A STUDY ON REVEALED COMPARATIVE ADVANTAGE

IN REPUBLIC OF KOREA AND INDONESIA

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This thesis, which is an original research work written by Muhammad Nashihuddin in partial fulfillment of requirements for Master Degree on International Trade, is in accordance with regulations governing the preparation and presentation of thesis at the Graduate School in Korea Maritime and Ocean University, Busan, Republic of Korea.

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Abstract

A Study on Revealed Comparative Advantage in

Republic of Korea and Indonesia

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Republic of Korea and Indonesia has achieved remarkable advancements in Economic relation over the past 40 years. The diplomatic relation since 1973, bilateral trade and Korea's FDI (Foreign Direct Investment) to Indonesia have increased more and more rapidly. Korea is the 4th largest trading partner for Indonesia, and Indonesia is the 7th largest one of Korea. This research will try to deeply analyze the bilateral trading between Indonesia and Korea.

The purpose of this research is: 1) to study the current situation of trading between Indonesia and Korea, 2) to analyze the comparative advantage of Indonesia's and Republic of Korea's products by using the Revealed Comparative Advantage (RCA) method, and 3) to analyze the competitiveness and the pattern of trade flows or trade specialization from Korea to Indonesia or from Indonesia to Korea. The data used is secondary data of Indonesia's and Korea's mutual trading from 2010 to 2015

The analysis used Revealed Comparative Advantage (RCA). RCA was analyzed using Balassa Index to reveal the comparative advantage by observed trade pattern and in line with theory. This concept has significant meanings on trade patterns through comparative advantage, in the light of the evidence, real data, and exact analysis statistic method.

This research is based on the statistical data presented by Trade Map, and the focus of this research is an evaluation of the competitiveness of 20 sectors of Indonesia's products in Republic of Korea's market and South Korea's products in Indonesian market using RCA index.

The analysis shows that according to the results of RCA method, Indonesia has comparative advantage and competitiveness in natural resources sectors, and the Republic of Korea has comparative advantage and competitiveness in manufacturing sectors.

This research shows the results of RCA index and net export index RCA, all calculated by using formula. This research calculates the data based on years from 2010 to 2015, and also examines the changes in revealed comparative advantage in six-year intervals. Using RCA indices based on Harmonized System (HS) 2-digit.

The result of this research shows that Indonesia has competitiveness in the natural resources industry, such as: mineral fuels, rubber, wood, animal and vegetable oils, cotton, and sugars, man-made staple fibres, paper, plastics, tin, and copper, but the Republic of Korea have competitiveness in highly manufactured industries such as: knitted fabrics, not knitted fabrics, articles of apparel, special woven fabrics, and steel.

Keywords:

Trade, Revealed Comparative Advantage (RCA), Competitiveness, Trade Map, RCA Index, Net Export index RCA.

초록

대한민국과 인도네시아의 '현시'비교우위지수(RCA) 연구

기간: 2010-2015

무하마드 나시후딘

대학원 무역학과

한국해양대학교

대한민국과 인도네시아는 경제 관계에서 과거 40년 이상 주목할 만한 성장을 해왔다. 1973년 이래 외교 관계, 상호 무역, 그리고 인도네시아에 대한 해외직접투자(FDI)는 증가해 왔다. 대한민국은 인도네시아의 네 번째로 커다란 무역 동반자이고, 인도네시아는 대한민국의 일곱 번째로 커다란 무역 동반자이다. 이 연구는 인도네시아와 대한민국 무역에서 심층 분석이 될 것이다.

이 연구의 목적은, 1)인도네시아와 대한민국의 무역 현황을 연구하고, 2)인도네시아와 대한민국의 제품을 현시비교우위(RCA)방법으로 분석하고, 3)인도네시아부터 대한민국까지 또는 대한민국에서부터 인도네시아까지의 무역 흐름/무역의 패턴과 경쟁력을 분석한다. 자료는 2010년부터 2015년까지 인도네시아와 대한민국의 2차 자료를 활용하였다.

분석은 현시비교우위(RCA)를 이용했다. RCA는 비교우위를 나타내기 위하여 관찰한 무역 패턴과 이론에 따라 Balassa 지표를 이용하면서 분석하였다. 이것은 증거, 실제 자료, 그리고 정확한 분석 통계 방법을 감안하여 비교우위를 통한 무역

패턴상의 중요한 결과들을 지니고 있기 때문이다.

이 조사는 무역 지도에 의한 통계 자료에 근거를 두고 있고, RCA 지표를 사용하여 인도네시아 시장 내의 대한민국 제품과 대한민국 시장 내의 인도네시아 제품으로 경쟁력이 있는 20개 분야를 중심으로 하고 있다. 본 분석은 RCA 방법에 의한 조사에 따른 것을 보여준다. 인도네시아는 천연 자원 분야에서 비교우위와 경쟁력을 가지고 있고, 대한민국은 제조업 분야에서 비교우위와 경쟁력을 가지고 있다.

이 조사는 RCA 지표와 순 수출 지표 RCA를 보여주는데, 모든 것은 공식을 사용하여 계산하였다. 이 조사는 6년간의 현시비교우위 속에서의 변화 시험을 위하여 2010, 2011, 2012, 2013, 2014, 그리고 2015년도의 자료를 근거로 계산할 것이다.

이 조사의 결과는 인도네시아의 광물 연료, 고무, 목재, 동물과 식물성 기름, 면화, 설탕, 가공 식품, 종이, 플라스틱, 주석, 그리고 구리 같은 천연 자원 산업이 두드러지는 경쟁적 우위를 보여 주었다. 그러나 한국은 편직물, 비편직물, 의류, 특수 직물, 철강 같은 제조업에서 경쟁력을 가지고 있는 것으로 나타났다.

키 워드:

무역, 현시비교우위(RCA), 경쟁력, 무역 지도, RCA 지표, 순 수출 지표 RCA

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Also, I would like to thank to Prof. Kim Soo Il, who gave me motivation during my study on master degree. Thanks a lot also to My wife, my mother, my father, all my family in Indonesia, and also Mr. Indra Wijayanto as Director of Indonesia Trade Promotion Center in Busan.

I do hope that this research will serve as a useful source and provide valuable reference material for researchers and policy makers associated with and interested in export promotion strategy in Indonesia.

Chapter 1
Introduction

1.1 Research Background and Purpose Research

1.1.1 Research Background

Under ASEAN-ROK FTA finally established a comprehensive free trade agreement which includes the trade in goods, trade in services and investment. Indonesia and the Republic of Korea basically have complementary interest in many industrial sectors, where Indonesia needs capital or investment and technology and South Korea needs natural resources and minerals along with Indonesia's vast market. With the gradual elimination of trade barriers can smoothly increase trade cooperation between Indonesia and Korea.

The Republic of Korea and Indonesia had achieved remarkable advancements in economic relation over the past 40 years. The diplomatic relation since 1973,[1] bilateral trade and FDI (Foreign Direct Investment) to Indonesia have been increasing. At present, the Republic of Korea and Indonesia have a good relationship. Korea and Indonesia will continue good trade partner and advance them to a higher level in the future due to the complementary nature of their economies and the development potential of Indonesia.

Also, the Republic of Korea and Indonesia are key trading partners. In the year of 2012, Korea is the 4th largest trading partner for Indonesia, and Indonesia is the 7th largest one of Korea.[2]

The Republic of Korea- ASEAN FTA took effect in the order of agreement of trade in goods. Due to the effect of that agreement, the trade volume between Korea and ASEAN,

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[1] Dae-Chang, "The 40th anniversary of economic relations between korea and indonesia",Research Fellow at Korea Institute of International Economic Policy (KIEP).South Korea. 2014. Pp.48-49

[2] ibid

especially Indonesia, increased significantly and ASEAN is Korea's 2nd trading partner in the world. Also, the Republic of Korea and Indonesia realized that a stronger bilateral FTA would have a positive effect on both economies and agreed to pursue a bilateral FTA to widen the scope of tariff- free items and accelerate the speed of tariff abolition.

Reduction of trade barriers creates competitive pressures the potential for technology transfer so as to lead productivity gains and restructuring of an economy toward its comparative advantage. Further, a country's comparative advantage in international trade may be influenced by differential rates of change in accumulation of production factors or due to the increased trade integration of other countries, so the author chose South Korea as a comparative country to proceed this thesis.

The total export of Indonesia to Korea in 2010 is US$ 12,5 billion, in 2011 US$ 16.4 billion, in 2012 is US$ 15.billion, in 2013 is US$ 11.4 billion, in 2014 is US$ 10.6 billion, and in 2015 is amount US$ 7.6 billion. Korea's export to Indonesia or Indonesia import from Korea is in 2010 US$ 8.8 billion, in 2011 is US$ 13.5 billion, in 2012 is US$ 13.9 billion, in 2013 is US$ 11.5 billion, in 2014 is US$ 11.4 billion, and in 2015 is US$ 7.8 billion.[3] By that situation, the author will try to calculate and evaluate the competitiveness in both of countries.

Therefore, this research will focus on analyzing the comparative advantage between Indonesia and the Republic of Korea through trade balance and it will be done through the examination of indices of revealed comparative advantage, and the analysis for twenty sectors of export.

Competitive advantage is considered to be long-term ability of an entity to efficiently create the value which would exceed the value created by competitors and at the same time would generate profitability higher than the average in the industry. The specialization sectors of Indonesia are natural resources, and for Korea, specialization sectors are industrial products, but in this thesis, so the author tries to research quantitatively by using RCA method showing what kinds of specialization exist between two countries.

The research will study twenty sectors of the commodity, where these are divided into three part, firstly primary sector (natural resources), secondly lower manufacturing

[3] http://www.trademap.org/Bilateral_TS.aspx

sectors, and thirdly higher manufacturing sectors.

RCA refers to commonly used method to evaluate international competitiveness (Ferto *and* Hubert in Kuldillok *et al.,2013*). A country's comparative advantage cannot be measured directly because such measure requires the pre-trade relative processes which are unobservable (Kuldilok *et al.,2013*). Comparative advantage can be revealed from observed pattern such as high market shares in export markets (Balassa,1977).

This research will focus on calculating the competitiveness of both countries, based on the data in the years from 2010 to 2015, so as to examine the changes in revealed comparative advantage in six-year intervals. Also, we will calculate RCA indices, based on Harmonized System (HS) 2-digit.

1.1.2 The Research Purpose

This research purposes to describe and understand the current comparative advantage of Indonesia's and Republic of Korea's export. This research tries to study the condition of Indonesia's and Republic of Korea's economic cooperation and to analyze the comparative advantage of twenty sectors by using the Revealed Comparative Advantage (RCA) method.

The analysis of the research proposes the question on what competitive positions between Republic of Korea's and Indonesia's export products exist during the period of 2010-2015, and also the other purpose of this research is an evaluation of the competitiveness of Indonesia's product and Korea's products in both countries' markets using RCA index. The following objectives that we try to reach are : 1) to carry out the analysis of the indexes enabling to evaluate industrial competitiveness in respect of export; 2) to research structural changes of Indonesia's and Korea's industries within 2010-2015, 3) using RCA index, to evaluate the competitiveness of Indonesia's industry for Korea's market, and to carry out the comparative analysis of the results, 4) to examine what extent export specialization has shifted away from labor and natural resources intensive products to high value-added knowledge and technology intensive industries, and 5) finally to consider the Indonesian and South Korean benefits from getting the scientific information about Indonesia and South Korea's comparative advantage products during 2010-2015, and to suggest trade policy implications for the next actions of two countries.

1.1.3 Research Scope

The scope of this research[4] is a statistical study, using statistical data. Also, this research focuses on international trade as well, because it specifically discusses a Revealed Comparative Advantage (RCA), as one of the subject in international trade field. The data in this research has used the data of twenty industries' categories based on HS (Harmonized System) Code in 2-digit.

The data series of this research are twenty sectors from 2010 to 2015, the source from Trade Map data statistics, such as Indonesia's and Republic of Korea's export value.

1.2 Research Structure

This research consists of five chapters, each chapter describing a specific topic and explanation. These chapters are as follows:

Chapter one is the Introduction consisting of presenting the background and purpose of research, and examining Indonesia's – Republic of Korea's Trading and Economic Cooperation.

Chapter two is literature review consisting of Indonesia's current economic situation, Korea's current economic situation, the theoretical review of comparative advantage (CA), revealed Comparative advantage (RCA), related research in revealed comparative advantage (RCA), and the theory framework for this research.

Chapter three is the research methodology consisting of data collection, method of analysis, and research hypothesis.

Chapter four is the results and discussions consisting of export index of revealed comparative advantage and analysis of revealed comparative advantage (RCA).

[4] The scope of the research refers to the parameters under which the study will be operating, the problem you seek to resolve will fit within certain parameters. Think of the scope as the domain of your research- what's in the domain, and what is not. (Marilyn;2013)

Chapter five is the summary and conclusions, suggesting policy recommendations, and the suggestions for further research.

Chapter 2
Literature Review

This chapter describes about 1) Indonesia's and South Korea's economic relationship, 2) comparative advantage (CA), 3) revealed comparative advantage (RCA), and 4) related researches in revealed comparative advantage (RCA).

2.1 Indonesia's and South Korea's Economic Relationship

Indonesia is one of the larger emerging market economies in the world and a member of the G-20 major economies. With gross domestic product (GDP) amounting US$ 861.93 billion in 2015[5], it becomes the largest economy in Southeast Asia, contributing nearly 40%[6] to the ASEAN GDP, and ranks 16th in the world .

Figure 1: Indonesia GDP 2006-2015

[5] World Bank
[6] ibid

More than half of Indonesia's GDP was contributed by the services' sector, while contributions of the manufacturing industry, agriculture and mining are 24.0%, 14.0% and, 11.0%, respectively. Services have also become the fastest growing sector in the last few years, while manufacturing, agriculture, and particularly mining have been growing slower than GDP . In 2013, for example, the growth of the manufacturing sector was merely 5.6%, lower than the total GDP growth of 5.8%. Given the slower growth of the sector compared to GDP, Indonesia has experienced de-industrialization in recent years.

The Gross Domestic Product (GDP) in South Korea was worth 1.377.87 billion US dollars in 2015[7]. The GDP value of South Korea represents 2.22 percent of the world economy. GDP in South Korea averaged 387.10 USD Billion from 1960 until 2015, reaching an all-time high of 1411.33 USD Billion in 2014 and a record low of 2.36 USD Billion in 1961[8]. Shows the figure below:

Figure 2: South Korea GDP 2006-2015

According the data from world bank, South Korea ranks as 11st of countries in the world, while Indonesia ranks as 16th among the countries in the world.

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[7] ibid

[8] http://www.tradingeconomics.com/south-korea/gdp

Korea and Indonesia have developed an increasingly trading and economic relationship over past 40 years. Since the two states established a diplomatic relationship in 1973, bilateral trade volume and Korean Foreign investment (FDI) to Indonesia have increased fast.

Indonesia's and Korea's Trading until 2016 are US$ 29,9 Billion in 2011 , US$ 29 Billion in 2012, US$ 22.9 Billion in 2013 US$ 22 Billion in 2014, and US$ 15.5 Billion in 2015.

Korea's export to Indonesia or Indonesia's import from Korea is in 2010 amount US$ 8.8 billion, in 2011 is amount US$ 13.5 billion, in 2012 is amount US$ 13.9 billion, in 2013 is amount US$ 11.5 billion, in 2014 is amount US$ 11.4 billion, in 2015 is amount US$ 7.8 billion. Here, Indonesia's export volume to South Korea, in 2010 about US$ 12.6 Billion, in 2011 is amount US$ 16.3 billion, in 2012 is amount US$ 15, 2013 is amount US$ 11.4, in 2014 is amount US$ 10.6, and in 2015 is US$ 7.6.[9] Below is a chart of Indonesia-Korea Trading from 2010-2015.

Figure 3: Indonesia & Korea Trade balance

source : Trademap.org

Private consumption was the biggest contributor to GDP, accounting for 55.0% in 2013 (Figure 2). The role of trade has also been growing in significance, with export and

[9] Trademap.org

import accounting for around 24.0% and 26.0% of GDP, respectively. Japan has traditionally been Indonesia's major trading partner for decades, but the role of the People's Republic of China (PRC) has become increasingly important in recent years. In 2013, Japan was still Indonesia's export market accounting for 14.4% of the total, followed by the PRC, 12.3% and the European Union (EU), 9.1%. As for imports, Indonesia's largest partner was the PRC with 16.8% share, followed by Singapore, 15.3% and Japan, 10.8%, Also Republic of Korea's share is about 6.1% as Export partner, and 6.5% as import partner[10].

Table 1: Top Export and Import partners, 2013

No.	Export			Import		
	Economy	Value ($ billion)	Share (%)	Economy	Value ($ billion)	Share (%)
1	Japan	26.4	14.4	People's Republic of China	29.8	16.8
2	People's Republic of China	22.5	12.3	Singapore	27.2	15.3
3	European Union	16.7	9.1	Japan	19.2	10.8
4	North America	16.6	9.1	Malaysia	13.9	7.8
5	United States	15.9	8.6	**Republic of Korea**	**11.6**	**6.5**
6	Singapore	14.9	8.1	Thailand	10.7	6.1
7	India	13.1	7.1	United States	9.3	5.2
8	**Republic of Korea**	**11.2**	**6.1**	Saudi Arabia	7.1	4.0
9	Malaysia	10.5	5.7	Australia	4.9	2.8
10	Thailand	6.3	3.4	Taipei,China	4.5	2.5
	Total of 10	154.2	84.0	Total of 10	138.2	77.9
	Others	29.4	16.0	Others	39.2	22.1
	Total	**183.5**	**100.0**	**Total**	**177.4**	**100.0**

Source : Indonesia board statistics

[10] Indonesia board statistical data

2.2 Theoretical Review

2.2.1 Review on Comparative Advantage (CA)

Since the law of comparative advantage is one of the items of International trade subject, it is important for managers of firms in countries about international trade to understand the driving forces behind the international flow of goods and services.

Comparative advantage firstly was introduced by David Ricardo in 1817[11], who published the *Principal of Political Economy and Taxation*, where it is proved by demonstrating both nations can indeed gain by each specializing in the production and exportation of the commodity of its comparative advantage.

According to the law of comparative advantage, even if one nation is less efficient than the other nation in the production of both commodities, there is still a basis for mutually beneficial trade, that is, the first nation should specialize in the production and export of the commodity in which its absolute disadvantage is smaller and import the commodity in which its absolute disadvantage is greater (Salvatore, 2014)[12].

In the real world, specialization according to comparative advantage, leads to increased global production and means better living standards for the society.

The notion of CA also is attributed to the work of John Stuart Mill, Adam Smith, and David Ricardo. Smith and Mill first advanced the concept of absolute advantage, claiming that a nation will export an item when it is the lowest cost producer of that item. Ricardo refined the idea of CA by recognizing that a nation tends to allocate its resources to their most productive use.[13]

There is a new emphasis on the fact that comparative advantage in the modern world is created and not endowed. In the 18th century world, trade was driven by the search for exotic spices and raw materials. In that epoch, climate and natural resource endowments significantly determined the pattern of comparative advantage, and little could be done to alter this pattern. In today's economy, comparative advantage is driven by technology, and

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[11] Ricardo, *Principal of Political Economy and Taxation,* Batoche books, Canada, pp.85-100
[12] Salvatore*, international economics trade and finance* , John wiley inc, Singapore, 2014, pp.29-35
[13] Suranovic, M Steven, International Trade Theory and Policy, Palgrave Macmillan, 2010, pp 40

technology can be importantly influenced by human action and policy (Sanidas & Shin)

More recently, Eli Heckscher and Bertil Ohlin revolutionized trade theory by emphasizing international differences in resource (or factor) endowments. “Factor abundance theory” or the Heckscher-Ohlin (H-O) model[14], predicts that a country will export commodities that are relatively intensive in the factor with which the country is relatively well endowed. Thus, a land abundant country will export land intensive goods, while a capital-abundant country will export capital intensive goods.

David Ricardo elaborated the theory of Adam Smith and identified that countries should produce products which they are comparatively better than other countries, Ricardo had created the model of comparative advantage (1817)[15]. Ricardo was not in favor of tariffs and other restrictions of trade and he stated that comparative advantage was a way of countries specializing in goods to gain a more efficient production (Henderson 1993). The main example of Ricardo’s comparative advantage theory was about cloth and wine trade between two countries, England and Portugal. In this example, he explained that England required 100 men to produce cloth and 120 men for wine production. So, it would be in the favor of England to import wine and export cloth whereas, Portugal might utilize 80 men for wine and 90 for cloth production. Ricardo further explained that it is beneficial for Portugal to export wine in exchange for cloth with England (Ricardo 1817)[16].

Ideally, measures of CA should reflect regional or cross-country differences in a hypothetical ‘pre-trade’ environment, known as ‘autarky’. ‘Autarky’ is the condition where equilibrium prices are unaffected by influences external to an economy (Houk,1986)[17].

2.2.2 Review on Revealed Comparative Advantage (RCA)

The concept of revealed comparative advantage (RCA) is grounded in conventional

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[14] Salvatore, international economics trade and finance , John wiley inc, Singapore, 2014, pp. 112- 114

[15] ibid

[16] ibid

[17] Leishman, Menkhaus, and Whipple, *revealed comparative advantage and the measurement of International competitiveness for agricultural commodities: an empirical analysis of wool exportes*, western agricultural economics association meeting, Fargo.

trade theory (Ferto and Hubbard, 2002)[18]. Balassa index is used to measure a country's exports of a commodity (or industry) relative to its total exports and to the corresponding exports of a set of countries (Utkulu and Seymen, 2004).

The values of selected indexes for the evaluation of industrial competitiveness enable not only to evaluate the current situation in the sector and carry out the comparative analysis of industrial sectors, but also to plan target measures to strengthen the competitive advantage of a particular sector. The problem arises with the need to choose the indicator most accurately reflecting the current situation in the sector[19].

The original RCA index, formulated by Balassa(1965), will be used in this research, formulated as :

$$RCA = (X_{ij} / X_{it}) / (X_{nj} / X_{nt})$$

Where :

X_{ij} : country i's export of commodity j

X_{it} : country i's export of all goods

X_{nj} : world export of commodity j

X_{nt} : world export of all goods

When the results is more than 1 (RCA>1), it means that a country has a revealed comparative advantage, and when it is less than 1 (RCA<1), it indicates that a country doesn't have a revealed comparative advantage.

The net export index has been defined as net exports divided by the sum of exports and imports for particular industry, where M refers to imports.

$$NX_{ij} = X_{ij} - M_{ij} / X_{ij} + M_{ij}$$

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[18] Ferto and Hubbard, "Revealed comparative advantage and competitiveness in Hungarian agri-food sectors", *institute of economics Hungarian academics and science,* Budapest, 2002, pp. 5-9

[19] Startiene,Grazina. *Evaluation of revealed comparative advantage of Lithuanian industry in global markets*. P.429 ;Elsevier, procedia social and behavioral sciences.

The using of the net export index is superior to the export index of revealed comparative advantage on trade-theoretical grounds, because the former indicates the effects of comparative advantage on the relationship between exports and imports rather than on exports alone.

According to Wu & Lin (2008), Nicolic et al. (2011), Kuldilok et al. (2013), RCA and its modifications have these advantage: “easy to calculate, widest used method, used to underline economic efficiency of industry, reveal country’s weak and strong export specialization related to some reference group”

2.3 Related Research in Revealed Comparative Advantage (RCA)

Utkulu and Seymen (2004) wrote about “Revealed Comparative Advantage and Competitiveness: evidence for Turkey vis a vis the EU/15”. The objective of that study is to analyses the competitiveness and the pattern of trade flows/trade specialization from Turkey to the EU on sectoral level. Also the research mainly is based on different measures of Revealed Comparative Advantage (RCA) measures (in addition to simple Balassa Index).

Their research used both a version of Balassa index and an export similarity index, determines the competitiveness of Turkish exports in the EU market. By embodying four different measures of competitiveness, namely revealed comparative advantage (RCA), comparative export performance (CEP), trade overlap (TO), and export similarity (ES) indices, the data real found that Turkey has a strong comparative advantage in raw material-intensive, and labor intensive goods, and has comparative disadvantages in the difficultly imitable research-oriented goods and in easily imitable research-oriented goods.

Results also show that from the start of the 1990s Turkey has improved its trade diversification. A great deal of acceleration is observed especially after 1996 which prove that the Customs Union (CU) with the EU has a positive effect on the Turkish trade pattern. Results suggest that 80 per cent of the commodity groups having a comparative advantage are the manufactured products, followed by fruits and vegetables.

A comprehensive / advanced measure of RCA was later on presented by Balassa (1965). This is a widely accepted and afterwards modified measure of RCA in the literature. It is expressed as follows:

$$RCA2 = (Xij / Xit) / (Xnj / Xnt) = (Xij / Xnj) / (Xit / Xnt) \quad (2)$$

where X represents exports, i is a country, j is a commodity (or industry), t is a set of commodities (or industries) and n is a set of countries. RCA2 measures a country's exports of a commodity (or industry) relative to its total exports and to the corresponding exports of a set of countries, e.g. the EU. A comparative advantage is "revealed", if RCA2 >1. If RCA2 is less than unity, the country is said to have a comparative disadvantage in the commodity / industry. It is argued that the RCA2 index is biased due to the omission of imports especially when country-size is important (Greenaway and Milner, 1993).

An alternative RCA index (RCA3 of Equation 3) is computed in order to make reference to the "own" country trade performance only. This type of measurement of a country's RCA recognized the possibility of simultaneous exports and imports within a particular commodity / industry.

$$RCA3 = (Xij - Mij) / (Xij + Mij) \quad (3)$$

In the case of Equation 3, the index ratio ranges from -1 (Xij = 0 and revealed comparative disadvantage) to +1 (M_{ij} = 0 and revealed comparative advantage). However, regarding RCA3, there exist ambiguities around zero values (Greenaway and Milner, 1993).

One can derive another version of RCA from Balassa (1965). The equation is as follows:

$$RCA4 = (X_{ij} / X_{it}) / (M_{ij} / M_{it}) = (X_{ij} / M_{ij}) / (X_{it} / M_{it}) \quad (4)$$

where X and M represents exports and imports respectively. i is a country, j is a commodity (or industry), t is a set of commodities (or industries). A similar version of Equation 4 derived from Balassa (1965) is the following:5

$$RCA5 = \ln (X_{ij} / X_{it}) / (M_{ij} / M_{it}) * 100 = \ln (X_{ij} / M_{ij}) / (X_{it} / M_{it}) * 100 \quad (5)$$

Vollrath (1991), on the other hand, offered mainly three alternative ways of measurement of a country's RCA. These alternative specifications of RCA are called *the relative trade advantage* (RTA), *the logarithm of the relative export advantage* (ln RXA), and *the revealed competitiveness* (RC). In this study, for the sake of being systematic, we call them as RCA6, RCA7, and RCA8 respectively. It is clear that RCA3, RCA4 and RCA5 might be calculated either in global or bilateral/regional levels that the advantage of presenting latter two indices (i.e. RCA7 and RCA8) is that they become symmetric through the origin. Positive values of Vollrath's three alternative measures of revealed comparative advantage reveal a comparative/competitive advantage whereas negative values indicate comparative /competitive disadvantage.

As a conclusion, this research shows an analysis of the competitiveness of Turkey with respect to the EU have been presented, based on seven indices of revealed comparative advantage, and calculated for the period 1990 to 2003. Given that a range of alternative RCA indices have been employed in the present study, results need cautious interpretation. Furthermore, the stability of alternative measures of RCA has been called into questioned. Based on the findings of our stability tests, however, we can confirm that their results are reasonably stable. All seven indices show that Turkey has revealed comparative advantages for seven of the 63 product groups: clothing and clothing accessories; vegetables and fruit; sugar, sugar preparations, honey; tobacco; oil seeds and oleaginous fruits; rubber manufactures; textile yarn, fabrics and related products. It is also worth noting that we observe effects of the subsequent economic crises in 1994, 1999, and 2001 on the revealed comparative advantages of Turkey. Despite these economic crises and the effects of the CU, the RCA indices have remained reasonably stable. There is, however, an evidence of a weakening of intensity of comparative advantage as shown in the original Balassa index.

It is also important that RCA calculations are based on observed trade data. Thus, there are possible influences of government interventions in the markets such as tariffs, quotas or subsidies. Although we have not measured the effect of government interventions on the RCA indices, we can still confirm that distortions are at reasonably minimal levels. Due to the implementation of the CU especially, there exists no tariffs and quotas on industrial commodities between Turkey and the EU. Furthermore, Turkey has preferential trade agreement with the EU on agricultural products.

Those results also reveal that regarding all the indices in hand, the commodity groups having the highest RCA values are the “clothing and clothing accessories” and “vegetables and fruit”. On the other hand, these commodities seem to lose their level of comparative advantages in time. The former one however increase its comparative advantage in the world market while decrease in the EU market which presumably caused by the CU. The RCA values of the latter one in both the EU and the world markets decrease which caused by the industrialization policies rather than the CU.

RCA indices provide a useful tool to detect comparative advantage. They also offer additional information on the competitiveness of Turkey in relation to the EU. This undoubtedly has further implications for Turkey as a candidate and potential member at present and as a member in the foreseeable future.[20]

Also, the author use the other research paper, it is belong to Balassa and Noland (1989). This paper examines the changing comparative advantage of Japan and the United states. Indices of “revealed” comparative advantage have been derived for 20 commodity groups. For the period analysis from 1967-1983 which Japan’s pattern of specialization in unskilled labor intensive goods to human capital intensive products while its comparative disadvantage increased in natural resources intensive products. The United States maintained its specialization in physical capital and human capital intensive goods while increasing its comparative advantage in natural resource intensive products.

[20] Utkulu & Seymen, *Revealed comparative advantage and competitiveness: evidence for Turkey, vis-à-vis the EU/15,* European study group, Nottingham, 2004.

Chapter 3
Research Methodology

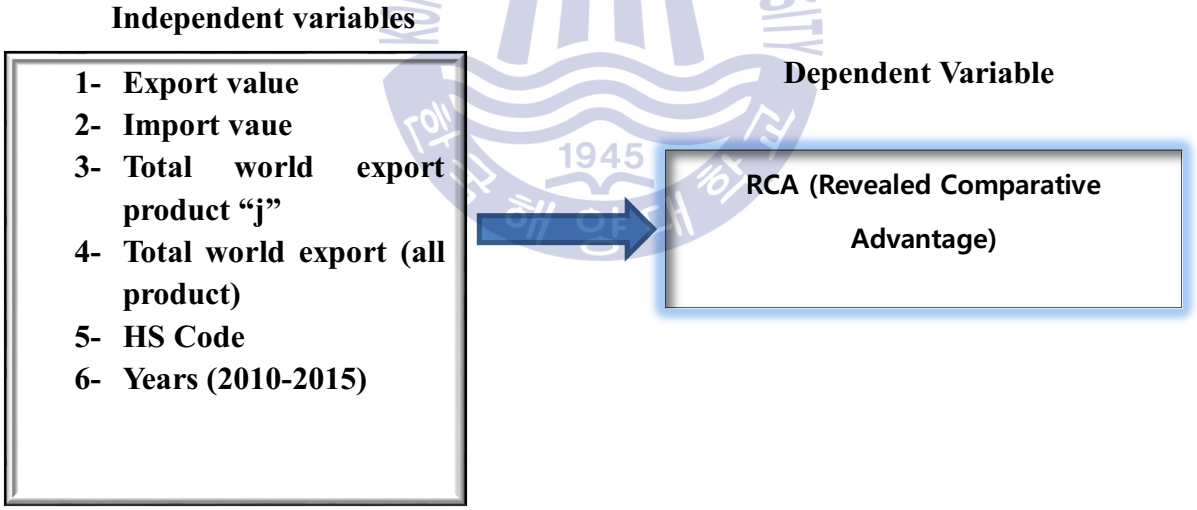
3.1 Research model

The research model of Balassa's (1965) index of Revealed Comparative Advantage seemed to provide a cure for shortcomings, as long as the normalization should allow for comparisons over time and across industries.

A measure of RCA , matching Ricardian model of trade, aims to capture the innate productivity of a country in a given industry relatively to the other countries.[21]

In this research the author divided variables by two parts, independent variables and a dependent variable.

Table 2: Independent & dependent Variables



The variables of the study are definite for the purpose of study, as mentioned above , this thesis has one dependent (RCA) and independent variables , as well as 6 dummy independent variables (export value, import value, total world export one product, total world all products export, HS Code, and Years).

[21] Leromain, Elsa & Orefice, Gianluca. *New Revealed Comparative Advantage Index: dataset and empirical distribution*, Int'l economic article. 2014

3.2 Data

This research mainly uses the secondary data. To accomplish the measurement of RCA, the main data have been collected and processed as follows:

3.2.1 Types of data

1) Indonesian data[22]

- Indonesia export and import during 2010-2015

- Indonesia import from the world 2010-2015

2) Korean Data[23]

- Korea Export and import during 2010 – 2015

- Korea Import from the world 2010-2015

3) World data[24]

- World export value of "specific" product

- World export value of all products

This research will examine twenty sectors of export.

These are in table below:

[22] http://www.trademap.org/
[23] ibid
[24] ibid

Table 3: 20 Sectors of Korea & Indonesia Export

HS Code	Product	HS Code	Product
'27	Mineral fuels	'23	prepared animal fodder
'40	Rubber	'39	Plastics
'44	Wood: wood charcoal	'80	Tin
'72	Iron and steel	'74	Copper
'15	Animal or vegetable fats and oils	'94	Furniture
'64	Footwear	'52	Cotton
'61	apparel knitted or crocheted	'17	Sugars
'55	Man-made staple fibres	'92	Musical instruments
'62	apparel not knitted or crocheted	'60	Knitted or crocheted fabrics
'48	Paper and paperboard	58	Special woven fabrics

3.2.2 Sources of data

The secondary data used in this research is a processed data from primary data which are provided by Indonesia board statistics.

World data is taken from the following websites:

- Trade statistics for development business : www.trademap.org
- Korea International Trade Association : www.kita.org
- World bank : www.worldbank.org

3.3 Method of Analysis

The idea of comparative advantage was initiated from David Ricardo's thought that countries gain specialization under free trade conditions in sectors where they have comparative advantage under autarky. In literature to empirically measure comparative advantage the most commonly and widely used measure is Balassa's revealed comparative advantage index (Bojnec 2001, Havrila and Gunawardana 2003)[25]. It identifies country comparative advantage in product j as :

[25] Riaz, Bushro, *Comparatve Advantage, Export, and Economics Growth an Issue of Causality*. Sodertorns University, 2010.

$$RCA = (X_{ij} / X_{it}) / (X_{nj} / X_{nt})$$

Where :

X_{ij} : country i's export of commodity j

X_{it} : country i's export of all goods

X_{nj} : total world export of commodity j

X_{nt} : total world export of all goods

When the results is more than 1 (RCA>1) it means that a country has a revealed comparative advantage, and when it is less than 1 (RCA<1), it indicates that a country doesn't have a revealed comparative advantage or a country has comparative disadvantage.[26]

Also, the formula above can be calculated as the ratio of a country's exports in a particular commodity category to its share in total merchandise. The formula is below:

$$XRCA = \frac{Xij}{\sum i \quad Xij} \Big/ \frac{\sum i \quad Xij}{\sum i \quad \sum j \quad Xij}$$

Where X stands for exports, and the subscripts i and j refer to industry and country. The net export index has been defined as net exports divided by sum of exports and imports for a particular industry.

$$NXij = \frac{Xij - Mij}{Xij + Mij}$$

,where M refer to imports.

[26] The original RCA formulated by Balassa on 1965

The net export index of revealed comparative advantage, is affected by the country 's overall trade balance. To facilitate inter-temporal comparisons, the net export index has been normalized using this formula below:

where NX_{Tj} is the net export index of total trade for country j. This normalization imposes adjustment to an aggregate trade balance surplus or deficit across all industries.[27]

$$NX_{ij}^{\check{}} = NX_{ij} + [\, NX_{ij} * NX_{Tj} \,] \text{ if } NX_{Tj} < 0,$$

$$NX_{ij}^{\check{}} = NX_{ij} - [\, NX_{ij} * NX_{Tj} \,] \text{ if } NX_{Tj} > 0,$$

The net export index is superior to the export index of revealed comparative advantage on trade-theoretical grounds. This is because the former indicates the effects of comparative advantage on the relationship between exports and imports rather than on exports alone.

[27] Under the procedure, it is possible for the normalized net export index ($NXij^{\check{}}$)to exceed 1.0 in absolute value, if for instance the nonnormalized index (NX_{ij}) is 1.0 and the country has an aggregate trade deficit. In the results of table, each index has been multipled by 100 for purposes of presentation.

Chapter 4
Results and Discussions

This chapter explains the research results. The results are divided into two parts, namely 1) situation of Indonesia and South Korea Export Performance, 2) Revealed Comparative Advantage (RCA).

4.1 Indonesia.s and Korea's Export Performance

In this section, the author will show the Indonesia's and South Korea's Export performances, that will be shown at table below,

Table 4: Indonesia export industry to South Korea

in US$ (Thousand)

HS Code	Product	Indonesia's exports to Korea, Republic of					
		Value in 2010	Value in 2011	Value in 2012	Value in 2013	Value in 2014	Value in 2015
'TOTAL	All products	12,574,641.00	16,388,801.00	15,049,860.00	11,422,476.00	10,606,478.00	7,649,743.00
'27	Mineral fuels	8,377,644.00	11,660,988.00	10,990,687.00	7,507,884.00	6,790,730.00	3,629,261.00
'40	Rubber	297,484.00	565,921.00	477,143.00	400,448.00	305,643.00	278,733.00
'44	Wood: wood charcoal	137,850.00	149,269.00	151,134.00	172,316.00	226,296.00	264,647.00
'72	Iron and steel	156,226.00	248,596.00	149,225.00	116,142.00	197,767.00	212,479.00
'15	Animal or vegetable fats and oils	59,109.00	148,275.00	135,861.00	88,262.00	201,688.00	186,921.00
'64	Footwear	42,888.00	58,877.00	78,192.00	122,529.00	132,598.00	148,519.00
'61	apparel knitted or crocheted	31,279.00	76,154.00	103,632.00	130,518.00	129,442.00	145,766.00
'55	Man-made staple fibres	221,171.00	237,002.00	196,420.00	190,206.00	154,159.00	145,011.00
'62	apparel not knitted or crocheted	31,239.00	79,474.00	107,152.00	139,159.00	143,084.00	143,497.00
'48	Paper and paperboard	92,754.00	85,123.00	76,741.00	71,504.00	78,908.00	89,554.00
'23	prepared animal fodder	63,278.00	87,074.00	138,428.00	133,203.00	162,305.00	87,684.00
'39	Plastics	41,714.00	58,966.00	66,045.00	65,532.00	75,844.00	62,958.00
'80	Tin	44,650.00	44,248.00	68,015.00	102,966.00	39,350.00	53,610.00
'74	Copper	258,314.00	113,468.00	85,619.00	76,389.00	113,180.00	52,918.00
'94	Furniture	33,583.00	42,705.00	41,092.00	46,520.00	51,634.00	49,567.00
'52	Cotton	71,372.00	51,940.00	51,100.00	56,220.00	37,059.00	32,304.00
'17	Sugars	22,737.00	24,623.00	29,072.00	31,572.00	59,922.00	23,354.00
'92	Musical instruments	20,522.00	26,938.00	20,058.00	21,613.00	18,296.00	19,948.00
'60	Knitted or crocheted fabrics	1,459.00	1,925.00	5,703.00	7,081.00	4,273.00	7,985.00
58	Special woven fabrics	1,252.00	1,945.00	1,924.00	1,876.00	1,810.00	1,734.00

Source: Trade Map

According to the table above we know that Indonesia still has dominated for natural resources industry, such as : mineral fuels, rubber, wood, animal and vegetable oils, cotton, and sugars, beside several manufacturing industries exported to South Korea, such as iron and steel, footwear, articles of apparel, man-made staple fibres, paper, plastics, tin, copper, furniture, musical instruments, knitted fabrics, and special woven fabrics. As we knew that Indonesia has many natural resources, so in this research the author will examine in which industries the index of RCA will be lower or higher for Indonesia and South Korea.

From 2010 to 2015 we can see that the industries which grow every year are footwear and apparel not knitted. We can know that Indonesia has tried to develop the manufacturing industry because of the excessive of usage of natural resources every year. [28]

In the other hand, we can see South Korea's Industries, which has exported to Indonesia, are shown below:

Table 5: South Korea export industry to Indonesia

In US$ (Thousand)

HS code	Product	Korea, Republic of's exports to Indonesia					
		Value in 2010	Value in 2011	Value in 2012	Value in 2013	Value in 2014	Value in 2015
'TOTAL	All products	8,897,299.00	13,564,498.00	13,955,030.00	11,568,178.00	11,417,042.00	7,875,239.00
'27	Mineral fuels	3,218,895.00	6,478,730.00	5,544,738.00	3,342,216.00	3,896,256.00	1,983,280.00
'40	Rubber	243,703.00	439,338.00	402,525.00	314,755.00	268,657.00	219,327.00
'44	Wood ;wood charcoal	837.00	2,106.00	2,557.00	2,627.00	2,971.00	2,267.00
72	Iron and steel	642,191.00	1,022,146.00	1,288,401.00	1,138,162.00	1,096,428.00	712,700.00
'15	Animal or vegetable fats and oils	3,131.00	4,656.00	4,680.00	3,514.00	3,920.00	2,171.00
'64	Footwear	26,263.00	31,821.00	40,947.00	56,750.00	56,315.00	52,218.00
'61	apparel knitted or crocheted	10,052.00	14,404.00	22,952.00	25,369.00	26,318.00	19,201.00
'55	Man-made staple fibres	70,112.00	130,432.00	153,788.00	144,967.00	140,003.00	107,224.00
'62	apparel not knitted or crocheted	36,412.00	49,780.00	63,837.00	71,885.00	82,626.00	71,697.00
'48	Paper and paperboard	54,119.00	68,626.00	82,004.00	79,292.00	101,561.00	88,322.00
'23	prepared animal fodder	20,411.00	23,506.00	25,768.00	31,662.00	39,229.00	32,885.00
'39	Plastics	546,360.00	694,096.00	732,848.00	784,811.00	729,609.00	567,043.00
80	Tin	3,648.00	9,366.00	6,720.00	2,071.00	1,530.00	849.00
'74	Copper	83,730.00	69,967.00	55,539.00	118,223.00	97,237.00	83,680.00
'94	Furniture	3,738.00	5,872.00	8,294.00	13,062.00	12,060.00	10,136.00
'52	Cotton	50,559.00	62,351.00	55,865.00	60,231.00	57,968.00	36,353.00
'17	Sugars	14,488.00	5,883.00	6,515.00	6,364.00	10,568.00	7,313.00
'92	Musical instruments	31,938.00	35,207.00	30,375.00	27,330.00	25,872.00	24,275.00
'60	Knitted or crocheted fabrics	596,910.00	713,032.00	666,865.00	628,312.00	639,660.00	575,523.00
'58	Special woven fabrics	77,460.00	77,655.00	72,842.00	61,595.00	66,748.00	58,046.00

Source: Trade Map

[28] According the data from Indonesia Board Statictics, Indonesia natural resources decreased from year to year.

South Korea became the 4th trading partner country in the world, among all exporting countries to Indonesia in manufacturing products, as table has shown that South Korea first exporting country in the mineral fuels & Oils, followed by Iron & Steel, knitted fabrics, and plastics & rubber.[29]

In this respect, South Korea still will be not a competitive country but is a complementary country with Indonesia.[30]

[29] Right now, Korea has already entered into Indonesian markets to join trading in electronic items: such as Computer, air conditioner, note book, handphone.

[30] Still in 2016 there are much significant trading volume between Indonesia and Korea, also in Indonesia Korea established KITA (Korea International Trade Association) as branch office and Indonesia established ITPC (Indonesia Trade Promotion Center) in Busan.

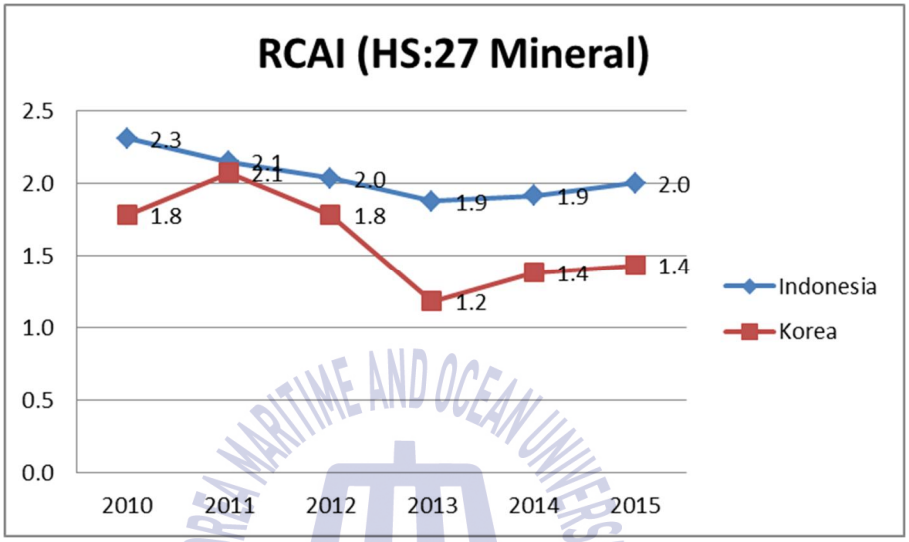
4.2 Analysis of Revealed Comparative Advantage (RCA)

Table 6: Export Index Revealed Comparative Advantage

HS Code	Industry	Indonesia						South Korea					
		2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015
27	Mineral	2.3	2.1	2.0	1.9	1.9	2.0	1.8	2.1	1.8	1.2	1.4	1.4
40	Rubber	3.6	4.6	4.9	5.9	5.5	6.5	2.2	2.4	2.1	2.3	2.1	2.4
44	Wood	2.0	1.9	2.0	2.7	3.3	4.9	0.0	0.1	0.1	0.1	0.1	0.1
72	Iron and steel	0.2	0.3	0.2	0.3	0.4	0.8	1.5	1.6	1.7	1.9	2.0	2.0
15	Animal or vegetable fats and oils	1.9	3.2	3.4	3.5	8.1	10.3	0.3	0.3	0.3	0.2	0.3	0.2
64	Footwear	1.2	1.1	1.5	2.7	2.8	3.6	1.6	1.2	1.5	2.1	2.2	2.3
61	apparel: knitted or crocheted	0.8	1.4	1.9	2.6	2.6	3.1	1.2	1.3	1.9	2.0	2.1	2.0
55	Man-made staple fibres	7.7	6.6	6.8	9.0	8.6	10.0	1.3	1.4	1.6	1.7	1.6	1.5
62	apparel, not knitted or crocheted	0.4	0.6	0.9	1.3	1.3	1.5	3.5	3.5	4.1	4.3	5.2	5.8
48	Paper	1.9	1.6	1.7	2.0	2.3	3.0	0.8	0.7	0.8	0.9	1.2	1.2
23	prepared animal fodder	1.3	1.6	2.4	2.5	3.3	2.4	0.2	0.1	0.1	0.2	0.2	0.2
39	Plastics and articles thereof	0.1	0.2	0.2	0.3	0.4	0.4	1.7	1.4	1.4	1.7	1.5	1.5
80	Tin	4.0	3.1	6.1	12.6	5.4	11.4	2.0	3.2	3.0	1.4	1.0	0.9
74	Copper	1.4	0.5	0.4	0.6	0.9	0.5	1.1	0.7	0.5	1.5	1.1	1.2
94	Furniture	0.6	0.7	0.7	0.9	1.0	1.0	0.2	0.2	0.2	0.3	0.3	0.3
52	Cotton	1.4	0.7	1.1	1.5	1.2	1.4	0.3	0.3	0.3	0.4	0.4	0.3
17	Sugars and sugar confectionery	0.7	0.5	0.7	1.1	2.4	1.2	0.2	0.0	0.0	0.1	0.1	0.1
92	Musical instruments	4.0	4.1	3.3	4.9	4.6	5.7	3.5	2.3	2.2	2.5	2.3	2.9
60	Knitted or crocheted fabrics	0.5	0.5	1.7	2.5	1.5	3.1	9.6	7.4	7.1	7.6	7.4	7.6
58	Special woven fabrics; tufted textile fabrics	0.6	0.8	0.9	1.1	1.1	1.2	4.9	3.5	3.6	3.5	3.6	3.6

This research will focus on 20 sectors of export in 2 digit HS code, because these 20 sectors are very highly comparable products in both countries. We also examine the export data during 2010 to 2015, and the result of RCA between Indonesia's and South Korea's export. These are shown below:

Figure 4: RCA Index of HS 27



The results has shown that in the product of mineral on HS Code 27, both Indonesia and South Korea have comparative advantages, because the index RCA >1 , but Indonesia still is a winner, compared with South Korea, for example, in 2010 Indonesia has higher RCA index 2.3 for Korea's 1.8 and. The other years has shown the same trends, so Indonesia still has some competitiveness in mineral sector, compared with Korea.

Figure 5: RCA Index of HS 40

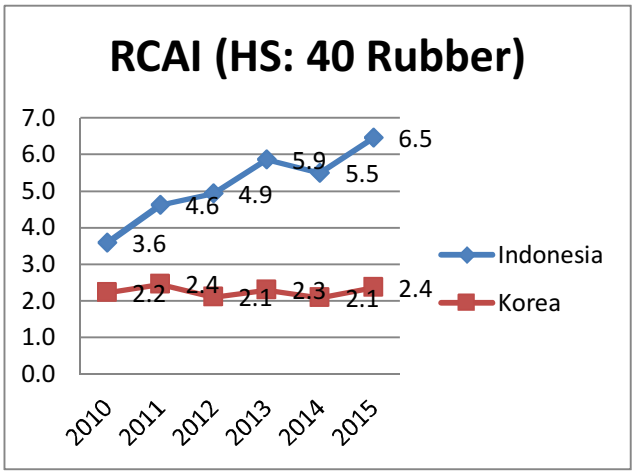
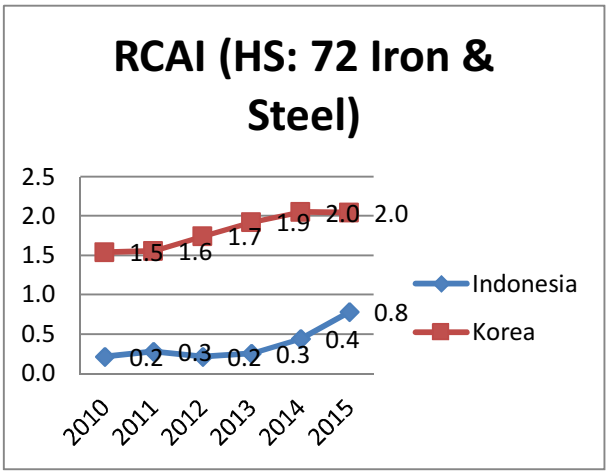


Figure 6: RCA Index of HS 72



The figure of RCA index for HS Code 40(rubber) showed that from 2010 till 2015 both Indonesia and South Korea have comparative advantage in rubber item. In 2010 Indonesia has index 3.6 and South Korea, 2.2 ; in 2011 Indonesia has RCA index 4.6 and S. Korea, 2.4; in 2012 Indonesia has RCA index 4.9 and S. Korea has 2.1 ; in 2013 Indonesia has 5.9 but S. Korea has 2.3; in 2014 Indonesi, 5.5 and S. Korea, 2.1; and in 2015 Indonesia has RCA index 6.5 and S. Korea has 2.4. Therefore, year by year Indonesia has positive growth of RCA index for HS 40, a rubber. As we knew that Indonesia is a country where many natural resources abounds, this result shows that rubber is a highly competitive item for Indonesia's export performance.

In other side, the RCA index of HS 72 (Iron & Steel) shows that South Korea has a comparative advantage, and Indonesia has a comparative disadvantage, because the RCA for South Korea from 2010 to 2015 is greater than 1 ; but Indonesia's RCA is less than 1. In 2010 South Korea has RCA index 1.5 and Indonesia, 0.2 ; in 2011 South Korea RCA index hass 1.6 and Indonesia, 0.3; in 2012 South Korea RCA index has 1.7 and Indonesia, 0.2 ; in 2013 South Korea RCA Index has 1.9 and Indonesia, 0.3 ; in 2014 South Korea has RCA index 2.0 and Indonesia, 0.4; in 2015 South Korea RCA index is 2.0 and Indonesia RCA index is 0.8.

Figure 7: RCA Index of HS 80

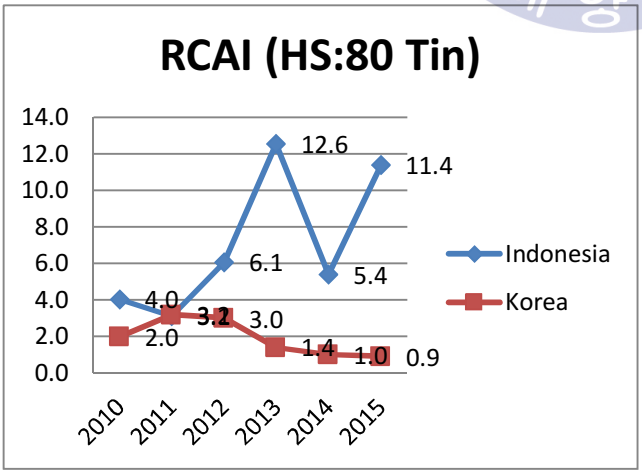


Figure 8: RCA Index of HS 74

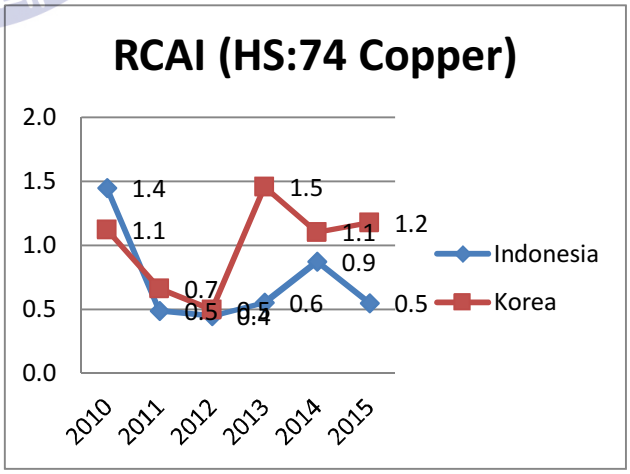


Figure 7 has shown RCA index for HS Code 80, “Tin” product. For this product both countries have comparative advantages, except the year 2015, when South Korea has comparative disadvantage, because the RCA index is 0.9 that is <1. In year of 2010 Indonesia

has RCA index 4.0 and South Korea, 2.0; in 2011 Indonesia RCA index, 3.1 and South Korea ,3.2; in 2012 Indonesia RCA index is 6.1 and South Korea, 3.0; in 2013 Indonesia has RCA index 12.6 and South Korea, 1.4; in 2014 Indonesia has RCA index 5.4 and South Korea, 1.0; and in 2015 Indonesia has RCA index 11.4 but South Korea get RCA index 0.9 which means that Korea has a comparative disadvantage.

Hence, RCA index of HS Code 74 on Copper sector has shown that in 2010 Indonesia has comparative advantage, that is RCA index 1.4 bigger than South Korea 1.1, but in 2011 to 2015 Indonesia has comparative disadvantage. We describe, in 2010 both South Korea and Indonesia have comparative advantages in Korea's RCA index 1.1 and Indonesia's 1.4; in 2011 South Korea RCA index is 0.7 which has comparative disadvantage and Indonesia also get 0.5 which RCA < 1 , so has comparative disadvantage. In 2012 Indonesia and South Korea get comparative disadvantage, Indonesia's RCA index 0.4 and South Korea's 0.5. In 2013 South Korea get RCA index 1.5 which has comparative advantage, and Indonesia RCA index is 0.6 which means comparative disadvantage; in 2014 South Korea RCA index is 1.1 which has comparative advantage and Indonesia RCA index is 0.9 which has comparative disadvantage; in the last 2015 South Korea RCA index is 1.2 which has comparative advantage and Indonesia RCA index is 0.5 which has comparative disadvantage.

Figure 9: RCA Index of HS 64

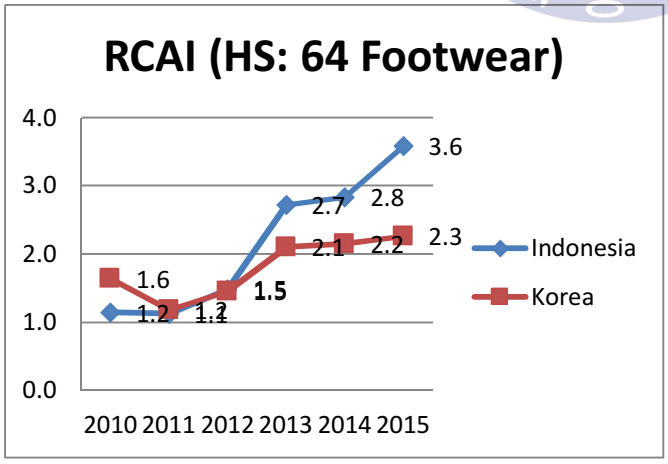
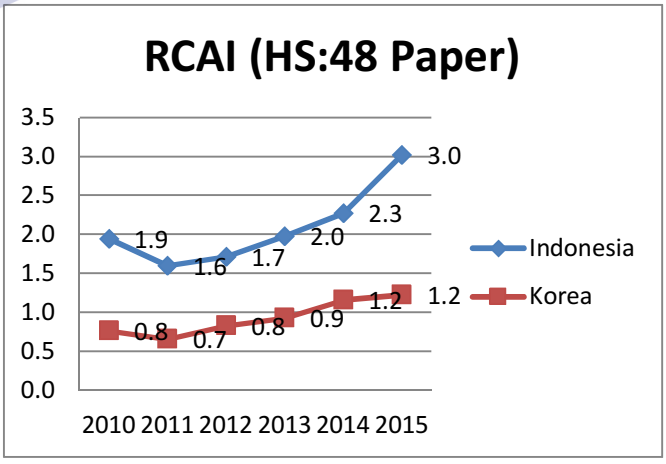


Figure 10: RCA Index of HS 48



The Figure 9 has shown RCA index on HS 64 footwear sector, which shows that Indonesia and South Korea has comparative advantage because from 2010 to 2015 the RCA index >1. In 2010 Indonesia RCA index is 1.6 and South Korea, 1.2; in 2011 the RCA index

for Indonesia is 1.1 and South Korea is 1.2; in 2012 both Indonesia and South Korea has 1.5; in 2013 Indonesia RCA index is 2.7 and South Korea is 2.1; in 2014 Indonesia RCA index is 2.8 and South Korea is 2.2; and in the last year of 2015 Indonesia has RCA index 3.6 and South Korea has 2.3. By this result, it can be interpreted that Indonesia and South Korea have very strong competitiveness for manufacturing sector of footwear.

The figure 10 has shown RCA index for HS code 48 Paper sector. Indonesia from 2010 to 2015 has comparative advantage, but South Korea has comparative disadvantage in from 2010 to 2013, hence, during 2014 and 2015 South Korea has comparative advantage. In 2010 Indonesia RCA index is 1.9 and South Korea has 0.8 that means that Indonesia has comparative advantage and South Korea has comparative disadvantage. In 2011 Indonesia RCA index is 1.6 which >1, so has comparative advantage, but South Korea RCA index is 0.7 which means that Korea has comparative disadvantage. In 2012 Indonesia RCA index 1.7 means comparative advantage and South Korea RCA index 0.8 means comparative disadvantage. In 2013 Indonesia RCA index 2.0 means comparative advantage and South Korea 0.9 means comparative disadvantage. In 2014 Indonesia RCA index 2.3 means comparative advantage and also, South Korea RCA index 1.2 means comparative advantage. In 2015 Indonesia RCA index 3.0 means comparative advantage, and also South Korea has comparative advantage in RCA index 1.2.

Figure 11: RCA Index of HS 23

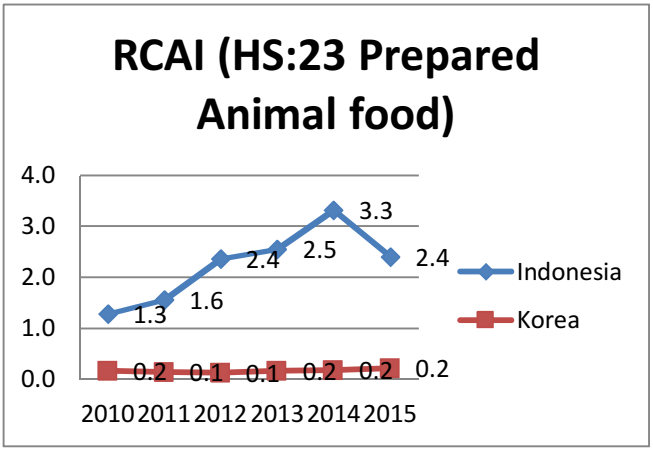
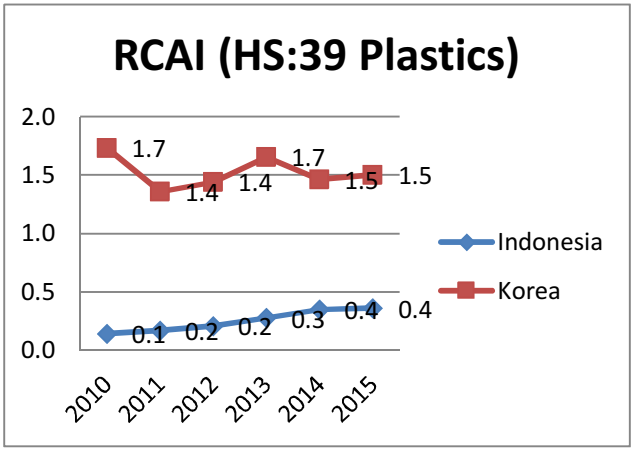


Figure 12: RCA Index of HS 39



The figure 11 has shown the RCA index in HS Code 23 for prepared animal food

sector. This figure shows that Indonesia truly has comparative advantage from 2010 to 2015, but South Korea has comparative disadvantage. In 2010 Indonesia RCA index 1.3 means comparative advantage and South Korea RCA index 0.2 means comparative disadvantage. In 2011 Indonesia RCA index 1.6 means comparative advantage and South Korea RCA index 0.1 means comparative disadvantage. In 2012 Indonesia RCA index is 2.4 and South Korea RCA index is 0.1; in 2013 Indonesia RCA index is 2.5 and South Korea RCA index is 0.2; in 2014 Indonesia RCA index is 3.3 and South Korea RCA index is 0.2; in 2015 Indonesia's RCA index is 2.4 but still has comparative advantage, but South Korea has comparative disadvantage from the result that RCA index is 0.2.

Figure 12 shows RCA index of HS code 39 for plastics sector. From this figure we can know that South Korea has comparative advantage during 2010 to 2015 because RCA index > 1, but Indonesia has comparative disadvantage during 2010 to 2015, because RCA index < 1. In 2010 South Korea RCA index is 1.7 and Indonesia, 0.1; in 2011 South Korea RCA index is 1.4 and Indonesia, 0.2; in 2012 South Korea RCA index is 1.4 and Indonesia 0.2; in 2013 South Korea RCA index is 2.4 and Indonesia is 0.2; in 2014 South Korea RCA index is 1.7 and Indonesia 0.3; in 2014 South Korea RCA index is 1.5 and Indonesia, 0.4; in the last year of 2015 South Korea RCA index is 1.5 and Indonesia get 0.4. This result means that Indonesia has no ability to export more to South Korea, but South Korea get the positive export performance in this sector.

Figure 13: RCA Index of HS 44

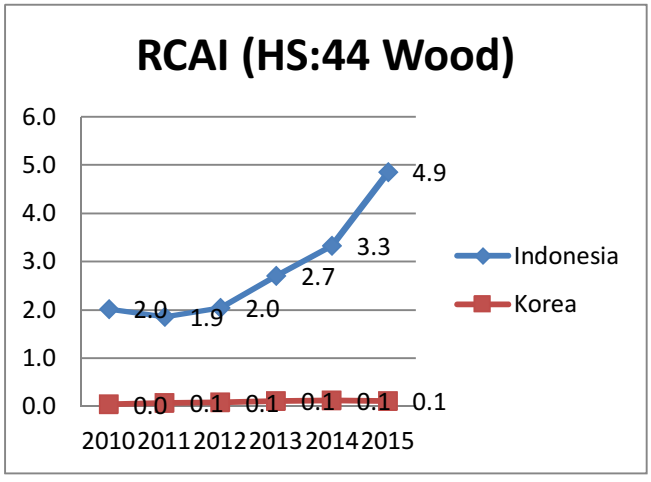


Figure14: RCA Index of HS 61

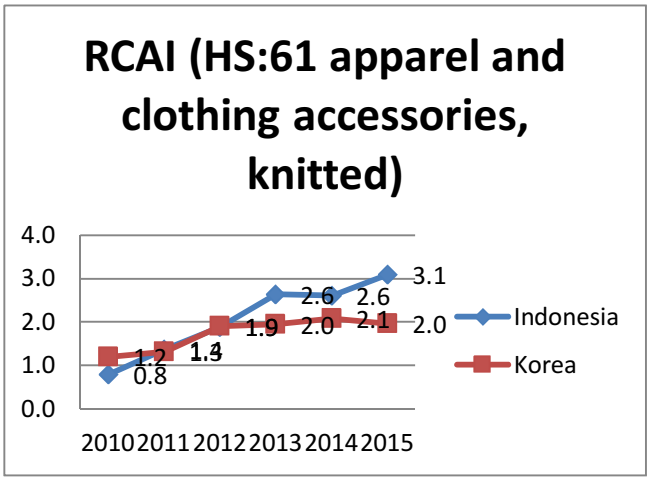


Figure 13 shows the result for wood sector in HS code 44, which means that Indonesia has comparative advantage from 2010 to 2015 because the RCA index > 1, but South Korea has comparative disadvantage from 2010 to 2015 because the RCA index < 1. In 2010 Indonesia RCA index is 2.0 and South Korea has 0.0; in 2011 Indonesia RCA index is 1.9 and South Korea has 0.1; in 2012 Indonesia RCA index is 2.0 and South Korea has 0.1; in 2013 Indonesia RCA index is 2.7 and South Korea gets 0.1; in 2014 Indonesia RCA index is 3.3 and South Korea has 0.1; in the last 2015 Indonesia RCA index is 4.9 and South Korea gets still 0.1. From this result, it can be interpreted that Indonesia has always shown comparative advantage.

Figure 14 has shown the result of HS code 61 for Apparel and Clothing accessories sector, which means that both Indonesia and South Korea has comparative advantage. In 2010 Indonesia RCA index 0.8 has comparative disadvantage and South Korea 1.2 has comparative advantage; in 2011 Indonesia RCA index is 1.4 and South Korea has 1.3,which means that both countries has comparative advantage; in 2012 Indonesia and South Korea RCA index is 1.9 which means comparative advantage; in 2013 Indonesia RCA index 2.6 and South Korea RCA index 2.0 which means that both countries has comparative advantage; in 2014 Indonesia RCA index 2.6 and South Korea index 2.1 also, means comparative advantage; the year in 2015 Indonesia RCA index is 3.1 and South Korea has 2.0 which means comparative advantage.

Figure 15: RCA Index of HS 94

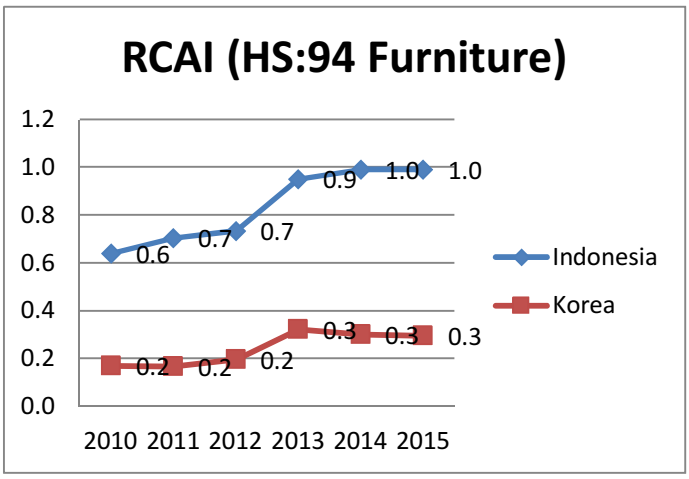


Figure 16: RCA Index of HS 60

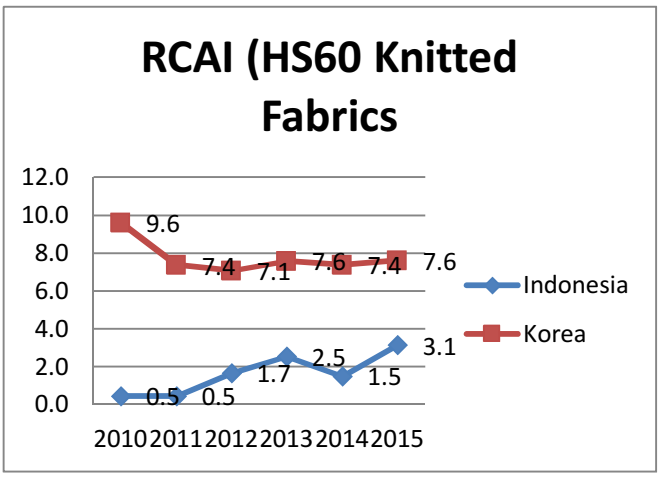


Figure 15 has shown the RCA index for Furniture sector, which shows that Indonesia only in two year has comparative advantage that is in 2014 and 2015. In 2010 Indonesia RCA index is 0.6 and South Korea has 0.2, which means that both countries have comparative disadvantage; in 2011 Indonesia RCA index 0.7 and South Korea's 0.2 , also means comparative disadvantage; in 2012 Indonesia RCA index is 0.7 and South Korea is 0.2 means comparative advantage; in 2013 decreasing RCA index of Indonesia is 0.9 and South Korea 0.3 means comparative disadvantage; in 2014 Indonesia RCA index 1.0 has comparative advantage because > 1, but South Korea 0.3 has comparative disadvantage; in 2015 Indonesia RCA index 1.0 means comparative advantage and South Korea 0.3 means comparative disadvantage.

In figure 16 for knitted fabrics sector above, we know that in 2010 Indonesia RCA index 0.5 has comparative disadvantage and South Korea 9.6 has comparative advantage; in 2011 Indonesia RCA index 0.5 has comparative disadvantage and South Korea 7.4 has comparative advantage; in 2012 Indonesia RCA index 1.7 has comparative advantage and South Korea 7.1 has comparative advantage; in 2013 Indonesia RCA index is 2.5 and South Korea is 7.6 which both countries means comparative advantage; in 2014 Indonesia RCA index is 1.5 and South Korea has 7.4 which means comparative advantage; the last year of 2015 Indonesia has RCA index 3.1 and South Korea has 7.6 which means comparative advantage.

Figure 17: RCA Index of HS 52

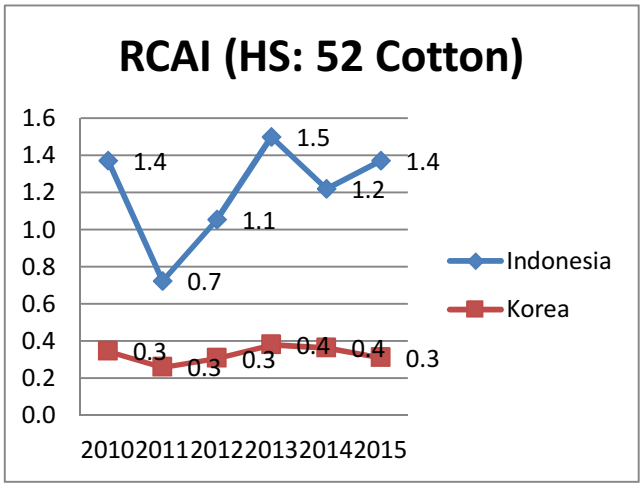


Figure 18: RCA Index of HS 55

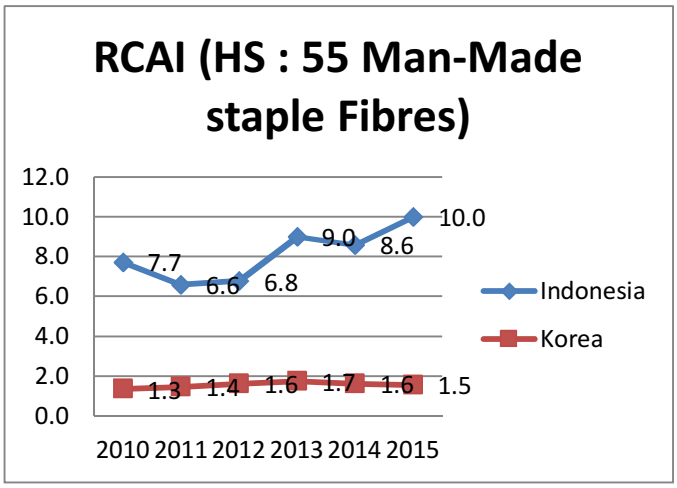


Figure 17 has shown RCA index in HS Code 52 for cotton sector. Indonesia has comparative advantage, except in 2011, which means comparative disadvantage. In 2010 Indonesia RCA index is 1.4 which means comparative advantage because > 1, but South Korea RC index is 0.3 which means comparative disadvantage because < 1; in 2011 Indonesia RCA index is 0.7 and South Korea 0.3, which means that both countries has comparative disadvantage; in 2012 Indonesia RCA index 1.1 has comparative advantage but South Korea 0.3 has comparative disadvantage; in 2013 Indonesia RCA index 1.5 has comparative advantage, but South Korea 0.4 has comparative disadvantage; in 2014 Indonesia RCA index 1.2 has comparative advantage and South Korea 0.4 has comparative disadvantage; in 2015 Indonesia's RCA index 1.4 has comparative advantage and South Korea 0.3 means comparative disadvantage.

Figure 18 has shown the results of man-made staple fibres in HS code 55, In 2010 Indonesia RCA index is 7.7 and South Korea has 1.3, which means both countries have comparative advantage; in 2011 Indonesia RCA index 6.6 and South Korea 1.4 shows comparative advantage; in 2012 Indonesia RCA index 6.8 and South Korea 1.6 means comparative advantage; in 2013 Indonesia RCA index 9.0 and South Korea 1.7 means comparative advantage; in 2014 Indonesia RCA index 8.6 and South Korea 1.6 means comparative advantage; in the last year 2015 Indonesia RCA index 10 and South Korea 1.5 means comparative advantage in both countries.

Figure 19: RCA Index of HS 17

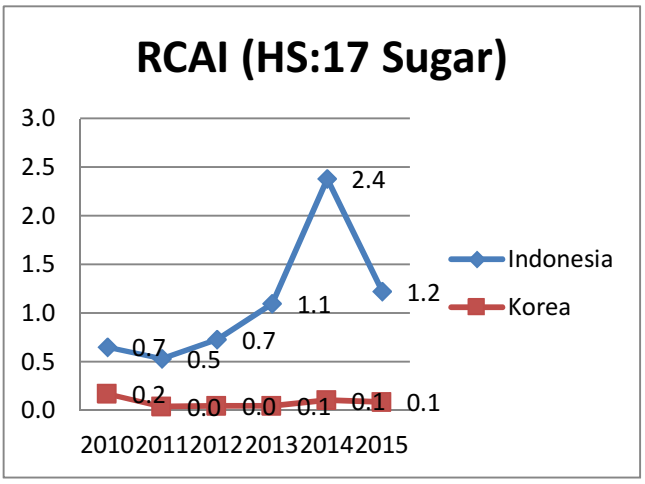


Figure 20: RCA Index of HS 92

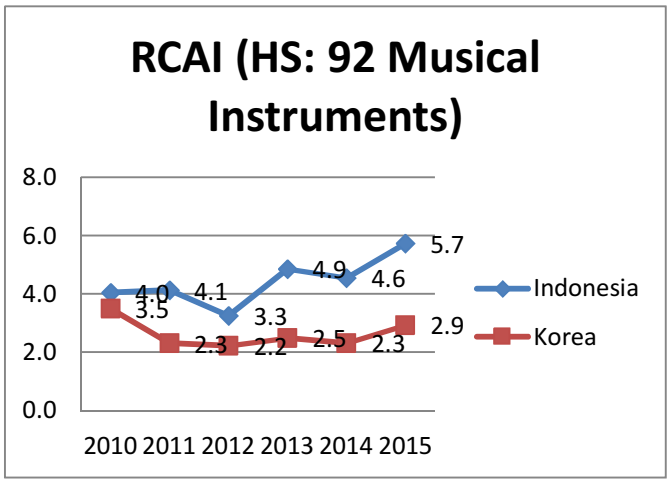


Figure 19 has shown RCA index for sugar sector, for HS code 17. In the year of 2010 Indonesia RCA index is 0.7 and South Korea has 0.2, which means comparative disadvantage, because RCA<1; in 2011 Indonesia RCA index is 0.5 and South Korea has 0.0, which means that both countries have comparative disadvantage; in 2012 Indonesia RCA index is 0.7 and South Korea has 0.0, which means comparative disadvantage; in 2013 Indonesia RCA index is 1.1 means comparative advantage because RCA > 1, but South Korea 0.1 means comparative disadvantage; in 2014 Indonesia RCA index is 2.4 which means comparative advantage, but South Korea 0.1 means comparative disadvantage; in 2015 Indonesia RCA index 1.2 means comparative advantage and South Korea 0.1 means comparative disadvantage.

Figure 20 has shown the result of musical instrument sector in HS code 92, which in all years, from 2010 to 2015 both Indonesia and South Korea have comparative advantage, because all of RCA index > 1. In 2010 Indonesia RCA index 4.0 and South Korea 3.5; in 2011 Indonesia RCA index is 4.1 and South Korea's 2.3; in 2012 Indonesia RCA index is 3.3 and South Korea's 2.2 ; in 2013 Indonesia RCA index is 4.9 and South Korea's 2.5; in 2014 Indonesia RCA index 4.6 and South Korea's 2.3 ; in 2015 Indonesia RCA index is 5.7 and South Korea's 2.9. From this results, RCA index of Indonesia is bigger than South Korea's, so this means that Indonesia's musical instrument has more competitiveness for Korea's musical instruments.

Figure 21: RCA Index of HS 58

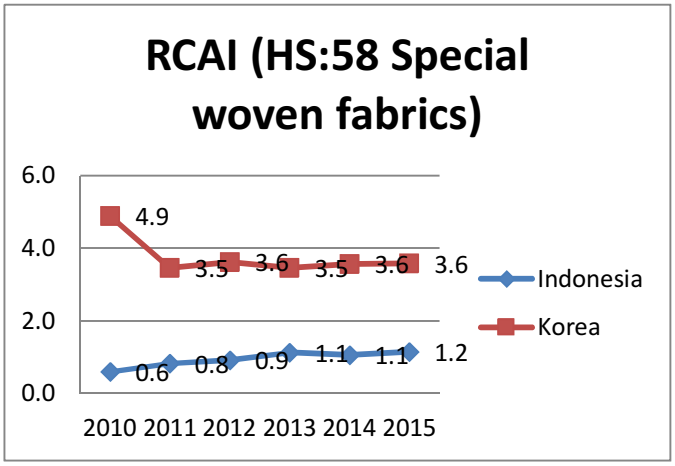


Figure 22: RCA Index of HS 62

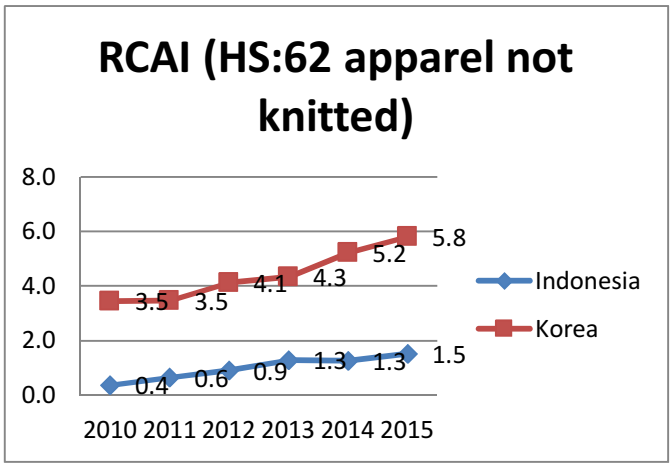


Figure 21 has shown the special woven fabrics sector HS code 58. In 2010 Indonesia's RCA index 0.6 means comparative disadvantage, because RCA< 1, but South

Korea 4.9 means comparative advantage, the RCA > 1; in 2011 Indonesia RCA index 0.8 which means no comparative advantage and South Korea 3.5 which means comparative advantage; in 2012 Indonesia RCA index 0.9 means comparative disadvantage and South Korea 3.6 means comparative advantage; in 2013 Indonesia RCA index 1.1 and South Korea 3.5 means comparative advantage. In 2014 Indonesia RCA index 1.1 and South Korea 3.6 means comparative advantage; in 2015 Indonesia has RCA index 1.2 and South Korea has 3.6 , which means that both countries have comparative advantage.

Figure 22 has shown the result for apparel not knitted on HS code 62. In 2010 Indonesia RCA index is 0.4 which means comparative disadvantage and South Korea 3.5 means comparative advantage because RCA > 1; in 2011 Indonesia RCA index 0.6 means comparative disadvantage and South Korea 3.5 means comparative advantage; in 2012 Indonesia RCA index 0.9 means comparative disadvantage and South Korea 4.1 means comparative advantage; in 2013 Indonesia RCA index 1.3 means comparative advantage and also South Korea 4.3 means comparative advantage; in 2014 Indonesia RCA index 1.3 and South Korea 5.2 means that both countries has comparative advantage; in the last year of 2015 Indonesia RCA index is 1.5 and South Korea has 5.8, which means that both of countries have comparative advantage.

Figure 23: RCA Index of HS 15

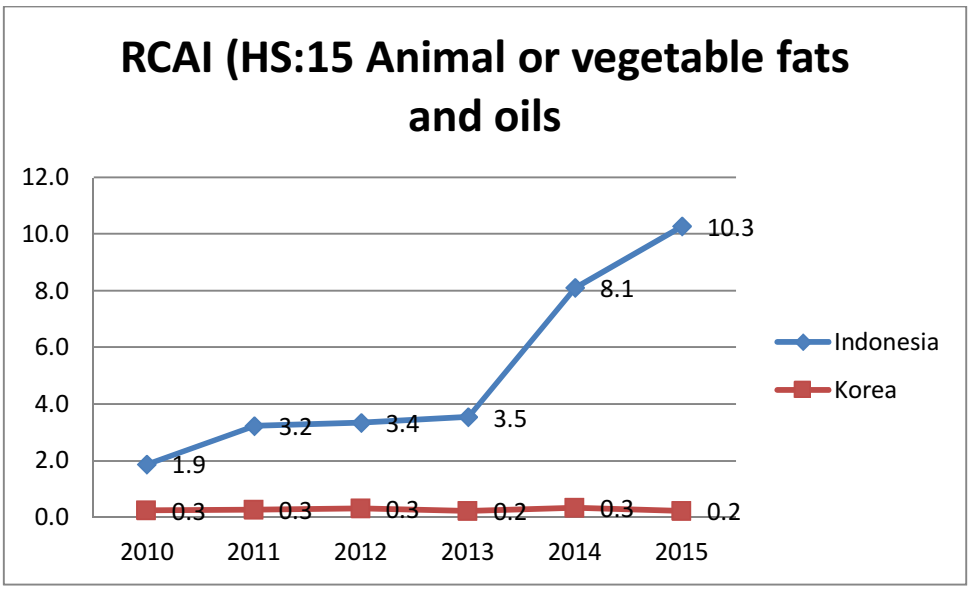


Figure 23 has shown us the result for animal or vegetable fats and oils in HS code 15 which shows that Indonesia has comparative advantage from 2010 to 2015, because RCA >1, but South Korea has comparative disadvantage from 2010 to 2015 because the RCA < 1. In 2010 Indonesia RCA is 1.9 and South Korea has 0.3; in 2011 Indonesia RCA index 3.2 and South Korea 0.3; in 2012 Indonesia RCA index is 3.4 and South Korea 0.3; in 2013 Indonesia RCA index is 3.5 and South Korea has 0.3; in 2014 Indonesia RCA index is 8.1 and South Korea has 0.3; and in the last year 2015 Indonesia has RCA 10.3 and South Korea has RCA 0.2. From these results we can see that Indonesia has positive export performance which always has grown every year.

Table 7: Net Export Index Revealed Comparative Advantage

HS Code	Product	Indonesia						South Korea					
		2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015
'27	Mineral fuels	36.9	25.9	31.7	38.1	26.1	28.9	-36.9	-25.9	-31.7	-38.1	-26.1	-28.9
'40	Rubber	8.2	11.4	8.2	11.9	6.2	11.8	-8.2	-11.4	-8.2	-11.9	-6.2	-11.8
'44	Wood: wood charcoal	81.9	88.1	93.0	96.4	93.8	96.9	-81.9	-88.1	-93.0	-96.4	-93.8	-96.9
'72	Iron and steel	-50.4	-55.1	-76.2	-81.0	-66.9	-53.3	50.4	55.1	76.2	81.0	66.9	53.3
'15	Animal or vegetable fats and oils	74.5	85.1	89.8	91.8	92.6	96.3	-74.5	-85.1	-89.8	-91.8	-92.6	-96.3
'64	Footwear	19.9	27.0	30.1	36.5	38.9	47.3	-19.9	-27.0	-30.1	-36.5	-38.9	-47.3
'61	apparel knitted or crocheted	42.6	61.8	61.3	67.0	63.8	75.6	-42.6	-61.8	-61.3	-67.0	-63.8	-75.6
'55	Man-made staple fibres	43.0	26.3	11.7	13.4	4.6	14.8	-43.0	-26.3	-11.7	-13.4	-4.6	-14.8
'62	apparel not knitted or crocheted	-6.3	20.8	24.4	31.7	25.8	32.9	6.3	-20.8	-24.4	-31.7	-25.8	-32.9
'48	Paper and paperboard	21.8	9.7	-3.2	-5.1	-12.1	0.7	-21.8	-9.7	3.2	5.1	12.1	-0.7
'23	prepared animal fodder	42.4	52.1	66.0	61.2	58.8	44.8	-42.4	-52.1	-66.0	-61.2	-58.8	-44.8
'39	Plastics	-71.1	-76.4	-80.3	-84.1	-78.2	-78.9	71.1	76.4	80.3	84.1	78.2	78.9
'80	Tin	70.4	58.9	78.9	95.4	89.1	95.5	-70.4	-58.9	-78.9	-95.4	-89.1	-95.5
'74	Copper	42.3	21.5	20.5	-21.4	7.3	-22.2	-42.3	-21.5	-20.5	21.4	-7.3	22.2
'94	Furniture	66.3	68.7	63.9	55.8	59.8	65.1	-66.3	-68.7	-63.9	-55.8	-59.8	-65.1
'52	Cotton	14.1	-8.3	-4.3	-3.4	-21.2	-5.8	-14.1	8.3	4.3	3.4	21.2	5.8
'17	Sugars	18.4	55.6	61.0	66.0	67.4	51.5	-18.4	-55.6	-61.0	-66.0	-67.4	-51.5
'92	Musical instruments	-18.0	-12.1	-19.7	-11.6	-16.5	-9.6	18.0	12.1	19.7	11.6	16.5	9.6
'60	Knitted or crocheted fabrics	-82.5	-90.1	-94.6	-97.2	-95.0	-95.9	82.5	90.1	94.6	97.2	95.0	95.9
58	Special woven fabrics	-80.2	-86.1	-91.3	-93.5	-91.2	-92.8	80.2	86.1	91.3	93.5	91.2	92.8

Source: calculated by author

Note: the index measures net exports as a percentage of trade flow, corrected for aggregate net exports as a proportion of aggregate trade flow.

In table 7 above describes the net export index of Revealed Comparative Advantage, which compares Indonesia's sectors with Republic of Korea sectors. As the net export means RCA minus , it means deficit, but as the net export means RCA plus, it means surplus.

Figure 24 describes the results for HS code 27 in Mineral Fuels, from 2010 to 2015. Indonesia has surplus and Republic of Korea has deficit, in 2010 Indonesia's Net Export RCA index is 36.9, in 2011 is 25.9, in 2012 31.7, in 2013 is 38.1, in 2014 is 26.1, and the last year 2015 is 28.9 . The result shows the highest index in 2013.

Here, we will discuss these results for every year:

Figure 24: Net Export RCA index, HS 27

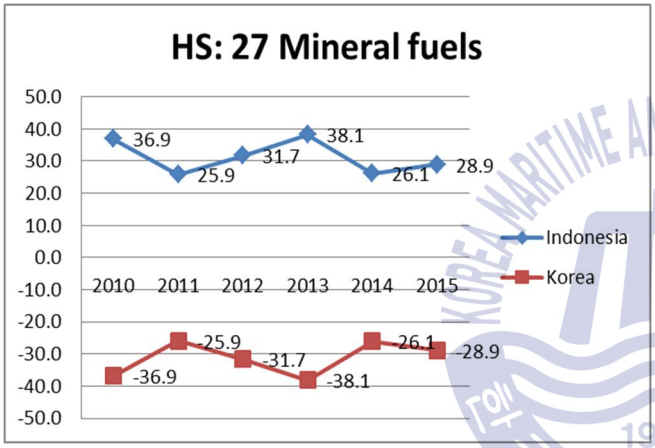
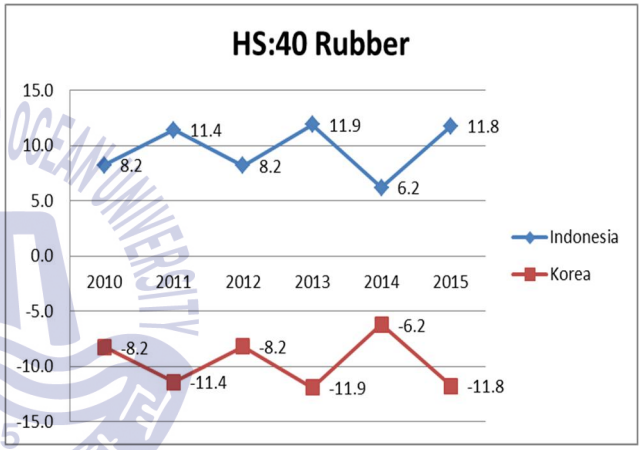


Figure 25: Net Export RCA index, HS 40



Meanwhile, Figure 25 shows the result, which means that Republic of Korea in all years has deficit, in 2010 gets -8.2, in 2011 gets -11.4, in 2012 gets -8.2, in 2013 gets -11.9, in 2014 gets -6.2, and in the last 2015 gets -11.8.

Figure 26: Net Export RCA index, HS 44

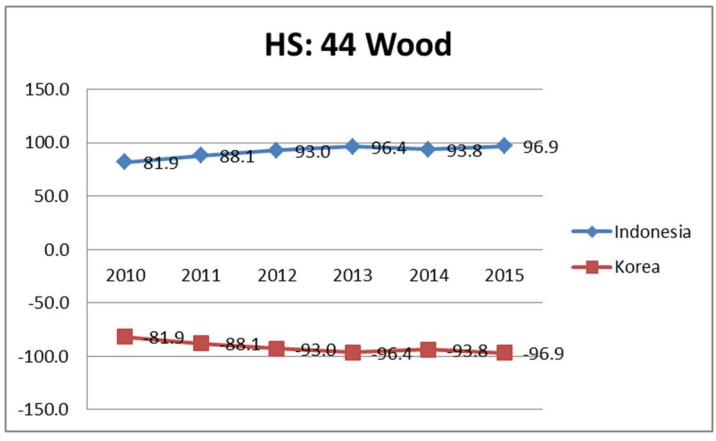
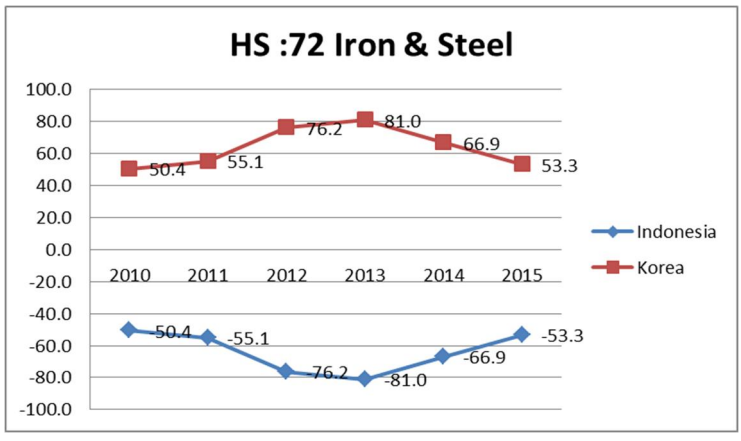


Figure 27: Net Export RCA index, HS 72



In figure 26 we can see for the HS code 44 of wood sector that Indonesia from 2010 to 2015 gets surplus, but Republic of Korea gets deficit, in 2010 Indonesia has net export RCA 81.9, in 2011 88.1, in 2012 93.0, in 2013 96.4, in 2014 93.8, and in 2015 96.9. In other side, Republic of Korea has deficit, because along years 2010-2015 Korea has minus results, which will be described as follows, in 2010 gets -81.9, in 2011 -88.1, in 2012 -93.0, in 2013 -96.4, in 2014 -93.8, and in 2015 -96.9. Besides that, Republic of Korea during the years 2010-2015 has deficit, that is, in 2010 has -81.9, in 2011 -88.1, in 2012 get -93.0, in 2013 -96.4, in 2014 -93.8, and in the last 2015 -96.9.

Figure 27 shows that in this sector for Iron and Steel Republic of Korea has surplus from 2010 to 2015, but Indonesia has deficit along the years. In 2010 Republic of Korea (ROK) has amount 50.4, hence, in 2011 has 55., in 2012 has 76.2, then in 2013 has 81.0, but in 2014 has 66.9 and also in 2015 has 53.3.

Figure 28: Net Export RCA index, HS 15

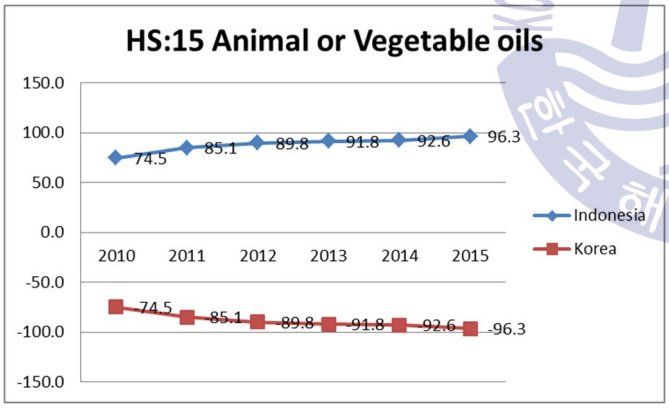


Figure 29: Net Export RCA index, HS 64

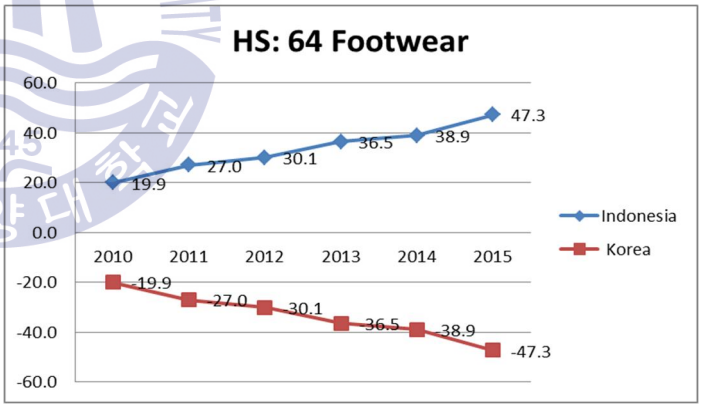


Figure 28 shows the results for HS Code 15 for product animal or vegetables oils. In this sector Indonesia has surplus from 2010 to 2015, but Republic of Korea has deficit. In 2010 Indonesia has net export RCA index 74.5, in 2011 85.1, in 2012 89.8, in 2013 91.8 and in 2014 92.6, and in the last 2015 96.3. In other side, the Republic of Korea has deficit, which is described as following; in 2010 net export RCA is -74.5, then in 2011 decreased to -85.1, and also in 2012 was decreased to -89.8, and in 2013 decreased to -91.8 and in 2014 was decreased to -92.6, and in the last 2015 the index is decreased -96.3.

Figure 29 shows the results for HS 64 in footwear sector. Indonesia has surplus and

Republic of Korea has deficit from 2010 to 2015, which can be described as following. In 2010 Indonesia has 19.9 and Republic of Korea gets -19.9, in 2011 Indonesia net export index is 27.0 and Republic of Korea has -27.0, then in 2012 Indonesia index is 30.1 and Republic of Korea has -30.1, in 2013 Indonesia gets net export 36.5 which was increased, Republic of Korea has -36.5, for 2014 Indonesia gets 38.9 and Republic of Korea has -38.9, and in the last 2015 Indonesia gets increased index also to 47.3 and for Republic of Korea has -47.3.

Figure 30: Net Export RCA index, HS 61

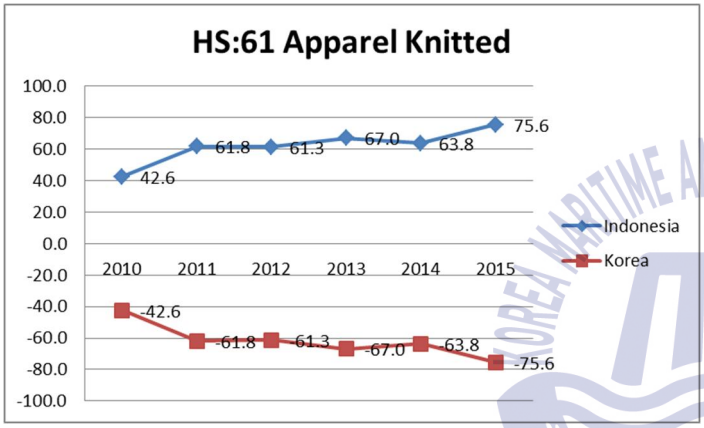
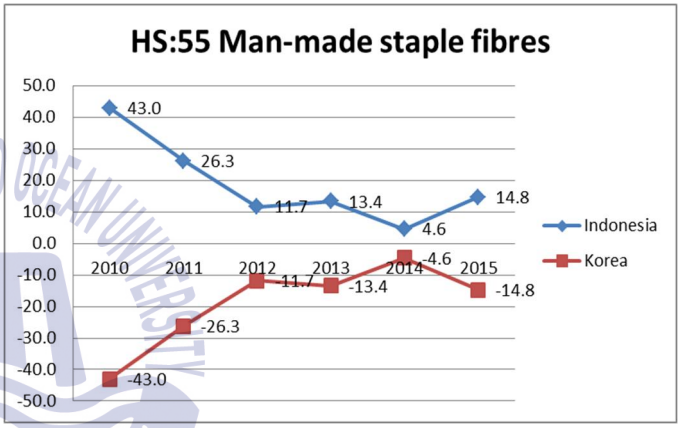


Figure 31: Net Export RCA index, HS 55



The figure 29 describes the results for net export RCA index on HS 61 in apparel knitted sector, which shows that Indonesia has surplus and Republic of Korea has deficit from 2010 to 2015. In 2010 Indonesia's index is 42.6 and in 2011 increased to 61.8, but in 2012 decreased to 61.3, in 2013 increased to 67.0, and in 2014 decreased to 63.8, in the last 2015 get to be increased to 75.6, which means that Indonesia's apparel knitted industry continuously has been exported the products to Republic of Korea. In other side, Republic of Korea from 2010 to 2015 gets deficit, in 2010 ROK's index is -42.6, then in 2011 decreased to -61.8, in 2012 is -61.3, in 2013 decreased to -67.0, then in 2014 increased to -63.8 , but also in 2015 decreased to -75.6.

Figure 31 shows the sector of Man -Made staple fibres in HS 55. In this sector Indonesia has surplus and Republic of Korea has deficit, so we will see that in 2010 Indonesia's index is 43.0 but in 2011 decreased to 26.3, also in 2012 decreased to 11.7, then in 2013 increased to 13.4, in 2014 decreased to 4.6, and the last year 2015 increased to 14.8.

In Republic of Korea's index in 2010 has been -43.0 but in 2011 gets increased to -26.3, then in 2012 ROK gets -11.7, but in 2013 decreased again to -13.4 but in 2014 increased to -4.6 , and in 2015 decreased to -14.8.

Figure 32: Net Export RCA index, HS 62

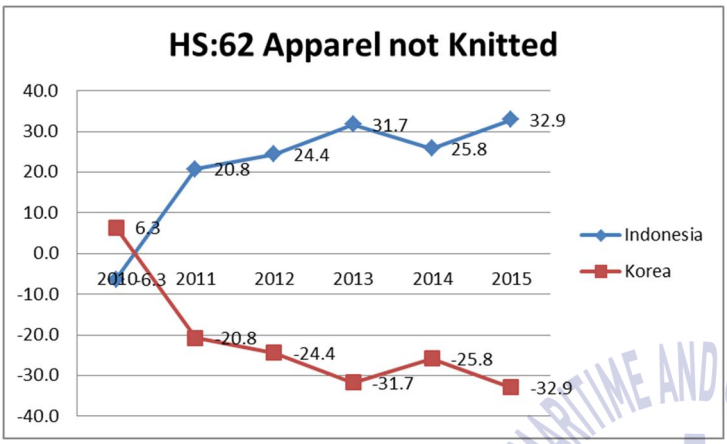


Figure 33: Net Export RCA index, HS 48

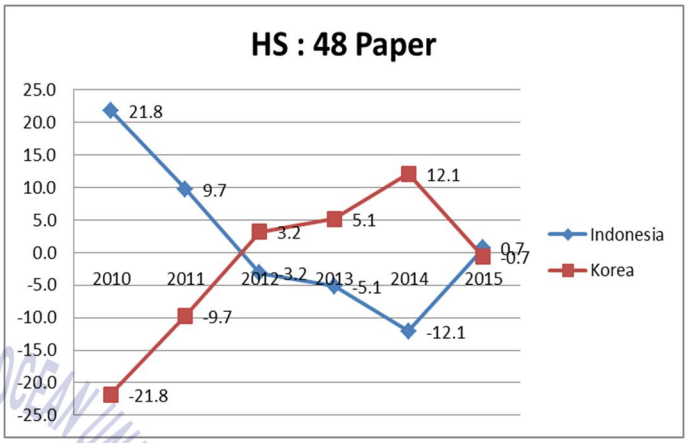


Figure 32 shows the sector of Apparel not knitted on HS code 62, which is described as following. In 2010 Indonesia has deficit, which gets -6.3 but Republic of Korea has surplus 6.3, in 2011 Indonesia suddenly fast grow to 20.8 which gets surplus, but for Republic of Korea gets deficit -20.8, in 2012 Indonesia get surplus and increased to 24.4 but Republic of Korea get deficit which get -24.4, in 2013 Indonesia has surplus and also increased to 31.7 but ROK gets deficit which get -31.7, in 2014 Indonesia gets decreased to 25.8, and ROK gets increased to -25.8, in the last of 2015 Indonesia gets increased to 32.9 but ROK gets decreased to -32.9.

Figure 33 shows the sector of paper in HS code 48, which is described as following In 2010 Indonesia gets surplus 21.8 but in 2011 Indonesia gets down and decreased to 9.7 , in 2012 gets deficit and decreased to -32 and also in 2013 gets deficit -51, still in 2014 gets decreased to -12.1 but in 2015 Indonesia gets surplus in 0.7. In other side Republic of Korea gets deficit -21.8 and in 2011 gets -97, in 2012 gets surplus and increased to 3.2, also in 2013 ROK get surplus 5.1, then in 2014 still get surplus and increased to 12.1, but in 2015 gets deficit and turn down to -0.7.

Figure 34: Net Export RCA index, HS 23

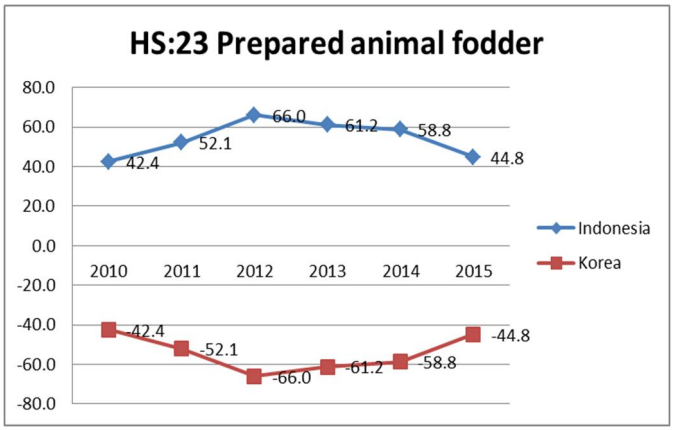


Figure 35: Net Export RCA index, HS 39

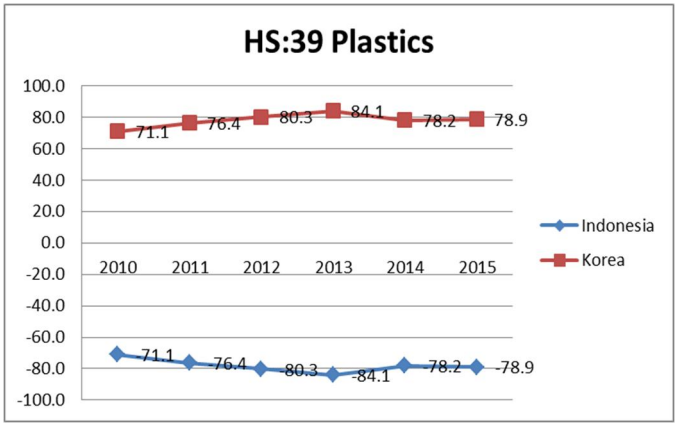


Figure 34 shows us the Net export RCA for Prepared animal fodder sector. In this sector Indonesia has surplus and Republic of Korea has deficit from 2010 to 2015, which is described as following. In 2010 Indonesia gets 42.4 and in 2012 gets increased to 52.1, also in 2012 gets increased to 66.0, but in 2013 decreased to 61.2, in 2014 decreased to 58.8 and in the last 2015 gets decreased to 44.8. In other side, Republic of Korea gets deficit in 2010 -42.4, and in 2011 decreased to -52.1, in 2013 also decreased to -66.0 , in 2013 a little bit increased to -61.2, hence, in 2014 increased to -58.8, and also in the last 2015 increased to -44.8, which means that Indonesia has more endowments of producing animal fodder.

In figure 35 we can see the results for the HS code 39 of Plastics sector. In this sector Indonesia has deficit and Republic of Korea has surplus, which is described as following. In 2010 Indonesia gets -71.1, decreased in 2011 to -76.4, also in 2012 decreased to 80.3, and in 2013 decreased to -84.1, but in 2014 increased to -78.2 and the last 2015 decreased to 78.9, which means that Korea has better performance in the production of plastics.

Figure 36: Net Export RCA index, HS 80

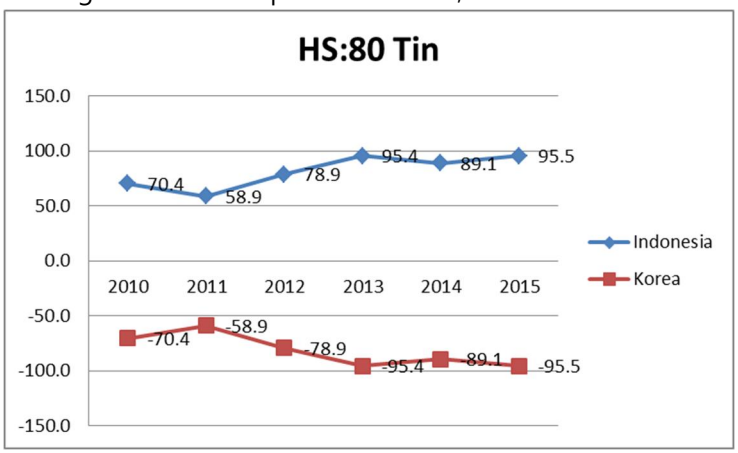
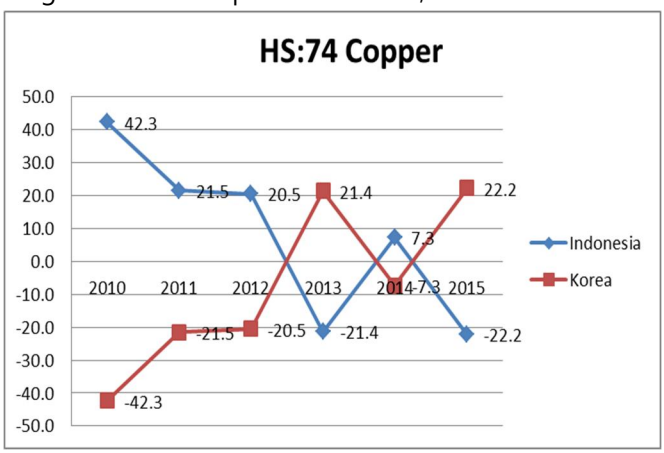


Figure 37: Net Export RCA index, HS 74



In figure 35 for sector of Tin, Indonesia has surplus, in otherwise Republic of Korea get deficit, it describe in 2010 Indonesia get net export RCA index 70.4 and Republic In figure 36 we can see the results for the HS code 80 of Tin producing sector. In this sector Indonesia has surplus and Republic of Korea has deficit, which is described as following. Indonesia gets the index 70.4 and Republic of Korea has -70.4, then in 2011 Indonesia get s decreased to 58.9 and ROK gets -58.8, in 2012 Indonesia gets index increased to 78.9 and ROK get decreased to -78.9, in 2013 Indonesia index increased to 95.4 and ROK gets deficit in index -95.4, and in 2014 Indonesia gets decreased to 89.1 and ROK index is -89.1, for the last 2015 Indonesia has increased to 95.5 and Republic of Korea gets -95.5, which means that in this sector Indonesia has more competitiveness , compared with Republic of Korea.

Figure 37 shows the results for the HS code 80 in sector of copper. It will be described as following. In 2010 Indonesia has surplus for index 42.3 but Republic of Korea has deficit to -42.3, in 2011 Indonesia decreased to 21.5 and Republic of Korea increased to -21.5 although still deficit in this year, in 2012 Indonesia has surplus 20.5 but Republic of Korea has deficit -20.5, suddenly in 2013 Indonesia has deficit -21.4 and Republic of Korea has surplus 21.4, in 2014 Indonesia has surplus with index 7.3 but Republic of Korea has deficit with index -7.3, in the last 2015 Indonesia gets deficit with net export RCA index -22.2 and Republic of Korea has surplus with index 22.2, which means that Indonesia and ROK have competitiveness in copper sector for some years respectively.

Figure 38: Net Export RCA index, HS 94

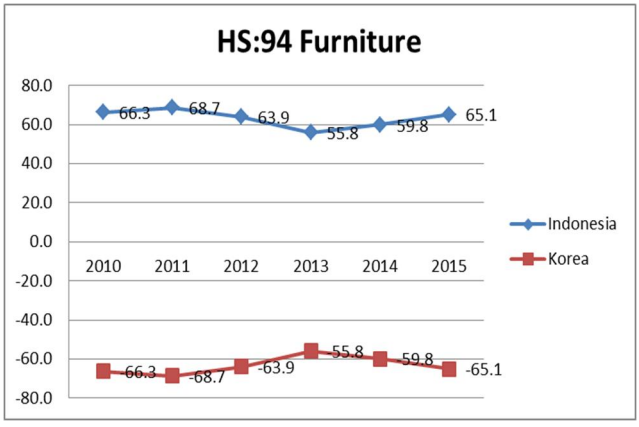


Figure 39: Net Export RCA index, HS 52

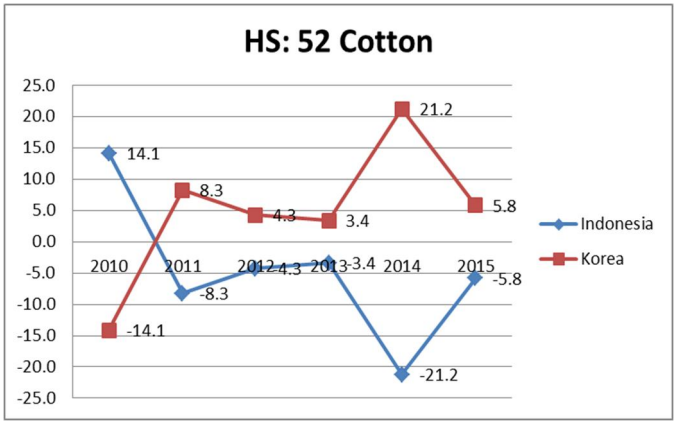


Figure 38 for furniture sector shows that Indonesia has surplus and Republic has deficit, which is described as following. In 2010 Indonesia gets net export RCA index 66.3, and in 2011 increased to 68.7, in 2012 decreased 4.8 so the index is 63.9, in 2013 decreased to 55.8 and in 2014 increased to 59.8, but in 2015 increased to 1.3, so the index is 65.1. In other side Republic of Korea has deficit in 2010 for getting index -66.3 and in 2011 gets -68.7, in 2012 gets -63.9, in 2013 increased to -55.8, then in 2014 gets -59.8, and in 2015 ROK gets -65.1, which means that Indonesia has more endowment in this sector, because Indonesia has many forest areas.

In figure 39, for cotton sector there are many changes, in 2010 Indonesia has surplus index 14.1 but Republic of Korea has deficit -14.1, and in 2011 suddenly Indonesia gets deficit decreased to -83, but Republic of Korea get surplus 8.3, in 2012 Indonesia gets deficit -4.3 and ROK gets surplus 4.3, then in 2013 ROK gets surplus 3.4 but Indonesia gets deficit -3.4, in 2014 Indonesia still gets deficit -21.2 and ROK gets surplus with index 21.2, and in the last 2015 Indonesia gets deficit with index -5.8 and ROK gets surplus with index 5.8.

Figure 40: Net Export RCA index, HS 17

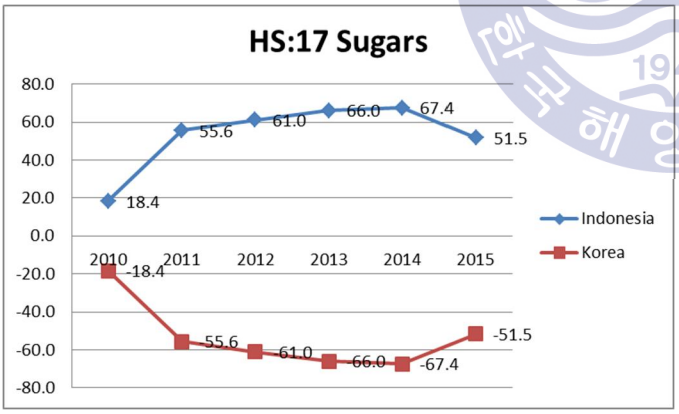


Figure 41: Net Export RCA index, HS 92

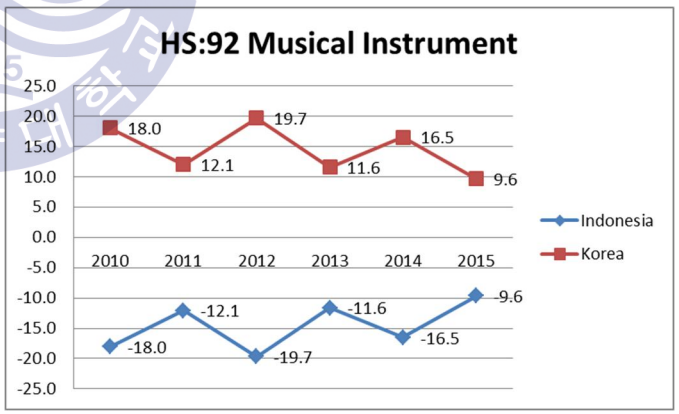


Figure 40 will describe the results for Sugars sector in HS code 17, which shows that Indonesia gets surplus and Republic of Korea gets deficit from 2010 to 2015. In 2010 Indonesia gets index 18.4 and in 2011 increased to 55.6, in 2012 also increased to 61.0, then in 2013 increased to 66.0, and in 2014 increased to 67.4, but in 2015 decreased to 51.5, which means that Indonesia has surplus. Meanwhile, Republic of Korea in 2010 gets net export index -18.4, and in 2011 decreased to -55.6, and in 2012 decreased also to -61.0, so in 2013 decreased to -66.0, in 2014 gets index -64.4, and in 2015 increased to -51.5.

Figure 41 shows the net export RCA index of musical instrument sector. From 2010 to 2015, Republic of Korea gets surplus and Indonesia gets deficit. In 2010 Indonesia gets index -18.0, and in 2011 gets -12.1 which is decreased, and also in 2012 Indonesia gets index -19.7 which is decreased, and in 2013 Indonesia gets index -11.6 which is increased, in 2014 gets index -16.5 and in 2015 is increased with index -9.6. Hence, Republic of Korea gets surplus from 2010-2015 which describes in 2010 with get index 18.0, and in 2011 decreased to 12.1, but in 2012 increased to 19.7, but in 2013 decreased to 11.6, in 2014 increased to 16.5, and in 2015 gets index 9.6.

Figure 42: Net Export RCA index, HS 60

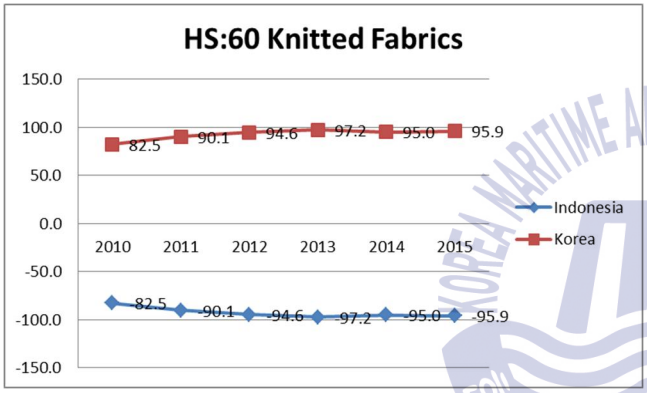


Figure 43: Net Export RCA index, HS 58

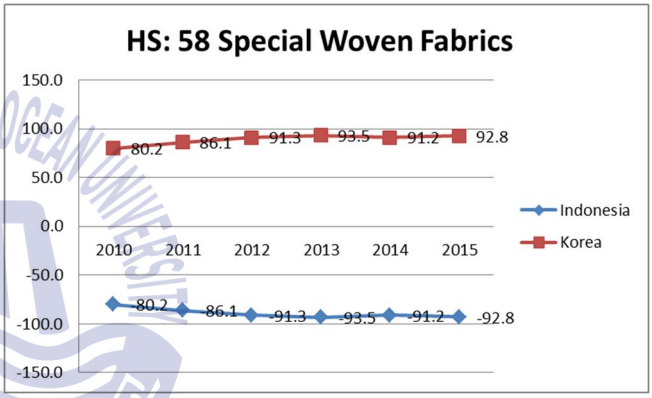


Figure 42 describes the results for Knitted fabrics in HS code 60, which shows Indonesia gets deficit, but Republic of Korea gets surplus from 2010 to 2015. In 2010 Republic of Korea has 82.5, and in 2011 gets increased to 90.1, in 2012 also gets increased to 94.6, also in 2013 gets increased 95.0 and in the last 2015 ROK gets increased to 95.9. Indonesia in 2010 gets -82.5, in 2011 gets decreased to -90,1 , still in 2012 Indonesia gets decreased to -94.6, in 2013 gets -97.2, also in 2014 gets -95.0 and in 2015 gets -95.9.

In figure 43 for Special woven fabrics, Indonesia gets deficit and Republic of Korea gets surplus during the years from 2010 till 2015. It will described as following. In 2010 Indonesia gets -80.2 , in 2011 decreased to -86.1, also in 2012 gets decreased to -91.3, and in 2013 decreased to -93.5, in 2014 gets increased to -91.2, and also in 2015 decreased to -92.8.

Chapter 5
Summary and Conclusions

The chapter five consists of the summary, the conclusions about the research, and some recommendation, referring to the result and suggestion for further research.

5.1 Summary

This research derived and compared 20 sectors of Indonesia's and South Korea's Export using Revealed Comparative Advantage method, which is 'Revealed' by indices of relative export share and ratio of net exports. This has been done in both of countries for the years from 2010 to 2015.

In this research, the author will try to answer the following problems related to the empirical tests.

First, the research tries to measure the indices by using RCA index or export and net export RCA index. In this study there are 40 figures in four chapters which show many indices of both countries. To evaluate every sectors between Indonesia and Republic of Korea, we find that Indonesia has comparative advantage and surplus in natural resources sectors, and Republic of Korea has Comparative advantage in industrial sectors[31].

Second, for the structural changes of Indonesia and Republic of Korea, from 2010 to 2015 Indonesia still has become a comparative advantage producer in natural resources, but already step by step has changed the industrial structures from the primary industry to the manufacturing industry such as footwear, apparel knitted or not knitted, while Republic of Korea has comparative advantage in manufacturing industry sectors, all Korea advantage sectors are almost manufacturing, and also step by step tries to develop highly technological sectors.

Third, by using Index of RCA of the twenty sectors, we find that Republic of Korea has comparative advantage all time the iron and steel sector. Indonesia has comparative advantages in prepared animal fodder, wood, and animal and vegetable oils. Other sectors ar

[31] To evaluate the RCA we found the differences and competitiveness between Indonesia and Korea economics situation.

changeable sectors, in some years belonging to Indonesia's advantages and in other years belonging to Republic of Korea. Despite of using net export RCA index, we tries more clearly to determine which country has deficit or surplus. We find that Indonesia has surplus in sectors such as mineral fuels, rubber, wood, animal or vegetable oils, footwear, apparel knitted, man- made staple fibres, prepared animal fodder, tin, furniture, and sugars. Republic of Korea has surplus in sectors such as iron and steel, cotton (but only in 2010 has deficit), musical instrument, knitted or crocheted fabric, and special woven fabrics.

Fourth, Indonesia has already stepped forward to exporting the products more highly value added, not only raw material, such as footwear, furniture rubber, and apparel.

Fifth, we hope that Indonesia government will get some information from this research to make trade policy, to analyze the products which has comparative advantage or not, and especially to give more value added to many sectors.

5.2 Conclusions

The author gives some conclusions for this thesis as following.

The analysis of this research used Revealed Comparative Advantage (RCA) written by Balassa in 1965. The author uses RCA, because it has significant effects on trade patterns through comparative advantage, in the light of evidence, real data, and exact analysis of statistical method. as mentioned in chapter 4, to determine which commodities have comparative advantages or comparative disadvantages, reflected in the findings that RCA index > 1, and <1. Also we tries to determine the commodities which commodities have surplus or deficit using the facts that the index >0 means surplus, and the index <0 means deficit.

This research is based on the statistical data presented by Trade Map, and the focus of this research is an evaluation of the competitiveness of 20 sectors of Indonesia's products in Republic of Korea's market and South Korea's products in Indonesian market using RCA index.

The analysis for this thesis shows that according to research by using RCA method, Indonesia has comparative advantage and competitiveness in natural resources sectors, and Republic of Korea has comparative advantage and competitiveness in manufacturing sectors,

Based on RCA index for mineral fuels of HS code 27, Indonesia and Republic of Korea have comparative advantage, all year RCA>1. But, according to net export index RCA, Indonesia gets surplus and Korea gets deficit.

In rubber in HS code 40, Indonesia and Republic of Korea have also comparative advantage, based on the findings that net export RCA index shows that Indonesia gets surplus and Korea gets deficit.

For community of Iron and Steel of HS code 72 in RCA Index, Indonesia has comparative advantage, but Republic of Korea has comparative disadvantage. Based on net export RCA index, Indonesia gets deficit, but Korea gets surplus.

In HS code 80 of Tin, both Indonesia and Korea have comparative advantage in RCA index, only in 2015 Korea has comparative disadvantage. In net export RCA index, Indonesia

gets surplus, but Korea gets deficit.

For HS code 74 Copper, the RCA index shows that in 2010 Indonesia has comparative advantage, but in 2011 to 2015 Indonesia has comparative disadvantage. In 2010 both Korea and Indonesia have comparative advantage.

For commodity of Paper, Prepared animal food, wood, Cotton, Man-made staple fibres, sugar, animal or vegetable fats and oils, the results show that Indonesia has comparative advantage, but Korea has comparative disadvantage along the year.

In other side, for commodity of apparel not knitted, special woven fabrics, knitted fabrics, and Plastics are commodities which Korea has comparative advantage, but Indonesia has comparative disadvantage.

Then, according to calculated net export RCA index, the results shows that Indonesia has surplus from 2010 to 2015, which means Indonesia has surplus in the commodity such as wood, animal or vegetable fats and oils, footwear, apparel knitted, man-made staple fibres, prepare animal fodder, tin, furniture, and sugars. Hence, Korea has surplus in commodities such as Plastics, cotton except in 2010, musical instruments. knitted or crocheted fabrics, and special woven fabrics.

From this research, we can find out the comparative advantage goods and comparative disadvantage goods of South Korea and Indonesia.

Our implications are the followings.

South Korea and Indonesia have the complementary aspects of the primary and manufacturing sectors in that South Korea has comparative advantage in highly technological manufacturing sectors and Indonesia has comparative advantage in lowly technological manufacturing sectors and the mineral resources intensive sectors.

South Korea has experienced high performance in economic growth and development. Recently Indonesia has shown very fast economic growth rates. Indonesia has great potentials in developing its economy because of the abundant resources, which are very attractive from the position of South Korea. South Korea can make big contributions to

Indonesian economic growth and development by providing some manufacturing technologies. Also Indonesia can make good contributions to Korean economic growth and development by providing mineral and agricultural resources cheaply. Two countries can maximize their potentials by utilizing the mutual advantages.

This study has some limitations. This research can advance forward to more implications by using disaggregate data and more econometric methods. Also we hope that followed by this study, further researches will appear in the future study about the trading relationship between the Republic of Korea and Indonesia.

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Appendix 1

Indonesia export to Korea (2010-2015)

In thousand US$ (1,000)

Product code	Product label	Indonesia's exports to Korea, Republic of					
		Value in 2010	Value in 2011	Value in 2012	Value in 2013	Value in 2014	Value in 2015
'TOTAL	All products	12574641	16388801	15049860	11422476	10606478	7649743
'27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral ...	8377644	11660988	10990687	7507884	6790730	3629261
'26	Ores, slag and ash	1129107	1031594	370677	367378	162813	490373
'85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television ...	324915	347749	381543	393635	367318	305322
'40	Rubber and articles thereof	297484	565921	477143	400448	305643	278733
'44	Wood and articles of wood; wood charcoal	137850	149269	151134	172316	226296	264647
'47	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or ...	302941	278287	261669	312291	238841	230231
'72	Iron and steel	156226	248596	149225	116142	197767	212479
'15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal ...	59109	148275	135861	88262	201688	186921
'64	Footwear, gaiters and the like; parts of such articles	42888	58877	78192	122529	132598	148519
'61	Articles of apparel and clothing accessories, knitted or crocheted	31279	76154	103632	130518	129442	145766
'55	Man-made staple fibres	221171	237002	196420	190206	154159	145011
'62	Articles of apparel and clothing accessories, not knitted or crocheted	31239	79474	107152	139159	143084	143497
'38	Miscellaneous chemical products	70773	113082	113973	105087	151237	128157
'29	Organic chemicals	97561	138552	267613	143007	139182	113402
'84	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof	82037	89337	93700	93006	76239	113016
'28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, ...	131747	107959	117718	100090	73171	90654

'48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	92754	85123	76741	71504	78908	89554
'23	Residues and waste from the food industries; prepared animal fodder	63278	87074	138428	133203	162305	87684
'76	Aluminium and articles thereof	18223	22511	23432	24304	52536	66312
'39	Plastics and articles thereof	41714	58966	66045	65532	75844	62958
'80	Tin and articles thereof	44650	44248	68015	102966	39350	53610
'74	Copper and articles thereof	258314	113468	85619	76389	113180	52918
'94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ...	33583	42705	41092	46520	51634	49567
'03	Fish and crustaceans, molluscs and other aquatic invertebrates	42577	56976	56381	49294	47896	49415
'30	Pharmaceutical products	49841	38882	27338	23426	16319	47429
'52	Cotton	71372	51940	51100	56220	37059	32304
'69	Ceramic products	27874	28873	20119	24630	27042	30266
'54	Man-made filaments; strip and the like of man-made textile materials	35971	30416	24097	23093	24834	30078
'17	Sugars and sugar confectionery	22737	24623	29072	31572	59922	23354
'73	Articles of iron or steel	19359	8601	13196	7472	11086	23196
'59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable ...	33963	23557	19379	22804	23485	19959
'92	Musical instruments; parts and accessories of such articles	20522	26938	20058	21613	18296	19948
'19	Preparations of cereals, flour, starch or milk; pastrycooks' products	9354	11083	13738	14896	24341	19850
'14	Vegetable plaiting materials; vegetable products not elsewhere specified or included	173	219	199	133	524	19698
'70	Glass and glassware	21543	34263	30157	26078	25145	19394
'68	Articles of stone, plaster, cement, asbestos, mica or similar materials	14962	15227	13474	11110	13465	15804
'34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial ...	13865	25054	25610	25906	25000	15525
'09	Coffee, tea, maté and spices	13337	11732	12021	10138	10366	14868

'96	Miscellaneous manufactured articles	8262	10026	8478	10816	12366	14811
'42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles ...	12191	15008	17394	19153	16813	14720
'63	Other made-up textile articles; sets; worn clothing and worn textile articles; rags	1725	1650	40278	21903	10053	14336
'12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal ...	5430	11019	7789	5626	13751	13654
'67	Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles ...	4390	7606	8887	9234	9267	9795
'60	Knitted or crocheted fabrics	1459	1925	5703	7081	4273	7985
'95	Toys, games and sports requisites; parts and accessories thereof	2507	2632	4570	3996	9110	7869
'32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring ...	3960	5856	4432	5309	5180	6787
'33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations	2130	3896	7662	6289	7014	6778
'16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	751	1013	2097	2393	10281	6139
'90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical ...	8513	19271	8300	8995	14180	5585
'18	Cocoa and cocoa preparations	3617	2738	3572	3334	3842	5093
'07	Edible vegetables and certain roots and tubers	6592	7216	3638	5396	4263	4847
'56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	11408	8807	4332	5623	6056	4725
'46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	1808	1865	4617	5078	4743	3977
'88	Aircraft, spacecraft, and parts thereof	17016	73368	21770	7231	6080	3859

'87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	1883	1632	4132	4322	5012	3820
'11	Products of the milling industry; malt; starches; inulin; wheat gluten	4561	5501	4868	5160	4030	3392
'21	Miscellaneous edible preparations	790	976	1474	1486	2210	2929
'20	Preparations of vegetables, fruit, nuts or other parts of plants	3097	3381	2474	1722	2248	2718
'06	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage	1836	1622	1824	1686	2204	2201
'41	Raw hides and skins (other than furskins) and leather	8085	6757	4362	3505	3138	1966
'58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	1252	1945	1924	1876	1810	1734
'35	Albuminoidal substances; modified starches; glues; enzymes	1910	3300	1574	1407	3395	1674
'08	Edible fruit and nuts; peel of citrus fruit or melons	1153	982	1293	332	1504	1571
'24	Tobacco and manufactured tobacco substitutes	81	74	2539	1077	651	1383
'71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	1281	2004	1288	1149	1340	1363
'83	Miscellaneous articles of base metal	1567	1571	1813	1625	1791	1333
'25	Salt; sulphur; earths and stone; plastering materials, lime and cement	1701	1628	852	641	1243	1145
'05	Products of animal origin, not elsewhere specified or included	318	187	1347	452	571	1007
'65	Headgear and parts thereof	266	494	515	636	652	880
'57	Carpets and other textile floor coverings	422	649	554	672	738	653
'22	Beverages, spirits and vinegar	247	911	4003	8249	341	634
'49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, ...	349	269	204	159	341	535
'13	Lac; gums, resins and other vegetable saps and extracts	158	286	354	546	555	401
'02	Meat and edible meat offal	126	87	0	112	222	397

'82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	169	645	260	370	398	311
'31	Fertilisers	4019	2800	4751	5746	3939	206

Source : www.trademap.org

Appendix 2

Korea export to Indonesia 2010-2015

In thousand US$ (1,000)

Product code	Product label	Korea, Republic of's exports to Indonesia					
		Value in 2010	Value in 2011	Value in 2012	Value in 2013	Value in 2014	Value in 2015
'TOTAL	All products	8897299	13564498	13955030	11568178	11417042	7875239
'27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral ...	3218895	6478730	5544738	3342216	3896256	1983280
'72	Iron and steel	642191	1022146	1288401	1138162	1096428	712700
'84	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof	575967	919275	1290690	1080770	847615	700787
'85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television ...	889151	825135	896664	697567	709630	632793
'60	Knitted or crocheted fabrics	596910	713032	666865	628312	639660	575523
'39	Plastics and articles thereof	546360	694096	732848	784811	729609	567043
'40	Rubber and articles thereof	243703	439338	402525	314755	268657	219327
'54	Man-made filaments; strip and the like of man-made textile materials	142475	165764	197344	196290	196279	181608
'90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical ...	167307	118179	167373	199742	196340	167247
'29	Organic chemicals	161441	184876	235472	237024	193521	156667
'73	Articles of iron or steel	90090	130367	340183	218002	169861	138257
'87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	114429	182471	278368	364740	174885	125996
'89	Ships, boats and floating structures	188848	17304	70449	48361	292864	117015
'55	Man-made staple fibres	70112	130432	153788	144967	140003	107224
'28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, ...	62379	90181	94209	116019	122080	99707
'48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	54119	68626	82004	79292	101561	88322
'79	Zinc and articles thereof	89288	104718	112428	109743	104903	84401
'74	Copper and articles thereof	83730	69967	55539	118223	97237	83680
'41	Raw hides and skins (other than furskins) and leather	73140	79062	84343	87049	88065	74942
'32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring ...	50554	63257	66606	73443	86495	74820

'76	Aluminium and articles thereof	100508	119726	120001	109119	95573	73723
'38	Miscellaneous chemical products	44391	67367	69431	81012	86851	72009
'62	Articles of apparel and clothing accessories, not knitted or crocheted	36412	49780	63837	71885	82626	71697
'59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable ...	54495	67627	64750	72243	67492	62563
'58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	77460	77655	72842	61595	66748	58046
'64	Footwear, gaiters and the like; parts of such articles	26263	31821	40947	56750	56315	52218
'21	Miscellaneous edible preparations	28162	48346	47789	54683	51224	49146
'78	Lead and articles thereof	17536	53870	67797	72407	86180	46412
'56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	45987	51341	48648	48834	48447	40225
'52	Cotton	50559	62351	55865	60231	57968	36353
'23	Residues and waste from the food industries; prepared animal fodder	20411	23506	25768	31662	39229	32885
'34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial ...	22090	28685	33459	33525	34673	32661
'93	Arms and ammunition; parts and accessories thereof	29165	39535	47534	42323	33590	25168
'92	Musical instruments; parts and accessories of such articles	31938	35207	30375	27330	25872	24275
'35	Albuminoidal substances; modified starches; glues; enzymes	11251	13325	16897	17440	19913	21686
'30	Pharmaceutical products	13842	14164	16416	24703	20417	20866
'61	Articles of apparel and clothing accessories, knitted or crocheted	10052	14404	22952	25369	26318	19201
'69	Ceramic products	2518	2065	6548	15245	17344	19079
'83	Miscellaneous articles of base metal	23643	23119	21921	23235	19986	18752
'70	Glass and glassware	20937	9035	10102	11407	16675	17090
'96	Miscellaneous manufactured articles	16767	25893	18426	19939	15452	14391
'82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	8775	19025	27782	25722	16810	13640
'33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations	6055	9044	11772	11664	13866	13605
'68	Articles of stone, plaster, cement, asbestos, mica or similar materials	7622	9816	10468	11815	10610	10766

'94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; ...	3738	5872	8294	13062	12060	10136
'36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations	4498	6641	6420	10308	9697	9920
'31	Fertilisers	24552	44407	80720	50388	42993	9196
'25	Salt; sulphur; earths and stone; plastering materials, lime and cement	3835	11809	10014	13871	14880	8779
'86	Railway or tramway locomotives, rolling stock and parts thereof; railway or tramway track fixtures ...	5	4855	187	23770	4340	7527
'95	Toys, games and sports requisites; parts and accessories thereof	3557	3747	5838	6900	6889	7478
'19	Preparations of cereals, flour, starch or milk; pastrycooks' products	3146	5125	6100	5122	6483	7328
'17	Sugars and sugar confectionery	14488	5883	6515	6364	10568	7313
'05	Products of animal origin, not elsewhere specified or included	4250	6322	16128	25065	25767	5954
'97	Works of art, collectors' pieces and antiques	0	13	7	7	12	5619
'11	Products of the milling industry; malt; starches; inulin; wheat gluten	5054	2259	2202	3066	8511	5251
'63	Other made-up textile articles; sets; worn clothing and worn textile articles; rags	3826	3129	2714	4526	3718	4864
'51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	2078	4583	5833	3757	3240	4834
'24	Tobacco and manufactured tobacco substitutes	1638	2597	3728	3275	2797	4343
'71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	5101	5168	4043	4999	4547	3899
'22	Beverages, spirits and vinegar	808	1710	1901	1919	3065	3511
'49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, ...	1729	1944	3341	7482	3217	3114
'57	Carpets and other textile floor coverings	3084	4055	5284	5033	3968	2697
'47	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or ...	17414	5842	3559	2366	1632	2514
'44	Wood and articles of wood; wood charcoal	837	2106	2557	2627	2971	2267
'15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal ...	3131	4656	4680	3514	3920	2171
'67	Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles ...	1975	2198	1015	1270	1333	1890
'03	Fish and crustaceans, molluscs and other aquatic invertebrates	3287	2587	4832	3513	2663	1856

'08	Edible fruit and nuts; peel of citrus fruit or melons	1693	1652	1188	1644	1976	1679
'07	Edible vegetables and certain roots and tubers	885	653	631	860	1042	1389
'12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal ...	756	571	1781	1318	1272	1330
'09	Coffee, tea, maté and spices	363	616	533	306	502	1204
'75	Nickel and articles thereof	911	2040	1789	1197	176	1116
'13	Lac; gums, resins and other vegetable saps and extracts	836	813	372	1721	1001	1035
'88	Aircraft, spacecraft, and parts thereof	1938	11045	32048	356145	59720	1005
'42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles ...	634	1065	5005	4729	2790	917
'20	Preparations of vegetables, fruit, nuts or other parts of plants	341	441	443	707	812	887

Source : www.trademap.org