, also a reduction in tariffs on cars, and high domestic demand for replacement of older vehicles. Under the South Korea-EU FTA, tariffs on vehicles with emissions of less than 1500cc will be additionally reduced from 3.3 percent to 1.6 percent from July 2015. Estimated figures show that domestic sales of finished cars increased 8.2 percent in the year to last month thanks to restyling and strong sales of imported cars. Vehicle output and exports decreased 4.7 percent and 4.0 percent respectively in November from a year due to market uncertainty in Eastern Europe and General Motors' withdrawal of its Chevrolet brand from Western Europe. Auto parts sales fell 9.3 percent in November from a year earlier due to continued recession in emerging markets.

Russia, one of the Newly Industrialized Countries, has been suffering from financial crisis in 2014 like several European countries.

According to Russian Automobile Association in 2014, domestic new car sales volume during January~August 2014 was 1.65 million units, which was 12.4% diminished rather than that of previous year.

Based on types of cars, human riding vehicle was 1.5million units which was 11% diminished, truck was 63,000 units which was 16.4% diminished, bus was 600 units which was 31.3% diminished and small commercial vehicle was 80,000 units which was 28.9% diminished respectively.

During same period, car production was 1.3 million unit which was 6.7% diminished rather than that of previous year. According to kinds of car, human riding vehicle was 1.18million units which was 4.8% diminished, truck was 44,000 units which was 5.5% diminished, bus was 6,000 units which was 35.4% diminished and small commercial vehicle was 76,000 units which was 27.3% diminished respectively according to Russian Automobile Association said.

During this period, ratio of Russian domestic manufacturing vehicles were as follows;

* This paper is announced at 2014 Joint Economics Academic Conference organized by KODISA, is modified by proposal of 2 discussants and 3 blind reviewers.

** Professor, Department of International Trade, Dongeui University, Busan, Korea. Tel: +82-51-890-2563. E-mail: jslee7@deu.ac.kr.

Human riding vehicle was 72% with 3.7% increase, small commercial vehicle was 86.4% with 8.8% increase, truck was 59.4% with 6.4% increase and by the way, it showed that bus was 63.1% with 5.6% decrease.

Human riding vehicle production status of Russian each local maker were local manufacturer, AVTOVAZ was 265,000 units which is 22.6% as top 1 market share and next rank is Hyundai-KIA Motors as 227,000 units which is 19.4% market share and last rank is French manufacturer, Renault as 164,000 units which is 14% respectively.

During this period, Russia recorded rank 3 after Germany and England compared to European country in terms of human riding vehicle market size.

Considering Chinese riding vehicle sales volume was 1.24 million units with 10% increase in the same period, Russian sales volume (1.34 million units) was tremendous, The Russian Automobile Association has said.

The Russian Automobile Association analyze that the reasons are governmental vitalization policies such as subsidy support for car assembling factory remodeling, subsidy support for car transportation charge from cars produced in the far eastern area to other area in the Russia, low-cost railway transportation support for riding vehicles 40,000 units produced in the far eastern area, monetary financial support for research & major innovative program, subsidy support for parts compensation about car related association operating funds, subsidy support for CNG car purchase which will be used at individual urban public fields, subsidy for cars which a government-affiliated institutes will buy, car market vitalization through publication of junk a car system, etc

This study is looking for the trade problems to figure out ways to increase the trade between the two countries. Hence, That is the reason why this paper identifies two country's trade structure and to make analysis for the factors that affect trade structure.

This research is conducted as followings. Statistical data by previous research studies will be examined by Chapter II. Chapter III, it will be examined car industry structure for 2 countries by the courtesy of trade statistic data. Chapter IV, it will be more practical reviewed based on UN Comtrade statistical data base calculated according to theories of trade indices, trade specialization index, Revealed Comparative Advantage index and Market share to analyze both trade relations. Conclusively, Chapter V, this study is summed up with research limitation comments.

2. Relevant past research

Igor Koropkin, director of publication in Russian Automobile Association indicated that in case Russian government do not operate support policy, he predict domestic market will be decreased until 2015. In order to overcome this situation, Russian government should operate various car vitalization support strategy to decrease 2014 market width of decrease from 7.3% to

1.7% and should forward continuous plan to go into reverse which eventually, domestic market should be increased.

Regarding to Russian environment-friendly car market, CNG car registered units are 86,000 units dominate 1.5% share among total riding-vehicles due to affluent CNG. However, local CNG car manufacturing doesn't exist. Some of small sized modifying factories have been amending production as CNG cars.

Russia's annual CNG automobile production volume is 5000 units.

Hybrid car in Russia is mainly riding vehicles. sales volume in 2013 is 1,307 units and production volume from January to August in 2014 is 631 units respectively. Currently, there are 8 kinds hybrid brands. Toyota Lexus among them has more than 80% dominating share.

Plug-in hybrid(PHEV) vehicle just 1 unit was sold in Russia 2013 and 193 units are sold in August 2014. On the contrary, electric Vehicle(EV) was sold 118 units in 2013 and 72 units in August 2014 each.

Mostly, PHEV are Nissan Infiniti and EV is Mitsubishi I-MiEV model.

Igor Koropkin, director of publication in Russian Automobile Association indicate that until 2030, Environment-friendly vehicle market in Russia will be built with full scale after 2021. Environment-friendly vehicle sales volume will be 600,000 units in 2030 and market share will reach 12%.

In order to achieve this target, Russian government set up combined propelled program to support environment-friendly vehicle production and usage such as application for non-customs duty about electric vehicle components import for 2~3 years from 2015, tax exemption, preferential financial loan and factory land usage about environment-friendly vehicle manufacturing companies, traffic tax exemption for environment-friendly car owner, support for public transportation(public transporting bus) about electric vehicle, allowance for exclusive bus lane, charge reduction for tollgate traffic fee, free parking and increase for international standardization harmonization of environment-friendly vehicle & its components related to rules of international standardization organization.

In order to evaluate trade determinant, trade factor should be identified. But, Since there are lots of unidentified trade factors like diversity which is pretty much difficult to indicate realistically. Therefore, I will review trade structure factor namely, analysis of trade determinant. Research period is from 2000 to 2013 because the recent trade statistical data base for both countries to analyze are difficult to get in.

Per reviewing previous research, trade specialization index conducted by James(2006), Julio(2010) and revealed comparative advantage index conducted by Thomas(2011), Keld(2015) and market share conducted by Hanssens(2010), Sims(2012), Rao(2005) to analyze research. This paper has differentiation by using above mentioned all 3 indexes compared to other papers.

This study was done by empirical analysis according to UN Comtrade data base to analyze 2 countries specifically after full calculation load. Thus, the position of the two countries, the south Korea will become the standard and then, Russia will be

reviewed by its results as a counterpart country. The major data base were calculated and made according to domestic, international trade classification, Korea Customs, Korea International Trade Association and UN Comtrade.

3. Present Status of Car Industry between Korea and Russia

Korean manufacturing method requires from domestic production to go abroad production management plan to get benefits from foreign low labor including optimal distribution resources and best manufacturing factor.

These kind of strategic target should be done as a company crucial strategy for continuous Korean economy's increase under the unlimited competition days. It is Korea automobile industry's prerequisite condition. In despite of Korean short car industry history, Korean car industry recorded world rank 5 in 1994 after having been manufacturing independent unique model.

Built-in car export in Korea has been continuously increased up to 310,000 unit in 1987 and over 1 million unit in 1996. Regarding to export market shares, dominating 70-80% north american market in 1980's is abnormally high. According to the Korean major 3 car manufacturers, export share to production is over 30%. However, only Hyundai has his own brand in 1980 on the contrary, Daewoo and KIA kept on their own business by Original Equipment Manufacturing method. Nowadays, all of car manufacturers keep on exporting through company own manufacturing brand since 1990. In spite of this changed progress, international competitiveness in Korean automobile industry is very vulnerable until now.

<Table 1> Top 10 export item in 2000

Unit: US\$1,000, Ton

Period	Item	HS code	Export weight	Export amount	Trade balance
2000	Electric product	85	2,144,176	46,365,814	10,854,729
2000	Machinery • Computer	84	2,378,653	29,732,191	8,859,068
2000	Car	87	2,778,477	15,265,527	13,634,266
2000	Petroleum • Coal	27	40,003,169	9,375,503	-28,701,630
2000	Ship	89	7,216,050	8,229,445	8,036,911
2000	Plastic	39	6,984,473	7,279,677	4,567,468
2000	Steel	72	12,500,325	5,954,688	-35,487
2000	Organic compound	29	8,528,903	4,969,520	-1,056
2000	Filament fiber	54	1,006,532	4,804,218	4,017,919
2000	Knitting	60	364,402	2,522,109	2,426,379

Source: Customs office 2013

<Table 2> Top 10 export item in 2005

Unit: US\$1,000, Ton

Period	Item	HS code	Export weight	Export amount	Trade balance
2005	Electric item	85	2,379,539	80,488,019	31,754,060
2005	Machinery • Computer	84	3,610,932	38,563,249	10,584,838
2005	Car	87	5,541,103	37,491,235	33,298,061
2005	Ship	89	7,610,949	17,231,478	16,094,094
2005	Petroleum • Coal	27	35,847,748	15,709,419	-51,847,050
2005	Plastic	39	9,499,673	14,262,514	8,861,933
2005	Steel	72	15,048,220	12,804,737	-3,555,765
2005	Optical instrument	90	165,476	11,911,050	-967,645
2005	Organic compound	29	10,905,426	10,539,295	2,062,227
2005	Steel product	73	2,483,584	4,425,868	1,872,647

Source: Customs office 2013

<Table 3> Top 10 export item in 2011

Unit: US\$1,000, Ton

Period	Item	HS code	Export weight	Export amount	Trade balance
2011	Electric product	85	2,492,738	118,542,862	48,794,634
2011	Car	87	8,011,982	67,096,998	57,947,004
2011	Machinery • Computer	84	5,965,440	59,658,652	10,330,096
2011	Ship	89	16,200,267	54,133,104	51,729,626
2011	Petroleum • Coal	27	56,597,644	53,088,429	-120,586,577
2011	Optical instrument	90	591,264	36,499,242	19,450,445
2011	Plastic	39	11,915,748	27,719,360	16,869,288
2011	Steel	72	26,801,230	27,581,063	-857,152
2011	Organic compound	29	15,332,920	22,468,839	7,604,440
2011	Steel product	73	4,645,340	11,690,016	4,315,843

Source: Customs office 2014

<Table 4> Top 10 export item in 2013

Unit: US\$1,000, Ton

Period	Item	HS code	Export weight	Export amount	Trade balance
2013	Electric product	85	772,794	41,022,310	18,123,810
2013	Car	87	2,721,168	24,019,422	20,799,425
2013	Machinery • Computer	84	1,849,268	19,645,287	4,471,673
2013	Petroleum • Coal	27	19,550,412	18,647,477	-44,836,514
2013	Optical instrument	90	175,109	12,203,470	6,643,405
2013	Ship	89	4,525,000	11,137,928	10,484,861
2013	Plastic	39	4,476,361	10,186,121	6,618,144
2013	Organic compound	29	5,784,018	8,707,390	3,706,811
2013	Steel	72	8,797,975	7,569,296	375,169
2013	Steel product	73	1,667,706	3,542,638	830,446

Source: Customs office 2014

<Table 5> Top 10 export item in 2014

Unit: USD1,000, TON

Period	Item	HS code	Export Weight	Export amount	Trade balance
2014	Electric product	85	2,490,095	138,212,608	63,132,553
2014	Car	87	8,098,689	73,345,214	60,030,670
2014	Machinery • Computer	84	5,436,811	63,040,039	14,230,895
2014	Petroleum • Coal	27	61,059,655	52,384,180	-123,227,927
2014	Ship	89	10,312,632	38,338,234	36,563,988
2014	Optical instrument	90	550,431	35,901,409	18,032,104
2014	Plastic	39	13,798,507	31,825,944	21,121,951
2014	Organic compound	29	18,166,998	24,330,477	10,022,843
2014	Steel	72	28,358,198	23,943,952	1,987,516
2014	Steel product	73	6,390,653	12,655,474	3,751,190

Source: Customs office 2014

Per <Table 1> and <Table 2>, among top 10 export products to world consumer market in 2000 and 2005, The proportion of car is US\$15.26 billion and US\$37.49 billion that is rank 3 from high position items. as a brilliant export item and more than 2 times increased in its export amount after 5 years. Per <Table 3> and <Table 4>, almost 2 times increased after 6 years with US\$67.09 billion in 2011, which car export volume indicated brisk however, it is US\$24 billion in 2013 that indicate export activities are considerably low rather than past years since export data of second quarter is not available. This phenomenon is well explained through worldwide economic crisis as well as

purchase power of middle & high income groups is shrank because of building business depression including long-term economic recession. This is worldwide trend including Korea.

Per <Table 5>, we can figure out car is second largest export item in the world after electric product. This means that export item car is one of major product to evaluate its country's trade competitiveness and has good reason to compare country's advantage.

Per <Table 6>, it is available to find out China is the first largest trade surplus country in the global economy.

<Table 6> World top 10 trade surplus country in 2014

Unit: USD1,000, TON

Period	Country	Export weight	Export amount	Import weight	Import amount	Trade balance
2014	China	38,350,398	145,287,701	40,605,310,001	90,082,226	55,205,476
2014	Hong kong	3,945,232	27,256,402	253,872,027	1,749,889	25,506,513
2014	USA	17,886,494	70,284,872	23,767,993,600	45,283,254	25,001,618
2014	Vietnam	5,231,375	22,351,690	6,212,690,521	7,990,325	14,361,365
2014	Singapore	14,961,379	23,749,882	4,488,022,300	11,303,182	12,446,700
2014	Marshall island	2,278,059	8,054,891	30,432,898	63,471	7,991,420
2014	Mexico	2,495,742	10,846,018	2,297,450,508	3,268,495	7,577,522
2014	India	6,467,910	12,782,490	5,970,033,176	5,274,668	7,507,822
2014	Philippine	5,558,746	10,032,489	1,612,459,550	3,331,239	6,701,250
2014	Turkey	2,087,216	6,664,732	258,339,256	655,159	6,009,573

Source: own

<Table 7> Automobile Import & Export Status in Korea

Unit: US\$1,000, Ton

Period	Item	HS code	Export weight	Export amount	Import weight	Import amount	Trade balance
1995	Car	87	1,522,325	9,358,465	146,535	2,070,184	7,288,281
1996	Car	87	1,855,637	11,727,309	162,991	2,256,056	9,471,253
1997	Car	87	2,161,648	12,328,440	157,226	1,925,629	10,402,811
1998	Car	87	2,278,000	11,433,944	66,506	813,756	10,620,189
1999	Car	87	2,519,540	13,144,857	111,868	1,257,748	11,887,109
2000	Car	87	2,778,477	15,265,527	160,276	1,631,262	13,634,266
2001	Car	87	2,680,073	15,400,570	184,952	1,804,875	13,595,695
2002	Car	87	2,899,551	17,266,341	273,152	2,644,369	14,621,971
2003	Car	87	3,709,790	23,024,613	286,941	3,175,267	19,849,346
2004	Car	87	5,028,268	32,106,170	286,051	3,584,939	28,521,231
2005	Car	87	5,541,103	37,491,235	309,572	4,193,174	33,298,061
2006	Car	87	5,923,470	42,605,290	393,381	5,242,003	37,363,287
2007	Car	87	6,498,382	49,162,180	516,193	6,658,601	42,503,579

2008	Car	87	6,360,347	48,333,860	539,907	7,180,813	41,153,047
2009	Car	87	5,096,608	36,531,126	419,894	5,516,332	31,014,794
2010	Car	87	6,873,009	53,445,487	604,719	7,867,147	45,578,340
2011	Car	87	8,011,982	67,096,998	654,905	9,149,995	57,947,004
2012	Car	87	8,273,480	70,074,094	651,497	9,347,245	60,726,849
2013	Car	87	2,721,168	24,019,422	222,851	3,219,996	20,799,425
Total	-	-	82,732,858	589,815,928	6,149,418	79,539,392	510,276,537

Source: own

<Table 8> Automobile Import & Export Status in Russia

Unit : (USD1,000), TON

Period	Country	Item	HS	Export weight	Export amount	Import weight	Import amount	Trade balance
1995	Russia	Car	87	19,062	74,968	37	94	74,874
1996	Russia	Car	87	32,065	185,258	557	22,511	162,747
1997	Russia	Car	87	42,891	249,582	1,624	88,229	161,353
1998	Russia	Car	87	28,708	87,356	227	12,066	75,290
1999	Russia	Car	87	5,571	25,050	18	214	24,836
2000	Russia	Car	87	6,894	16,222	11	834	15,388
2001	Russia	Car	87	18,435	62,024	2	891	61,132
2002	Russia	Car	87	30,536	90,523	28	1,885	88,639
2003	Russia	Car	87	58,269	246,173	95	2,367	243,806
2004	Russia	Car	87	147,314	669,625	198	3,707	665,918
2005	Russia	Car	87	243,968	1,204,602	963	73,975	1,130,627
2006	Russia	Car	87	338,726	2,062,351	348	836	2,061,515
2007	Russia	Car	87	555,966	3,948,808	451	1,747	3,947,061
2008	Russia	Car	87	693,684	5,251,785	385	5,740	5,246,045
2009	Russia	Car	87	155,548	1,170,733	146	12,602	1,158,131
2010	Russia	Car	87	392,105	2,831,726	210	3,864	2,827,862
2011	Russia	Car	87	558,581	4,557,514	301	4,409	4,553,105
2012	Russia	Car	87	662,888	5,379,248	287	5,272	5,373,977
2013	Russia	Car	87	544,050	5,348,927	190	1,448	5,347,479
2014	Russia	Car	87	424,929	4,023,770	101	1,478	4,022,292
2015	Russia	Car	87	111,562	894,588	83	1,054	893,535
Total	-	-	-	5,071,750	38,380,835	6,261	245,223	38,135,612

Source: Own

from the Third Republic government. At first period of this government their strategic policy is labor-intensive industries such as clothing, textiles industry and after that, since early 1990s, the major export industry is amended to high value-added industry namely, autos, maritime industry, electric-electronics in Korean economy. In reality, Korean current industry is changing from newly industrialized country's, labor-intensive industries to capital-intensive industry. It is not mere industry itself moving. Thanks to a source of national wealth is shifting fundamentally, it is available to see brilliant devotions to higher up national wealth by the courtesy of economic growth.

On the other hand, per Russia from 1995 to the year 2015, as we can figure out easily the trend <Table 8>, export volume is more rather than that of import, actual time period even the period when economic crisis dominated whole world society. As we can evaluate total period overview for import & export volume, Russian auto import volumes from foreign countries as well as export volumes to abroad partners are small quantity. Therefore, even trade balance has been always trade surplus, their market share and competitiveness is not good. However, we can understand positive signal based on <Table 8> Russia is a good position to get better in the future to expand their export production volumes under Russia's planned economic policy.

In particular, Russia may have chance to compete with Korea intensely in the future international automobile sales market.

<Table 9> Korean import & export status against Russia and Trade balance in total product

(Unit: US\$)

Year	2000	2003	2005	2010	2013
Export	788,126,805	1,659,118,778	3,864,169,912	7,759,836,034	11,149,103,326
Import	2,058,264,771	2,521,777,155	3,936,615,521	9,899,447,745	11,495,033,703
Trade Balance	-1,270,137,966	-862,658,377	-72,445,609	-2,139,611,711	-345,930,377

Source: Own

<Table 10> Korean import & export status against Russia and Trade balance in car industry

(Unit: US\$)

Year	2000	2003	2005	2010	2013
Export	16,221,957	246,173,010	1,204,602,402	2,831,726,114	5,348,927,065
Import	833,746	2,366,849	73,975,241	3,863,879	1,447,652
Trade Balance	12,388,211	243,806,161	1,130,627,161	2,827,862,235	5,347,479,413

Source: Own

When we review <Table 7> and <Table 8>, it is available to find out Korean car import & export volume indicate continuously increase overall from 1995 to 2015. It is dedicated to Korean government strategic export oriented policy beginning

When you review <Table 9>, Korea always suffer from trade deficit from 2000 to 2013 which means Korea's import volumes are huge from Russia in terms of total business fields between 2 countries.

After 2010, trade deficit against Russia drop significantly

which means even though import volume from Russia is going upward, the real reason is export volume is pretty much higher than that of import trend.

On the other hand, when we see <Table 10>, it indicate Korea export volumes are bigger than import volume from Russia in the car business for 2000-2013.

Especially, ever since 2005, Korea car business trade surplus goes 2 times rather than previous data indication. Korea's car business is dominantly superior to that of Russia in terms of trade balance.

Even though there was economic crisis worldwide in 2009 as it is explained earlier, it shows that Korean car sales volume has been increased sharply during past 14 years.

4. Structural Analysis for Korea-Russia Car Business

4.1. Empirical evaluation for Korea-Russia Automobile Business

When we study the car industry competitiveness between Korea and Russia, we can use traditional research method like trade specialization index, revealed comparative advantage index and market share.

Each measuring tool for competitiveness has its own drawback see only one side fact. But, to see trade structure resulting from industrial competitiveness is also meaningful in a sense.

Trade specialization index has its own drawback like it considers only bilateral business contract of 2 import & export countries without assessing the world's total trade flows.

Revealed comparative advantage index indicate realistic competitiveness of export country. But, it also has theoretical demerit that import absorbing power such as market situation of import country is not considered absolutely.

International business come true when the time that import demand of buyer country match supply power of seller country.

But, revealed comparative advantage index has its own demerit as relative export proportion only in the exporting country is taken into account.

We can evaluate detailed calculation tool including index from its calculation.

Furthermore, in order to understand in-depth analysis about Korea-Russia relationship,

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

(X_i : certain industry export, M_i : certain industry import)

When we review Trade specialization index(TSI), it is between maximum value +1 and minimized value -1, in case this index is larger, it means the competitiveness is strong. If it is 0, export amount equals to import volume that means the active intra-industry trade is conducted in reality. On the other hand, if it

approaches into -1 from 0, it means import specialization degree is high and if it is approaching to +1 from 0, it means export specialization degree is bigger. Moreover, if TSI is +1, we call it perfect export specialization, meanwhile, if TSI is -1, we call it perfect import specialization. As it is indicator of relative comparative advantage in the export, it is another indicator to analyze pointed countries for a specialized zone. TSI is available to evaluate by item, by country at a certain time period including time series comparison simultaneously which is good way to express bilateral trade or labor segregation structure.

Revealed Comparative Advantage index(RCA) is the most convenient index to indicate export competitiveness of a certain product.

RCA index has merit easily to compare competitiveness between countries which have different style economic size.

In case RCA index is larger than 1, which means mentioned goods is comparative advantage against other products in their country.

Revealed Comparative Advantage(RCA) index suggested by Balassa(2009), is conducted for calculation as following formular.

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

EX_i : i industry's export volume from a one country.

WEX_i : i industry's export amount to world market.

TEX : a one country's total export volume.

$TWEX$: export amount of total products to world.

If RCA index is lower than 1, which means mentioned goods has comparative disadvantage rather than other goods in his own country.

In the beginning, RCA index is suggested by alternative comparative advantage calculation method in order to get comparative production cost or comparative price data.

Resultingly, it can be used comprehensive indicator of comparative advantage possibility degree based on relative price shift.

By using above 2 comparative index of competitiveness with market share tool, let me evaluate competitiveness of Korea-Russia automobile business at next chapter.

4.2. Evaluation by RCA for Korea-Russia Automobile Business

We can review Korea-Russia car industry by the courtesy of tool, Revealed Comparative Advantage as under;

<Table 11> Korean car export amount to Russia

Unit: USD

Period	Trade Flow	Reporter	Partner	HS Code	Trade value
2000	Export	Rep. of Korea	Russia	87	16,221,957
2005	Export	Rep. of Korea	Russia	87	1,204,602,402
2010	Export	Rep. of Korea	Russia	87	2,831,726,114
2013	Export	Rep. of Korea	Russia	87	5,348,927,065

Source: own

<Table 12> World Car export amount

Unit: USD

Period	Trade Flow	Reporter	Partner	HS Code	Trade Value
2000	Export	world	world	87	559,262,243,589
2005	Export	world	world	87	911,730,908,503
2010	Export	world	world	87	1,086,582,689,075
2013	Export	world	world	87	1,340,848,317,690

Source: own

<Table 13> Korean total export amount against Russia

Unit: USD

Period	Trade Flow	Reporter	Partner	HS Code	Trade Value
2000	Export	Rep. of Korea	Russia	Total	788,126,805
2005	Export	Rep. of Korea	Russia	Total	3,864,169,912
2010	Export	Rep. of Korea	Russia	Total	7,759,836,034
2013	Export	Rep. of Korea	Russia	Total	11,149,103,326

Source: own

<Table 14> All products export amount against world market

Unit: USD

Period	Trade Flow	Reporter	Partner	Code	Trade Value
2000	Export	world	world	total	6,276,501,601,670
2005	Export	world	world	total	10,149,967,640,408
2010	Export	world	world	total	14,892,720,999,171
2013	Export	world	world	total	17,960,354,648,136

Source: own

<Table 15> RCA Index for Korea-Russia Car Industry

Unit: USD

Year	①Korea auto export against Russia/world total auto export	②Korea total export against Russia/world total commodity export	①/② RCA value
2000	0.00003	0.00013	0.23077
2005	0.00132	0.00038	3.47368
2010	0.00261	0.00052	5.01923
2013	0.00399	0.00062	6.43548

Source: own

When we review <Table 15>, it is 0.23077 in RCA index 2000.

Since it is considerably smaller than 1, which means Korean car industry is significantly comparative disadvantage with Russia compared to other industries.

When we review other RCA index, they are 3.47368, 5.01923 and 6.43548 in 2005 2010 and 2013 respectively. Especially, when we review RCA index in 2005, it is suddenly too much bigger than 1. That means Korea car industry is much more better situation rather than 2000 and Korea's car industry has strong comparative advantage against Russian industry. Additionally, RCA index of 2010 and 2013 are also much more better situation rather than other industries.

Their RCA indexes are still much bigger than 1 and Korean car industry has been continuously comparative advantage against Russia during whole research period from 2000 to 2013 rather than other industries. Conclusively, we can find out that Korean car industry has been dominantly high comparative advantage against Russia car industry.

4.3. Trade specialization index for Korea-Russia Car Industry

When we review <Table 18>, TSI for Korea-Russia car industry are 0.90665 in 2000, 0.99831 in 2005, 0.99713 in 2010 and 0.99572 in 2013 each respectively.

Under the this research outcomes, we can understand that all of TSI indexes are now approaching to +1 during whole research period. None of TSI indexes are going opposite direction -1.

Since I explained already TSI index definition, TSI is between maximum value +1 and minimized value -1, in case this index is approaching to +1, it means the competitiveness is strong and it is export specialization. If it is 0, export volume equals to import volume. In case it is approaching to -1, it means import specialization degree is high and what if it is approaching to +1, it is understood export specialization degree is high.

Conclusively, we can figure out Korea car industry is dominantly comparative advantage of export specialization. On the other hand, when we review <Table 19>, Russia is over-

whelmingly comparative advantage of import specialization by the courtesy of time-serial research analysis method during whole research period from 2000 to 2013. Therefore, in terms of TSI index of car industry between Korea and Russia, Korea is absolutely export specialization about car industry and Russia is exactly import specialization in the car industry without any questions.

<Table 16> Korean car export amount to Russia

Unit: USD

Period	Trade Flow	Reporter	Partner	HS Code	Trade value
2000	Export	Rep. of Korea	Russia	87	16,221,957
2005	Export	Rep. of Korea	Russia	87	1,204,602,402
2010	Export	Rep. of Korea	Russia	87	2,831,726,114
2013	Export	Rep. of Korea	Russia	87	5,348,927,065

Source: own

<Table 17> Russia car export amount to Korea

Unit: USD

Period	Trade Flow	Reporter	Partner	HS Code	Trade value
2000	Export	Russia	Korea	87	794,200
2005	Export	Russia	Korea	87	1,020,818
2010	Export	Russia	Korea	87	4,075,066
2013	Export	Russia	Korea	87	11,481,681

Source: own

<Table 18> Korea Trade Specialization Index against Russia

Unit: USD

Year	①Korea Auto export against Russia – Russia auto export against Korea	②Korea Auto export against Russia + Russia auto export against Korea	①/② TSI value
2000	15,427,757	17,016,157	0.90665
2005	1,203,581,584	1,205,623,220	0.99831
2010	2,827,651,048	2,835,801,180	0.99713
2013	5,337,445,384	5,360,408,746	0.99572

Source: own

<Table 19> Russia Trade Specialization Index against Korea

Unit: USD

Year	①Russia Auto export against Korea – Korea auto export against Russia	②Russia Auto export against Korea + Korea auto export against Russia	①/② TSI value
2000	-15,427,757	17,016,157	-0.90665
2005	-1,203,581,584	1,205,623,220	-0.99831
2010	-2,827,651,048	2,835,801,180	-0.99713
2013	-5,337,445,384	5,360,408,746	-0.99572

Source: own

4.4. Comparative Competitiveness for Market share for car Industrial Structure between Korean and Russia

Based on traditional trade theories, it is assumed that international business is done between 2 countries and eventually, geographical and institutional barriers including shipping cost, customs tariff are not taken into consideration. Under these supposition, international business is determined by price differency. Traditional hypothesis provide reason that this price discrepancy is each country's production condition's difference. 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).

Therefore, real life's trade flow is influenced by non-comparative advantage factors. It is market share analysis to indicate trade flow under a lot of countries. Market share analysis has supposition that trade flow is influenced not only by each country's comparative advantage structure but also by non-comparative advantage factor. Hence, trade flow's determining element is indicated by measuring total ex-ante import & export volume including ex-post total import & export volume. Namely, market share analysis is evaluation for 2 country's trade flow by measuring degree between a certain one country and partner in the world market, shift between import product's structure of partner and domestic export product's structure.

Let me briefly explain the definition of Market share.

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

The reason why enterprise regards occupying rate as a important one is occupying rate is understood to show its enterprise's reputations in their oversea and domestic market as well as decreasing of occupying rate will weaken CEO's position caused by financial institutes alert.

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

It is available for us to review market share by the courtesy of sales turnover in the market with a example as follows;

There are 4 companies as A, B, C and D and Their turnover for each month are as follows: U\$4,800, U\$5,900, U\$6,800 and U\$8,700 respectively.

Now, let me calculate practical market share as follows;

Company A will be $U\$4,800 / (U\$4,800 + U\$5,900 + U\$6,800 + U\$8,700) = 0.18$

Company B will be $U\$5,900 / (U\$4,800 + U\$5,900 + U\$6,800 + U\$8,700) = 0.23$

Company C will be $U\$6,800 / (U\$4,800 + U\$5,900 + U\$6,800 + U\$8,700) = 0.26$

Company D will be $U\$8,700 / (U\$4,800 + U\$5,900 + U\$6,800$

+ U\$8,700) =0.33

Therefore, we can figure out the company that holds the major market share is company D which it has 33% in this product item or this industry.

The competitiveness for market share means that ratio of mentioned country's export to total export of a certain market and it is understood that the higher its ratio, the more comparative advantage of its country.

In case we review <Table 23> during whole research period from 2000 to 2013, Korea has been continuously increasing car export volume until 2013 without exception such as 0.02729 in 2000, 0.04112 in 2005, 0.04919 in 2010 and 0.05427 in 2013 while Russia also has been continuously increasing car export volume till 2013 as 0.00188 in 2000, 0.00222 in 2005, 0.00021 in 2010 and 0.00001 in 2013. However, when we meticulously evaluate total volumes of both 2 countries during whole research period. We can realize Korea's export volume is 11 digit figure while Russia's export volume is 10 digit figure. It is understood that mentioned figure indicates Korea has sufficient production capability with competitiveness against Russia car industry.

Again, Korea has overwhelmingly dominant market share against Russia car export to world market.

<Table 20> Korea Car Export Amount to World

Unit: USD

Period	Trade Flow	Reporter	Partner	HS Code	Trade Value
2000	Export	Korea	world	87	15,265,527,149
2005	Export	Korea	world	87	37,491,234,742
2010	Export	Korea	world	87	53,445,486,945
2013	Export	Korea	world	87	72,771,812,973

Source: Own

<Table 21> Russia Car Export Amount to World

Unit: USD

Period	Trade Flow	Reporter	Partner	HS Code	Trade Value
2000	Export	Russia	world	87	1,048,803,019
2005	Export	Russia	world	87	2,024,617,163
2010	Export	Russia	world	87	2,201,013,306
2013	Export	Russia	world	87	4,821,553,284

Source: Own

<Table 22> World Total Car Export Amount

Unit: USD

Period	Trade Flow	Reporter	Partner	HS Code	Trade Value
2000	Export	world	world	87	559,262,243,589
2005	Export	world	world	87	911,730,908,503
2010	Export	world	world	87	1,086,582,689,075
2013	Export	world	world	87	1,340,848,317,690

Source: Own

<Table 23> Market Share for 2 country's Car Industry

(%)

Period	Trade Flow	Korea	Russia	Competitiveness based on market share
		(Korea Car Export Amount to World/World Total Car Export Amount)	(Russia Car Export Amount to World/World Total Car Export Amount)	
2000	Export	0.02729	0.00188	Korea
2005	Export	0.04112	0.00222	Korea
2010	Export	0.04919	0.00021	Korea
2013	Export	0.05427	0.00001	Korea

Source: Own

5. Conclusion

This study empirically analyze how Korea-Russia trade dependent relationship is shifted during approximately 15 years(2000, 2005, 2010, 2013) by trade specialization index, revealed comparative advantage index and market share. By this kind of analytical method, it is available for us to understand import & export structural factor of 2 countries. Let me conclude this research results as follows;

First, It is 0.23077 in RCA index 2000. Since it is considerably smaller than 1, which means Korean car industry is significantly comparative disadvantage with Russia compared to other industries.

When we review other RCA index, they are 3.47368, 5.01923 and 6.43548 in 2005 2010 and 2013 respectively. Especially, when we review RCA index in 2005, it is suddenly too much bigger than 1. That means Korea car industry is much more better situation rather than 2000 and Korea's car industry has strong comparative advantage against Russian industry. Additionally, RCA index of 2010 and 2013 are also much more better situation rather than other industries.

Their RCA indexes are still much bigger than 1 and Korean car industry has been continuously comparative advantage against Russia during whole research period from 2000 to 2013 rather than other industries. Conclusively, we can find out that Korean car industry has been dominantly high comparative advantage against Russia car industry.

Second, TSI for Korea-Russia car industry are 0.90665 in 2000, 0.99831 in 2005, 0.99713 in 2010 and 0.99572 in 2013 each respectively.

Under the this research outcomes, we can understand that all of TSI indexes are now approaching to almost near +1 during whole research period. None of TSI indexes are going opposite direction -1.

Conclusively, we can figure out Korea car industry is dominantly comparative advantage of export specialization. On the other hand, Russia is overwhelmingly comparative advantage of

import specialization by the courtesy of time-serial research analysis method during whole research period from 2000 to 2013. Therefore, in terms of TSI index of car industry between Korea and Russia, Korea is absolutely export specialization about car industry and Russia is exactly import specialization in the car industry without any questions.

Third, The competitiveness for market share means that ratio of mentioned country's export to total export of a certain market and it is understood that the higher its ratio, the more comparative advantage of its country.

During whole research period from 2000 to 2013, Korea has been continuously increasing car export volume until 2013 without exception such as 0.02729 in 2000, 0.04112 in 2005, 0.04919 in 2010 and 0.05427 in 2013 while Russia also has been continuously increasing car export volume till 2013 as 0.00188 in 2000, 0.00222 in 2005, 0.00021 in 2010 and 0.00001 in 2013. However, when we meticulously evaluate total volumes of both 2 countries during whole research period. We can realize Korea's export volume is 11 digit figure while Russia's export volume is 10 digit figure. It is understood that mentioned figure indicates Korea has sufficient production capability with competitiveness against Russia car industry.

Again, Korea has overwhelmingly dominant market share against Russia car export to world market.

Research tool of this paper are 3 methods, namely, Revealed Comparative Advantage Index, Trade Specialization Index and Market share which research outcomes are all the way same conclusion. However, I can not verify Korean car manufacturing companies which have local manufacturing factories in Russia with lots of production lines. That means I can not get any data Korean companies located in Russia and Therefore, I can not differentiate export volumes & import volumes Korean local companies located in Russia. Again, I can not satisfy practical verification crystal clearly in this point which is this research's limitation. Therefore, mentioned limitation should be overcome by means of inter-industry trade index in the next research.

References

- Asgari, Omid (2015). Examination of the Impact of Blood Groups on Group Participation. *The International Journal of Industrial Distribution & Business*, 6(2), 25-30.
- Baygi, S. J. H., & Javadi, P. (2015). Disclosure Quality and Economic Value Added. *The International Journal of Industrial Distribution & Business*, 6(2), 5-11.
- Chulanova, Zure K., & Ussenova, Anel S. (2015). Human Capital and Methodic of Determination of Its Cost: A Case of Kazakhstan. *The Journal of Asian Finance, Economics and Business*, 2(2), 19-25.
- Customs Office(2014). *2014 Annual Export & Import Statistics Reports*. June 17, 2015, Retrieved from <http://www.customs.go.kr/kcsweb/user.tdf?a=user.statsIndex&StatsIndexApp&bid=PA012DM&npp=4&len=18>
- Fry, James D. (2006). The Evolution of Host Specialization: Are Trade-Offs Overrated? *The American Naturalist*, 1(48), 84-107.
- Hanssens, Dominique M. (2010). Market Response, Competitive Behavior and Time Series Analysis. *Journal of Marketing Research*, 17(Nov), 470-85.
- Hausmann, R., & Hidalgo, C. (2011). The network structure of economic output. *Journal of Economic Growth*, 16, 309-342.
- Krugman, Paul R. (2001). Intraindustry Specialization and Gains from Trade. *The Journal of Political Economy*, 89(5), 959-973.
- Kumari, Neeraj (2015). The Effectiveness of the Training Program at HCL. *The East Asian Journal of Business Management*, 5(3), 23-28.
- Laursen, Keld (2015). Revealed comparative advantage and the alternatives as measures of international specialization. *Eurasian Business Review*, 5, 99-115.
- Mehyaoul, Quafaa (2015). Country Analysis: Algeria. *The East Asian Journal of Business Management*, 5(3), 29-31.
- Mizuno, Junko (2010). A study on Korea against Japan trade deficit. *Asia Economy Review*, 5, 45-59
- Rao, Ram C., & Bass, Frank M. (2005). Competition, Strategy, and Price Dynamics: A Theoretical and Empirical Investigation. *Journal of Marketing Research*, 22(Aug), 283-96.
- Rotemberg, Julio J., & Saloner, Garth (2010). Competition and human capital accumulation: a theory of interregional specialization and trade. *Regional Science and Urban Economics*, 30, 373-404.
- Shadkam, Elham, & Bijari, Mehdi (2015). The Optimization of Bank Branches Efficiency by Means of Response Surface Method and Data Envelopment Analysis: A Case of Iran. *The Journal of Asian Finance, Economics and Business*, 2(2), 13-18.
- Sims, Christopher A. (2012). Money, Income, and Causality. *American Economic Review*, 62, 540-52.
- Uncomtrade (2012). 2012 Annual Statistics Reports, NewYork, USA. Retrieved May 21, 2015, from <http://comtrade.un.org/db/dqQuickQuery.aspx>
- Venkatesh, Bharti, & Sharma, Amit Kumar (2015). Interactive Motivational Concept: A Study of Motivation among Corporate of Bhopal Region in India. *The Journal of Asian Finance, Economics and Business*, 2(2), 35-38.
- Vollrath, Thomas L. (2011). A theoretical evaluation of alternative trade intensity measures of revealed comparative advantage. *Review of World Economics*, 127(2), 265-280.
- WTO (2012). *2012 Annual Statistics Reports*, NewYork, USA. May 21, 2015, Retrieved from http://www.wto.org/english/res_e/statis_e/its2013_e/its13
- Uchida, Yoko (2008). Vertical Specialization in East Asia: Some Evidence from East Asia Using Asian International Input-Output Tables from 1975 to 2000. *Journal of Developing Economies*, 7, 3-28.