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TRADE ANALYSIS OF 10 RCEP MEMBER COUNTRIES PLUS INDIA: HAVE THEY BEEN COMPETING?

Ignatia Bintang Filia Dei Susilo^{a*}

^a Universitas Siliwangi, Kota Tasikmalaya, Jawa Barat, Indonesia

*ignatia@unsil.ac.id

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ABSTRACT

Regional Trade Agreements (RTAs) and Preferential Trade Agreements (PTAs) increased significantly. One of the most prominent PTA negotiation is Regional Comprehensive Economic Partnership Agreement (RCEP). When making arrangements, countries should consider its effect on current trade pattern. This research studies comparative advantage and its pattern for 10 countries involved in RCEP (Australia, China, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand) plus India. This study uses Revealed Symmetric Comparative Advantage (RSCA) to examine trade data from 2004-2019. The findings are: (i) Comparative advantages between some RCEP member countries' plus India are relative similar. It should be a concern for those countries to maintain their product's competitiveness; (ii) Several countries show relevance on the trade theories that country will export products which use abundant factors in its production. These conditions also match the theory of comparative advantage which stated that countries will export product which have comparative advantages and become specialized on those products; and (iii) All countries (except China) have concentration on the products with low comparative advantage. The standard deviation of RSCA scores remains constant overtime showing that difference in comparative advantages in each countries remain constant, but indicate slight downward trend for India, in which indicates despecialization.

Keywords: RCEP, RSCA, Comparative Advantage, Economics Integration, International Trade.

ABSTRAK

Jumlah Perjanjian Perdagangan Regional (*Regional Trade Agreements/RTA*) dan Perjanjian Perdagangan Preferensial (*Preferential Trade Agreements/PTAs*) meningkat signifikan. Salah satu negosiasi PTA yang terbesar adalah *Regional Comprehensive Economic Partnership Agreement (RCEP)*. Dalam suatu perjanjian perdagangan, penting untuk mempertimbangkan pola perdagangan negara-negara yang terlibat. Penelitian ini mempelajari keunggulan komparatif dan pola perdagangan untuk 10 negara yang terlibat dalam RCEP (Australia, China, Indonesia, Jepang, Korea, Malaysia, Selandia Baru, Filipina, Singapura, Thailand) dan India. Penelitian ini menggunakan *Revealed Symmetric Comparative Advantage (RSCA)* untuk menguji data perdagangan tahun 2004-2019. Diperoleh bahwa: (i) Keunggulan komparatif antara beberapa negara anggota RCEP serta India relatif sama. Dengan demikian, penting bagi negara-negara tersebut untuk menjaga daya saing produknya; (ii) Beberapa negara menunjukkan relevansi dengan teori perdagangan bahwa negara tersebut akan mengekspor produk yang menggunakan faktor yang melimpah dalam produksinya. Kondisi ini juga sesuai dengan teori keunggulan komparatif yang menyatakan bahwa negara akan mengekspor produk yang memiliki keunggulan komparatif dan menjadi

spesialis pada produk tersebut; dan (iii) Semua negara (kecuali China) memiliki konsentrasi pada produk dengan keunggulan komparatif rendah. Standar deviasi dari nilai RSCA relatif konstan sepanjang waktu menunjukkan konsistensi pola spesialisasi keunggulan komparatif di masing-masing negara terdapat sedikit pola penurunan untuk India, yang mengindikasikan terjadinya despesialisasi.

Kata Kunci: RCEP, RSCA, Keunggulan Komparatif, Integrasi Ekonomi, Perdagangan Internasional.

I. INTRODUCTION

The global market has grown rapidly since the 1960s especially for developing countries. Developing country economies' share of world exports doubled from about 20 percent in 1960 to more than 40 percent in 2015 (World Bank 2004; WTO 2016). The increase in trade has increased the output of unprecedented growth, as well as the share of GDP. To spur more growth in trade, World Trade Organization (WTO) established in 1994 to consolidate global trade rules and systems based on the principle of non-discrimination among trading partners (World Bank, 2004).

Regional Trade Agreements (RTAs) and Preferential Trade Agreements (PTAs) increased significantly. There were 2 RTAs in 1958 and, it had been grown in numbers, up to 301 RTAs in 2019 (WTO 2019). These agreements led members to reform their trade policies and to comply with multilateral trade negotiations, as well as to carry out structural economic reforms (WTO 2016). Realizing its important role in maintaining trade, PTAs have attracted discussion among scholars. One of the most prominent PTA negotiation is Regional Comprehensive Economic Partnership Agreement (RCEP). However, India withdrew her participation in the pact during the summit based on awareness that the agreement would harm their local producers.

RCEP firstly proposed when Indonesia became leader of ASEAN in 2011. Since agreeing on the Principles and Objectives for Negotiating Regional Comprehensive Economic Partnerships in 2012 and conducting several negotiations from 2013 to November 2019, the number of RCEP participating countries is 16. India decided to from RCEP in November 2019, when the discussions were in the final stages of completion. In the midst of the Covid-19 pandemic that suppressed the world economy

to a recession, these 15 countries were able to realize their commitment to completing the RCEP negotiations which had lasted for eight years. After being signed on November 15, 2020, the RCEP Agreement is the most comprehensive agreement consists of 14,367 pages, 20 Chapters, and attachments. The first four chapters covering trade issues: 1. Preliminary Terms and General Definitions; 2. Trade in Goods; 3. Rules of Origin, including an additional section on Product Specific Rules; and 4. Customs Procedures and Trade Facilitation (The ASEAN Secretariat, 2020). To date, many studies have been conducted on RCEP. Some studies focus on impacts on regions or groups of countries (Park, 2017a; Park, 2017b; Hsieh 2017; Lu, 2017; Chaisse and Pomfret 2019; Shimizu, 2021). RCEP also attracts scholars to research its effects on individual countries (Terada, 2018; Jain, 2020; Nabi and Kaur, 2020; Moenandy, 2021). In attempts to make broader economic integration, the objective of RCEP is not to resolve the "noodle bowl" effect. RCEP also does not clear up the existing bilateral FTA's in the region. This study becomes more interesting because biggest economies in ASEAN (Indonesia, Malaysia, Singapore, Thailand, and Philippines) have involved, as stated by Vogiatzoglou and Nguyen (2016) that these countries are open to the dynamics of international integration as their national development strategy and have been positioning international trade as one of the important roles in the national economy of these countries.

When making arrangements, countries should consider its effect on current trade pattern. Trade liberalization can provide both opportunities and challenge. It can be a threats for domestic economies. Theory of factor abundance model claim that countries will export its products that use abundant factors

in production. Therefore, countries should export commodities which have comparative advantage. Thus, studying the pattern of comparative advantage between RCEP member countries is necessary.

This research studies comparative advantage and its pattern in 11 countries involved in RCEP; ASEAN-5 (Indonesia, Malaysia, Singapore, Thailand, and Philippines), China, Japan, Korea (Democratic Republic of Korea/ South Korea), Australia, and New Zealand, plus India. This study uses Harmonized System (HS) code to describe exports commodities group. Data and observations are taken from International Trade Center which use UNCOMTRADE data for its database in 2004-2019 (15 years).

This study will follow Widodo (2010), with different time span and different countries. The proposed study is expected to: (i) know each countries' products which has comparative advantages: have they been competing all this time?, (ii) examine similarities and differences of RCEP member countries' plus India's trade pattern and the major trade trends in this region, and (iii) examine the pattern of trade specialization among those countries: their tendency to despecialized in their trade or converged in their patterns of comparative advantage. This paper is organized as follows: section 1 contains introduction, section 2 contains literature study, methodology and data used in this paper, section 3 is the results and discussions, and section 4 contains conclusion.

II. RESEARCH METHODS

A. Literature Study

Nowadays, thoughts in international trade has been explored in depth and broadly. Technological change, transformation, and communication which are getting more sophisticated being the cause of boundaries depletion amongst countries. There are some theories that underlie the emergence of international trade, one of them is David Ricardo's theory of comparative advantage which stated that a country can boost its

economic growth the most by focusing on the industry with high comparative advantage.

Regional economic integration has been proliferated in many regions including Asia. It has an importance, as those countries in the same region develop the agreements, to expand the economic cooperation not only for trade and investment liberalization but also to enhance the effective alleviation economic and financial crises polices. ASEAN's economic dynamism is expected to obtain benefit from RCEP that will provide a basis for broader regional integration and help address concerns about the 'noodle bowl' effect of overlapping bilateral and regional agreements. RCEP will gain benefits through potential improvements in market access, more coherent trade facilitation and regulatory rules and cooperation. In turn, this will provide more choices and opportunities for ASEAN people to participate gainfully in global value chains (Chaisse and Pomfret, 2019; Pitakdumrongkit, 2019; Fredayani, 2020; Jain, 2020). The AEC and RCEP will become more important amidst rising protectionism during and in the post-pandemic era (Shimizu, 2021).

RCEP has the potential to harmonize rules and regulations in various overlapping FTAs in the region, thus becoming the basis for a multilateral trading system. Therefore, academics have suggested that the RCEP agreement will have the capacity to attract new members as well as potentially create a new paradigm for economic regionalism (Hsieh, 2017; Shimizu, 2021). There will also be some issues related to coverage which will be a substantive challenge. While all participating members agree with the benefits of market access liberalization measures, they also face domestic pressure to limit competition in their home markets. The RCEP agreement is constrained by the different stages of development of the participating countries. RCEP consists of various countries in terms of their stage of development, for example Singapore which is relatively unique and least concerned with liberalization in terms of trade in goods, and also developing countries such as Indonesia and Thailand which are likely to make the realization

difficult. Therefore, there will be some potentials that emerge during the negotiations, especially related to the liberalization of the agricultural and service sectors.

Concerns have been raised that any kind of deeper economic integration could lead to greater costs incurred by the less developed member economies (Wignaraja, 2018; Sarma, 2020; Rupal, 2020). This could be due to structural adjustments and the risks of falling into a low-cost labor trap, where there is little incentive for domestic industries to move up the value chain. In order to address the issue, ASEAN, as a leader in the negotiations, has already mentioned that RCEP includes a flexibility principle and stated that the agreement shall provide for special and differential treatment to ASEAN Member States. Although RCEP could be an easier negotiating path for the ASEAN nations and others, there is a high chance that it may lose sight of its strategic goals, such as maintaining centrality, that make it an attractive proposition in the first place (Mueller, 2019). Therefore, as the chair of the RCEP negotiations, ASEAN should consider its objectives for the agreement. In addition, ASEAN should seriously work on its own integration process, thereby leaving the impression that the region is seeking a high-standard agreement.

Various study has been conducted for both ASEAN and its trading partner. Widodo (2008) view the dynamic changes in comparative advantage with flying geese model and its implications for China and found that China has very high comparative advantage in labor-intensive and capital-intensive industries in East Asia. Widodo also conduct several study in case ASEAN, ASEAN +3, China and India (Widodo, 2008b; 2009a, 2009b, 2010). Sectoral impact analysis of the ASEAN-India Free Trade Agreement studied by Francis (2009). Chakravarty and Chakrabarty (2013) have studied India-ASEAN trade fluctuations and swings and found that there is exist uniformity pattern of trade between India and ASEAN. On the other side, Vahalik (2014) studied regional bilateral trade of the European Union, China, and ASEAN and found that EU is more natural

trading partner of ASEAN countries than China. But, volume of trade between China and ASEAN countries keep rising. ASEAN-New Zealand trade relations and trade potential has been studied by Bano et al (2013). Moenardy et al (2021) found that RCEP had both negative and positive impacts on Indonesia.

Sudsawasd and Mongsawad (2007) investigated the unexplored trade potentials and the economic impacts of bilateral Free Trade Agreements (FTAs) between ASEAN-5 member countries (Indonesia, Malaysia, Philippines, Singapore, and Thailand) and the seven-candidate FTA partners (Australia, Japan, New Zealand, South Korea, and the United States) and found that ASEAN-5 would achieve more benefits from the FTAs if they fully liberalized trade among themselves. The results indicate the potential gains from the intra-regional free trade and point towards the importance of ASEAN regional cooperation. Impact of liberalization and improved connectivity and facilitation in ASEAN is studied by Itakura (2014) and found that although there are differences in the magnitude of positive contributions to welfare, all of the FTAs in which ASEAN member states participate tend to raise welfare. Among the FTAs examined in his study, the Regional Comprehensive Economic Partnership (RCEP) leads to the largest positive effects on real GDP for most of the ASEAN member states.

B. Data and Methodology

This research analyzes the pattern of comparative advantage for 10 RCEP member countries plus India, namely ASEAN-5 countries (Indonesia, Singapore, Malaysia, Thailand, and Philippines), five trading partner which are involved in RCEP (Japan, China, South Korea, Australia, and New Zealand), plus India. This study chooses ASEAN-5 countries as they are the largest economies in ASEAN, open to the dynamics of international integration as their national development strategy, and have been positioning international trade as one of the important roles in the national economy of these countries. This research will answer questions about: (i) Each countries' products

which have comparative advantages: have they been competing all this time?, (ii) What are the similarities and differences of RCEP member countries' plus India's trade pattern and the major trade trends in this region, and (iii) The pattern of trade specialization among those countries: did they tend to despecialize in their trade or converge in their patterns of comparative advantage?

The study will use a comparative advantage indicator namely Revealed Symmetric Comparative Advantage (RSCA) which is proposed by Laursen (1998, 2015). This index is a simple modification from the previous index commonly used, Revealed Comparative Advantage (RCA) or Balassa index (1965). The RCA and RSCA indices are expressed by:

$$RCA_{ij} = \frac{(x_{ij}/x_{in})}{(x_{rj}/x_{rn})} \tag{Equation 1}$$

$$RSCA_{ij} = \frac{(RCA_{ij} - 1)}{(RCA_{ij} + 1)} \tag{Equation 2}$$

With RCA_{ij} indicates revealed comparative advantage of country i for group of products j , x_{ij} indicates total exports of country i in groups of products j , x_{in} indicates total exports of country i in groups of products n (except product j), x_{rj} indicates total exports of country i except country i in groups of products j , x_{rn} indicates total exports of country i except country i in groups of products n (except product j).

The RSCA index is ranged from -1 to +1. RSCA index greater than 0 means country i has comparative advantage in good j . RSCA less than 0 means that country i has comparative disadvantage in product j .

Descriptive statistics (mean, median, standard deviation, and skewness) are used to summarize RSCA across commodities. The distribution of RSCA can be used to analyze the dynamics of comparative advantage (Widodo, 2009b). Arithmetic mean is the sum of all RSCA values divided by the total number of values and formulated by

$$\bar{x}_{RSCA_{jt}} = \frac{\sum_{i=1}^n RSCA_{ijt}}{n} \tag{Equation 3}$$

With $\bar{x}_{RSCA_{jt}}$ is the arithmetic mean of RSCA for country j at time t , $RSCA_{ijt}$ is the RSCA index for country j at time t for product i , $i=1,2,3,\dots,n$, and n is number of product.

Mean is calculated for ASEAN-5, China, Japan, Korea, India, Australia, and New Zealand. RSCA mean value is expected to increase overtime, indicating that the comparative advantage is increasing overtime. When the RSCA distribution are not symmetric, median could be better measurement than mean. When each countries have an increase in comparative advantage, the mean of the RSCA distribution will increase.

Standard deviation is the measure of statistical dispersion. Standard deviation show the values how much data spreading from the mean. If all data close to its mean, the value of standard deviation is zero. Standard deviation is formulated by

$$stdev_{RSCA_{jt}} = \sqrt{\frac{\sum_{i=1}^n (RSCA_{ijt} - \bar{x}_{RSCA_{jt}})^2}{n}} \tag{Equation 4}$$

With $stdev_{RSCA_{jt}}$ is standard deviation of RSCA country j at time t , $\bar{x}_{RSCA_{jt}}$ is the arithmetic mean of RSCA for country j at time t , $RSCA_{ijt}$ is the RSCA index for country j at time t for product i , $i=1,2,3,\dots,n$, and n is number of observation

A variable has symmetric distribution if the mean, median, and mode are equal. Symmetric distribution have the same area and same shape on both side of its axis. When the distribution is asymmetric or skewed, the relationship between mean, median, and mode is not equal. If negatively skewed, the mean is smaller than median or mode. If positively skewed, the mean is larger than median and mode. Skewness can be described by

$$skew_{RSCA_{jt}} = \frac{3(\bar{x}_{RSCA_{jt}} - median_{RSCA_{jt}})}{stdev_{RSCA_{jt}}} \tag{Equation 5}$$

With $skew_{RSCA_{jt}}$ is coefficient of RSCA skewness, $stdev_{RSCA_{jt}}$ is standard deviation of RSCA country j at time t , $\bar{x}_{RSCA_{jt}}$ is the arithmetic mean of RSCA for country j at time t , and $RSCA_{ijt}$ is the RSCA index for country j at time t for product $i, i=1,2,3,\dots,n$.

Tabel 1. HS Commodities List

Code	Product Label
1	Live animals
2	Meat and edible meat offal
3	Fish, crustaceans, molluscs, aquatic invertebrates nes
4	Dairy products, eggs, honey, edible animal product nes
5	Products of animal origin, nes
6	Live trees, plants, bulbs, roots, cut flowers etc
7	Edible vegetables and certain roots and tubers
8	Edible fruit, nuts, peel of citrus fruit, melons
9	Coffee, tea, mate and spices
10	Cereals
11	Milling products, malt, starches, inulin, wheat gluten
12	Oil seed, oleagic fruits, grain, seed, fruit, etc, nes
13	Lac, gums, resins, vegetable saps and extracts nes
14	Vegetable plaiting materials, vegetable products nes
15	Animal, vegetable fats and oils, cleavage products, etc
16	Meat, fish and seafood food preparations nes
17	Sugars and sugar confectionery
18	Cocoa and cocoa preparations
19	Cereal, flour, starch, milk preparations and products
20	Vegetable, fruit, nut, etc food preparations
21	Miscellaneous edible preparations
22	Beverages, spirits and vinegar
23	Residues, wastes of food industry, animal fodder
24	Tobacco and manufactured tobacco substitutes
25	Salt, sulphur, earth, stone, plaster, lime and cement
26	Ores, slag and ash
27	Mineral fuels, oils, distillation products, etc
28	Inorganic chemicals, precious metal compound, isotopes
29	Organic chemicals
30	Pharmaceutical products
31	Fertilizers
32	Tanning, dyeing extracts, tannins, derivs, pigments etc
33	Essential oils, perfumes, cosmetics, toileteries
34	Soaps, lubricants, waxes, candles, modelling pastes
35	Albuminoids, modified starches, glues, enzymes
36	Explosives, pyrotechnics, matches, pyrophorics, etc
37	Photographic or cinematographic goods
38	Miscellaneous chemical products
39	Plastics and articles thereof
40	Rubber and articles thereof
41	Raw hides and skins (other than furskins) and leather
42	Articles of leather, animal gut, harness, travel goods
43	Furskins and artificial fur, manufactures thereof
44	Wood and articles of wood, wood charcoal

45	Cork and articles of cork
46	Manufactures of plaiting material, basketwork, etc.
47	Pulp of wood, fibrous cellulosic material, waste etc
48	Paper and paperboard, articles of pulp, paper and board
49	Printed books, newspapers, pictures etc
50	Silk
51	Wool, animal hair, horsehair yarn and fabric thereof
52	Cotton
53	Vegetable textile fibres nes, paper yarn, woven fabric
54	Manmade filaments
55	Manmade staple fibres
56	Wadding, felt, nonwovens, yarns, twine, cordage, etc
57	Carpets and other textile floor coverings
58	Special woven or tufted fabric, lace, tapestry etc
59	Impregnated, coated or laminated textile fabric
60	Knitted or crocheted fabric
61	Articles of apparel, accessories, knit or crochet
62	Articles of apparel, accessories, not knit or crochet
63	Other made textile articles, sets, worn clothing etc
64	Footwear, gaiters and the like, parts thereof
65	Headgear and parts thereof
66	Umbrellas, walking-sticks, seat-sticks, whips, etc
67	Bird skin, feathers, artificial flowers, human hair
68	Stone, plaster, cement, asbestos, mica, etc articles
69	Ceramic products
70	Glass and glassware
71	Pearls, precious stones, metals, coins, etc
72	Iron and steel
73	Articles of iron or steel
74	Copper and articles thereof
75	Nickel and articles thereof
76	Aluminium and articles thereof
78	Lead and articles thereof
79	Zinc and articles thereof
80	Tin and articles thereof
81	Other base metals, cermets, articles thereof
82	Tools, implements, cutlery, etc of base metal
83	Miscellaneous articles of base metal
84	Machinery, nuclear reactors, boilers, etc
85	Electrical, electronic equipment
86	Railway, tramway locomotives, rolling stock, equipment
87	Vehicles other than railway, tramway
88	Aircraft, spacecraft, and parts thereof
89	Ships, boats and other floating structures
90	Optical, photo, technical, medical, etc apparatus
91	Clocks and watches and parts thereof
92	Musical instruments, parts and accessories
93	Arms and ammunition, parts and accessories thereof
94	Furniture, lighting, signs, prefabricated buildings
95	Toys, games, sports requisites
96	Miscellaneous manufactured articles
97	Works of art, collectors' pieces and antiques
99	Commodities not elsewhere specified

Source: ITC, 2021

Positive value of skewness indicates that the country is more specialized on products with low comparative advantage and negative value of skewness indicates that the country is

more specialized on products with high comparative advantage. Widodo (2009b) show that the direction of specialization or shift in comparative advantages can be analyzed by looking at the skewness over time.

Products which are exported and imported are generally classified by Standard International Trade Classification (SITC), Harmonized Commodity Description and Coding System (HS) or Broad Economic Categories (BEC). This study uses 2 digit Harmonized Commodity Description and Coding System (HS) and use all 97 product classifications listed on table 1. Products which are classified under HS system are classified according to material used in production, the processing stage, market use of products, the importance of the commodities in terms of world trade, and technological changes. HS data for this study is taken from International Trade Center (ITC) which is based in United Nations Commodity Trade Statistics Database (UNCOMTRADE) with 15 years time span (2004-2019). RSCA indexes are calculated for each country every single year from 2004-2019.

III. RESULTS AND DISCUSSIONS

A. Each Countries' Products and Their Comparative Advantages

First analysis uses revealed symmetric comparative advantage (RSCA) index. RSCA index of 97 product categories in each 11 countries are ranked and summarized into a list containing top 10 categories with the highest RSCA index (highest comparative advantage) for each year (2004-2019). ASEAN-5 (Indonesia, Malaysia, Singapore, Thailand, and Philippines) has very high comparative advantage in tin and article thereof (HS code 80) with RSCA index 0.91 in 2005. Commodities of animal, vegetable fats and oils, cleavage products, etc (HS code 15) placed second in the 2005 list with RSCA index reach nearly 0.90. Furthermore, discussions below is written in alphabetical list of the countries (Australia, China, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, and Thailand).

1. Australia

Australia is the most consistent countries that maintained its comparative advantage high in several comodities. Australia has very high comparative advantage in ores, slag, and ash (HS code 26) with RSCA index 0.93, followed by lead and articles thereof (HS code 78) with RSCA index 0.88. The other products include wool, animal hair, meat, zinc, cereals, inorganic chemicals, live animal, dairy products, animal products, and milling products. There is only one group commodities which exit from the top 10 list, which is group of dairy products, eggs, honey, edible animal product nes (HS code 4). That group is replaced by raw hides and skins (other than furskins) and leather which be the last product in 2015 list. Among all, products of ores, slag and ash (HS code 26), wool, animal hair, horsehair yarn and fabric thereof (HS code 51), and meat and edible meat (HS code 2) had been steadily being in top five list from 2004 to 2019. RSCA indexes are varied, but Australia has consistent maintaining its export in the commodities which it specialized at.

Table 2. Australia RSCA Rank

Australia Rank	2005		2010		2015		2019	
	HS	RSCA	HS	RSCA	HS	RSCA	HS	RSCA
1	26	0.93	26	0.95	26	0.96	26	0.96
2	78	0.88	51	0.86	51	0.89	51	0.88
3	51	0.88	78	0.81	78	0.84	2	0.74
4	2	0.80	2	0.66	2	0.79	78	0.73
5	79	0.76	79	0.65	1	0.71	1	0.65
6	10	0.75	1	0.62	10	0.71	79	0.62
7	28	0.72	10	0.62	79	0.68	27	0.61
8	1	0.66	28	0.55	28	0.65	28	0.58
9	4	0.62	11	0.54	11	0.50	75	0.53
10	11	0.60	71	0.42	41	0.49	11	0.44

Source: Processed from ITC, 2021

2. China

In 2005, China has very high comparative advantage in manufactures of plaiting material, basketwork, etc (HS code 46) and umbrellas, walking-sticks, seat-sticks, whips, etc (HS code 66) which both have RSCA index above 0.90 (RSCA indexes are 0.91 for HS code 46 and 0.90 for HS code 66). In 2015, RSCA index for umbrellas, walking-sticks, seat-sticks, whips, etc (HS code 66) has risen to 0.93 and became commodities with highest comparative advantage. Overall, for the past 10 years, China had not change much

in its commodities which have comparative advantage. Only 3 commodities classification which does not appear again in top 10 list of comparative advantage index in 2015. They are fur skins and artificial fur (manufactures thereof, HS code 43), articles of leather, animal gut, harness, travel goods (HS code 42), and footwear, gaiters and the like (HS code 64). In 2015, there are several new commodities rising so that they included in top 10 commodities with highest comparative advantage based on RSCA index. They are ceramic products (HS code 69), knitted or crocheted fabrics (HS code 60), and furniture, lighting, signs, prefabricated buildings (HS code 94). In 2015 and 2019, the composition of top 3 traded goods with highest comparative advantage did not change much. Bird skin, feathers, artificial flowers, human hair (HS code 67) placed first, umbrellas, walking-sticks, seat-sticks, whips, etc (HS code 66) placed second, and manufactures of plaiting material, basketwork, etc (HS code 46). China is more specialized at manufactured goods.

Table 3. China RSCA Rank

China Rank	2005		2010		2015		2019	
	HS	RSCA	HS	RSCA	HS	RSCA	HS	RSCA
1	46	0.91	66	0.94	66	0.94	67	0.93
2	66	0.90	46	0.92	67	0.92	66	0.92
3	67	0.84	67	0.89	46	0.88	46	0.85
4	50	0.81	50	0.81	65	0.79	43	0.80
5	43	0.74	65	0.78	50	0.78	95	0.78
6	65	0.74	63	0.74	95	0.72	60	0.77
7	42	0.73	42	0.73	69	0.72	50	0.76
8	95	0.72	61	0.71	63	0.70	65	0.71
9	63	0.72	64	0.70	60	0.70	54	0.70
10	64	0.70	95	0.68	94	0.68	69	0.70

Source: Processed from ITC, 2021

3. India

For India, silk (HS code 50) is the commodity with high comparative advantage in 2005 with RSCA index 0.87. Meanwhile, in the 2015 list, this categories has disappear, no longer exist in the top 10 highest comparative advantage product. Silk (HS code 50) is replaced by lac, gums, resins, vegetable saps, and extract nes (HS code 13) and cotton (HS code 52) in the second rank. There are two categories which no longer exist in the top 10 list, they are silk (HS code 50) and ores, slag, and ash (HS code 26). With trade liberalization, India can import product of ores, slag, and ash (HS code 26) from

Australia which has very high comparative advantage.

From 2015 to 2019, these product categories: lac, gums, resins, vegetable sps, and extract nes (HS code 13), carpets and other textile floor coverings (HS code 57), and cotton (HS code 52) stayed on top three position. On agriculture sector, India also has comparative advantage on fruits and vegetables, fish and fish preparations, sugar and sugar preparations, also miscellaneous food products but still lack in sophisticated innovations (Nabi and Bhullar, 2020). Nabi and Bhullar (2020) also stated that more physical and human capital is needed for more favorable position in such product. Our findings are also still in line with Burange and Chaddha (2008) which used year 1996 to 2005 data and found that India has high comparative advantage in the exports of labour-intensive industries such as textiles. India also shall put awareness to China which is also having high comparative advantage at textile-related products.

Table 4. India RSCA Rank

India Rank	2005		2010		2015		2019	
	HS	RSCA	HS	RSCA	HS	RSCA	HS	RSCA
1	50	0.87	52	0.81	13	0.84	13	0.77
2	13	0.86	13	0.80	52	0.81	52	0.76
3	57	0.83	50	0.77	57	0.77	57	0.75
4	71	0.82	57	0.76	63	0.68	63	0.69
5	63	0.78	53	0.75	53	0.67	53	0.66
6	26	0.77	71	0.72	71	0.64	9	0.58
7	52	0.72	14	0.69	10	0.63	10	0.60
8	14	0.69	63	0.63	14	0.61	71	0.45
9	53	0.68	9	0.60	9	0.60	78	0.62
10	9	0.67	54	0.59	55	0.58	3	0.49

Source: Processed from ITC, 2021

4. Indonesia

Indonesia is the major exporter of tin (HS code 80) in the region and in the world. In 2005, it has 0.95 RSCA index, therefore has very high comparative advantage. Products of animal, vegetable fats and oils, cleavage products, etc (HS code 15) placed second in 2005 list, consider that Indonesia also produces and exports large amount of palm oil. Most of Indonesia's product that have high comparative advantage are from natural sources and raw materials. In 2015, RSCA index for tin (HS code 80) is risen, became nearly 0.96. Almost all product from 2005 list are on 2015 list. It shows that there are

consistency in product exported. Indonesia maintain its focus to export goods that abundance in its factors and have high comparative advantage. The only one product which exclude in 2015 list is ores, slag, and ash (HS code 26), replaced by appearance of footwear, gaitres and the like, parts thereof (HS code 64).

Table 5. Indonesia RSCA Rank

Indonesia Rank	2005		2010		2015		2019	
	HS	RSCA	HS	RSCA	HS	RSCA	HS	RSCA
1	80	0.96	80	0.96	80	0.96	80	0.96
2	15	0.90	15	0.92	15	0.92	15	0.92
3	14	0.79	92	0.87	14	0.87	14	0.87
4	92	0.79	55	0.84	92	0.84	92	0.84
5	26	0.73	14	0.68	55	0.68	55	0.68
6	75	0.72	40	0.68	9	0.68	47	0.68
7	55	0.70	75	0.66	47	0.66	67	0.66
8	9	0.68	26	0.66	67	0.66	46	0.66
9	40	0.64	67	0.64	40	0.64	9	0.64
10	47	0.64	18	0.62	64	0.62	40	0.62

Source: Processed from ITC, 2021

There was no change on top three commodities from 2005 to 2019. As we can see from table 4, Indonesia has high comparative advantage in sectors that use abundant natural resources. Like India, Indonesia has to organizes strategies internally by increasing human capital by conducting workforce training and protecting farmers, movement in technology, and increasing good corporation between government and Indonesian exporters (Moenandy et al, 2021). Indonesia’s neighboring country, Malaysia, also has high comparative advantages at almost the same commodities as Indonesia. To avoid negative impacts of competition, Indonesia must boost their industries and intensify supervision of products that enter the country through various existing channels to deal with the flood of foreign products that enter the country because of RCEP (Lombok, 2021).

5. Japan

In 2005, Japan’s RSCA indexes are all below China (compare table 2 and 5). Highest Japan’s RSCA score (0.67) can not exceed China’s lowest RSCA score (0.69). There are similarities on the RSCA index between 2005 and 2015. Only 2 groups of commodities that differ from 2005. The pattern of Japan’s comparative advantage did not change much. During 2005 to 2019, Japan has high

comparative advantage in photographic or cinematographic goods (HS code 37), ships, boats, and other floating structures (HS code 89), and vehicles other than railway, tramway (HS code 87). Therefore, in the last 10 years, Japan has been increasing its comparative advantage in her top three commodities based on RSCA indexes, even though the highest score is still below China’s first rank score.

Table 6. Japan RSCA Rank

Japan Rank	2005		2010		2015		2019	
	HS	RSCA	HS	RSCA	HS	RSCA	HS	RSCA
1	37	0.67	37	0.75	37	0.82	37	0.85
2	89	0.55	87	0.56	87	0.56	89	0.55
3	87	0.53	89	0.56	92	0.45	87	0.55
4	92	0.46	99	0.51	99	0.44	92	0.46
5	90	0.38	92	0.47	72	0.42	99	0.39
6	99	0.35	70	0.39	89	0.39	72	0.34
7	85	0.30	72	0.38	90	0.31	84	0.32
8	81	0.28	84	0.33	96	0.31	90	0.30
9	84	0.28	81	0.31	84	0.31	96	0.27
10	72	0.25	90	0.29	40	0.27	82	0.26

Source: Processed from ITC, 2021

6. South Korea

South Korea has high comparative advantages at ships, boats, and other floating structures (HS code 89) in 2005, with RSCA index 0.85. In 2015, South Korea had been maintaining his comparative advantage in the same commodity groups. There are 3 commodities groups that exit from the top 10 commodities list in 2005, replaced by commodities lead and articles thereof (HS code 78), optical, photo, technical, medical, etc (HS code 90), and vehicles other than railway, tramway (HS code 87). Korea’s top ten commodities are similar to Japan’s (compare table 6 to table 5).

Table 7. South Korea RSCA Rank

S. Korea Rank	2005		2010		2015		2019	
	HS	RSCA	HS	RSCA	HS	RSCA	HS	RSCA
1	89	0.85	89	0.86	89	0.85	89	0.74
2	60	0.70	60	0.68	60	0.57	78	0.61
3	54	0.53	90	0.49	79	0.47	79	0.54
4	59	0.50	54	0.44	78	0.45	60	0.47
5	85	0.46	85	0.38	85	0.40	85	0.43
6	58	0.44	79	0.38	54	0.38	37	0.41
7	79	0.34	72	0.33	72	0.35	72	0.40
8	55	0.32	59	0.32	90	0.35	54	0.33
9	92	0.28	87	0.28	87	0.29	39	0.32
10	72	0.28	39	0.26	59	0.27	29	0.30

Source: Processed from ITC, 2021

7. Malaysia

In 2005, Malaysia has high comparative advantage in animal, vegetable fats and oils, cleavage products, etc (HS code 15), with RSCA index 0.87. Tin and articles there of

(HS code 80) placed second with index 0.74. Pattern of commodities that have highest comparative advantage is not much deviate. Its overall index is higher in 2015 than 2005. There are 3 product that dissappear from 2005 list, they are miscellaneous chemical products (HS code 38), manmade filaments (HS code 54), and furniture, lighting, signs, and prefabricated building (HS 94). In 2015 list, these commodities are replaced by nickel and articles thereof (HS code 75), lead and articles thereof (HS code 78) and miscellaneous edible preparations (HS code 21). Products with HS code 15 and 80 are stable at highest ranks from year 2005 to 2009.

Table 8. Malaysia RSCA Rank

Malaysia Rank	2005		2010		2015		2019	
	HS	RSCA	HS	RSCA	HS	RSCA	HS	RSCA
1	25	0.87	15	0.91	15	0.87	15	0.83
2	80	0.74	80	0.81	80	0.85	80	0.76
3	85	0.55	14	0.69	14	0.72	14	0.68
4	44	0.51	40	0.58	75	0.66	40	0.47
5	40	0.44	44	0.53	40	0.53	85	0.47
6	18	0.28	85	0.56	78	0.50	18	0.38
7	84	0.22	18	0.46	85	0.45	92	0.36
8	38	0.19	38	0.22	44	0.44	78	0.29
9	54	0.17	84	0.14	18	0.39	44	0.22
10	94	0.12	19	0.14	21	0.26	76	0.20

Source: Processed from ITC, 2021

8. New Zealand

New Zealand have very high comparative advantage in dairy products, eggs, honey, edible animal product nes (HS code 4) which has RSCA index 0.96. Several product has simmilarity in comparative advantage with Australia, such as dairy product, meat and edible meat, wool (HS code 4, 2, and 51). Five commodities categories of the list have very high RSCA index, therefore very high comparative advantage (RSCA index about 0.9 and more). Seven product categories which has highest comparative advantage in 2005 still exist in 2015 with slight differences for 2019. The products with highest comparative advantages in New Zealand are similar to those for Australia.

Table 9. New Zealand RSCA Rank

NZ Rank	2005		2010		2015		2019	
	HS	RSCA	HS	RSCA	HS	RSCA	HS	RSCA
1	4	0.96	4	0.97	4	0.97	4	0.98
2	2	0.93	2	0.91	2	0.92	2	0.92
3	51	0.91	51	0.91	51	0.92	5	0.89
4	35	0.90	5	0.88	5	0.91	51	0.87
5	5	0.90	35	0.88	35	0.90	35	0.86
6	8	0.79	44	0.82	44	0.82	44	0.86
7	21	0.75	8	0.75	8	0.78	19	0.82

8	3	0.75	19	0.73	22	0.71	8	0.81
9	44	0.74	3	0.70	47	0.71	22	0.71
10	47	0.32	47	0.69	21	0.71	21	0.70

Source: Processed from ITC, 2021

9. Philippines

Philippines has high comparative advantage in manufactures of plaiting material, basketwork, etc (HS code 46) with RSCA index up to 0.86 in 2005. Therefore, this commodity is lower in comparative advantage in 2015. There are only 5 commodities group in 2005 list that can stay on the top 10 list until 2019.

Table 10. Philippines RSCA Rank

Philippines Rank	2005		2010		2015		2019	
	HS	RSCA	HS	RSCA	HS	RSCA	HS	RSCA
1	46	0.86	99	0.91	13	0.77	13	0.75
2	85	0.72	46	0.73	44	0.75	85	0.71
3	15	0.63	13	0.72	46	0.73	8	0.70
4	14	0.52	15	0.65	85	0.66	75	0.60
5	8	0.50	44	0.50	15	0.60	46	0.56
6	62	0.43	85	0.44	75	0.58	14	0.49
7	20	0.37	16	0.42	20	0.53	24	0.47
8	67	0.36	24	0.39	89	0.50	74	0.46
9	61	0.27	8	0.38	26	0.50	42	0.44
10	84	0.24	20	0.34	8	0.38	20	0.40

Source: Processed from ITC, 2021

10. Singapore

Singapore is the most dynamic countries which has different pattern of comparative advantage from 2005 untill 2015. Only 5 (of 10) commodities in 2005 list which appear again in 2015 list. Its RSCA index is relatively lower than its two neighbouring states, Indonesia and Malaysia, also lower than the other ASEAN-5 member states. Tin (HS code 80) and electrical, electronic equipment (HS code 85) are ranked first and second in 2005 Singapore's list with RSCA index 0.78 and 0.61, respectively. In 2015, first commodities is tin (HS code 80) and second is commodities not elsewhere specified (HS code 99), with RSCA index 0.59 and 0.57. Singapore's comparative advantages in 2005 and 2019 are lower than the highest index in 2005.

Table 11. Singapore RSCA Rank

Singapore Rank	2005		2010		2015		2019	
	HS	RSCA	HS	RSCA	HS	RSCA	HS	RSCA
1	80	0.78	90	0.66	80	0.74	21	0.56
2	85	0.61	99	0.60	85	0.54	33	0.54
3	29	0.39	85	0.57	75	0.48	80	0.41
4	84	0.25	29	0.30	99	0.41	85	0.47
5	99	0.25	91	0.26	29	0.37	99	0.30
6	37	0.21	33	0.22	33	0.34	90	0.27
7	14	0.11	84	0.16	91	0.23	91	0.26

8	32	0.09	49	0.10	24	0.20	29	0.22
9	49	0.08	27	0.04	38	0.18	38	0.21
10	33	0.05	75	0.03	90	0.17	84	0.16

Source: Processed from ITC, 2021

11. Thailand

Meat, fish, and seafood food preparation nes (HS code 16) placed first in Thailand’s list followed by rubber and articles thereof (HS code 40) and tin and articles thereof (HS code 80). The RSCA indexes are 0.87, 0.73, and 0.71, respectively. Therefore, in 2015, tin (HS code 80) is no longer appear in top 10 commodities that have highest comparative advantage. With trade liberalization, Thailand could import tin and articles thereof from Indonesia that have highest comparative advantage in tin. In 2019, commodities related to meat, fish, and seafood food preparations nes (HS code 16) still placed on first rank.

Table 12. Thailand RSCA Rank

Thailand Rank	2005		2010		2015		2019	
	HS	RSCA	HS	RSCA	HS	RSCA	HS	RSCA
1	16	0.87	16	0.88	16	0.85	16	0.84
2	40	0.73	40	0.77	40	0.73	93	0.82
3	80	0.72	10	0.69	11	0.73	40	0.76
4	10	0.69	80	0.68	17	0.71	17	0.75
5	11	0.57	11	0.68	10	0.58	11	0.71
6	17	0.56	17	0.63	20	0.51	80	0.53
7	55	0.56	49	0.58	21	0.44	10	0.51
8	20	0.55	55	0.55	55	0.43	41	0.46
9	3	0.54	20	0.50	35	0.38	55	0.46
10	25	0.37	3	0.48	80	0.38	20	0.45

Source: Processed from ITC, 2021

Looking at the RSCA data from 2004 to 2019, comparative advantages between some countries are relative similaras an early indicator of competitionas an early indicator of competition. It should be concern for those countries to maintain their product’s competitiveness so they wont loss in trade liberalization under RCEP and other RTAs.

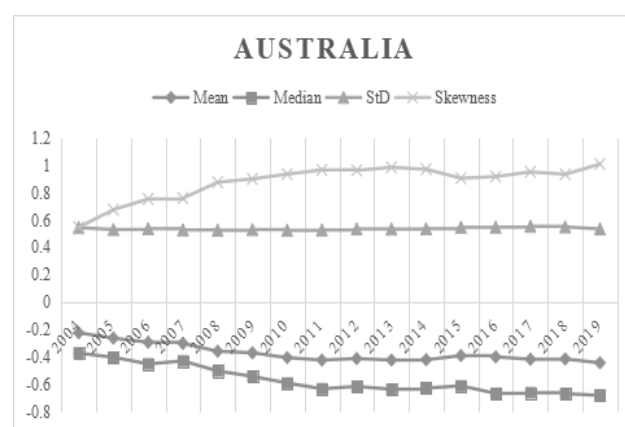
B. Similarities and Differences of RCEP Member Countries Plus India

Comparative advantages between ASEAN-5 countries are relative similar. ASEAN-5 major export is goods that use abundant natural sources. Overall, RSCA indexes are higher in 2015 list than 2005 list. This means that ASEAN has been focused on exporting products that have high comparative advantage. ASEAN’s major export is in product using natural sources and

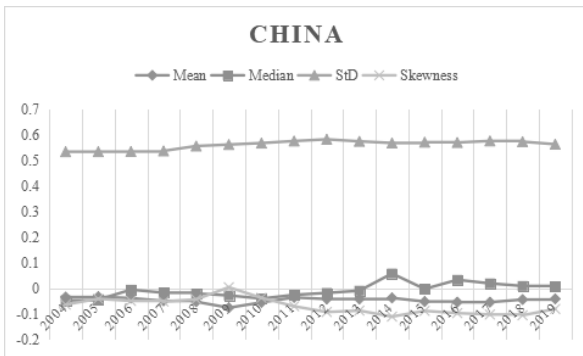
raw commodities such as tin, animal, vegetables, meat, fish, nickel, rubber, and wood. Indonesia’s commodities high in RSCA index are similar with those of Malaysia, and Australia’s commodities are similar to New Zealand. Japan’s commodities are similar from those of Korea. Commodities related to fabrics and textiles are common in China and India.

C. Pattern of Trade Specialization Among Countries

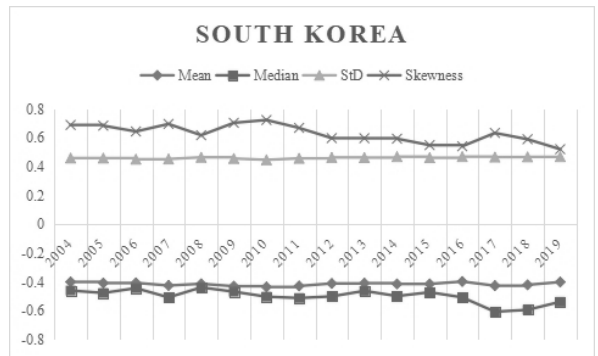
Previous part revealed that several countries show relevance on the trade theories that country will export products which use abundant factors in its production. These conditions also match the theory of comparative advantage which stated that countries will export product which have comparative advantages and become specialized on those products. From Widodo (2009b), the comparative advantage will become higher, therefore the other products will relatively have smaller increase or decrease in comparative advantage so there must be larger dispersion in comparative advantage among products. Larger dispersion will captured by larger standard deviation of RSCA index. Pattern of comparative advantages captured by trends in RSCA mean, median, standard deviation, and skewness. Values of mean, median, standard deviation, and skewness are described in Graphics 1 to 11.



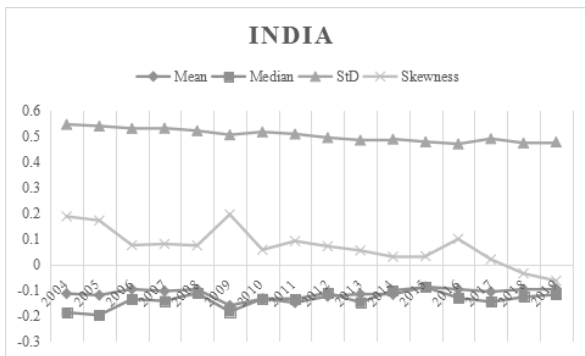
Graphic 1. Australia
Source: Processed from ITC, 2021



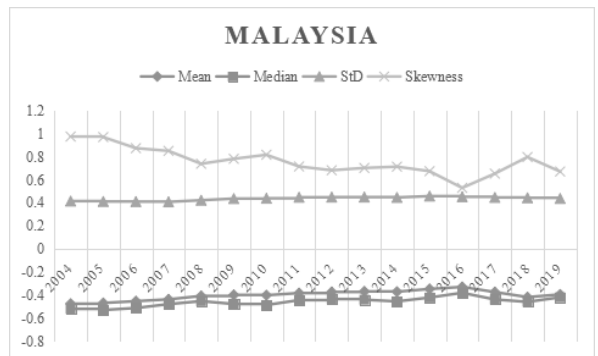
Graphic 2. China
Source: Processed from ITC, 2021



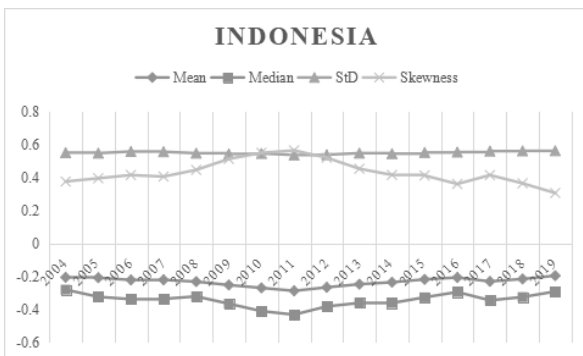
Graphic 6. South Korea
Source: Processed from ITC, 2021



Graphic 3. India
Source: Processed from ITC, 2021



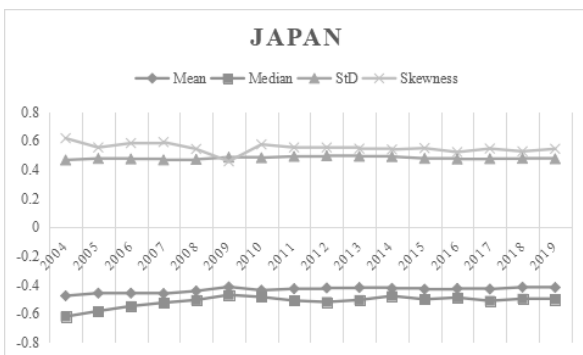
Graphic 7. Malaysia
Source: Processed from ITC, 2021



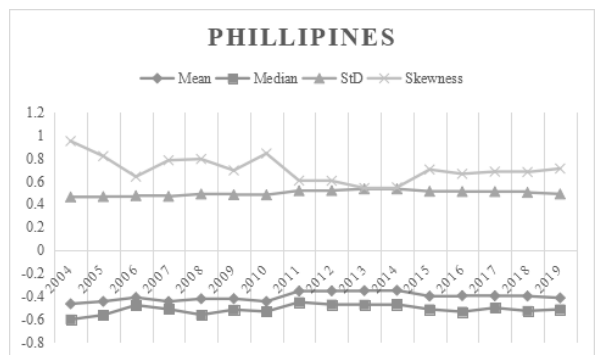
Graphic 4. Indonesia
Source: Processed from ITC, 2021



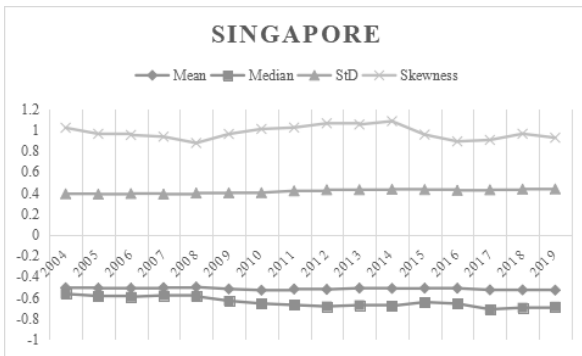
Graphic 8. New Zealand
Source: Processed from ITC, 2021



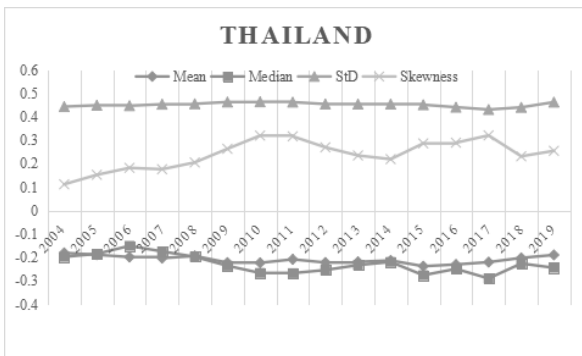
Graphic 5. Japan
Source: Processed from ITC, 2021



Graphic 9. Philippines
Source: Processed from ITC, 2021



Graphic 10. Singapore
Source: Processed from ITC, 2021



Graphic 11. Thailand
Source: Processed from ITC, 2021

Positive value of skewness indicate that corresponding country has a concentration on the products with low comparative advantage. Concluded from the graphics, all countries (except China) have concentration on the products with low comparative advantages. This condition is slightly similar with previous study conducted by Widodo (2009b). ASEAN-5, China, India, and Korea have their concentration on the product with higher comparative advantage overtime. Meanwhile Japan is stagnant (could be because of concentrating on her current export commodities), Australia and New Zealand have increasing trend.

The standard deviation remains constant overtime. This indicates that difference in comparative advantages remain constant, but indicate slight downward trend for India. Smaller standard deviation means despecialization, and larger standard deviation means that there will be specialization in specific commodities. In ASEAN-5, there is slight down trend of standard deviation and slight upward trend of mean. This could indicate that the increase of the mean might because of higher increase

comparative advantage of the product which had lower comparative advantage in the past (Widodo, 2009b).

IV. CONCLUSIONS

Comparative advantages between some RCEP member countries' plus India are relative similar. It should be a concern for those countries to maintain their product's competitiveness. ASEAN-5 major export are commodities that use abundant natural sources. Indonesia's commodities high in RSCA index are similar with those of Malaysia's, and Australia's commodities are similar to New Zealand's. Japan's commodities are similar from those of Korea's. Commodities related to fabrics and textiles are common in China and India.

Several countries show relevance on the trade theories that country will export products which use abundant factors in its production. These conditions also match the theory of comparative advantage which stated that countries will export product which have comparative advantages and become specialized on those products.

All countries (except China) have concentration on the products with low comparative advantage. This condition is slightly similar with previous study conducted by Widodo (2009b). ASEAN-5, China, India, and Korea have their concentration on the product with higher comparative advantage overtime. Meanwhile Japan is stagnant (could be it is concentrating on its current export commodities), Australia and New Zealand have increasing trend. Looking at the RSCA data from 2004 to 2019, comparative advantages between some countries are relative similar, as an early indicator of competition. It should be concern for those countries to maintain their product's competitiveness so they wont loss in trade liberalization under RCEP and other RTAs.

The standard deviation remains constant overtime. This indicates that difference in comparative advantages remain constant, but indicate slight downward trend for India. Smaller standard deviation means despecialization, and larger standard

deviation means that there will be specialization in specific commodities.

This paper shows general pattern about international trade between 10 RCEP member countries plus India. Further researches are still needed for each country. Various method such as applying Spearman rank correlation analysis and cointegration test can be conducted for pairs of countries, Trade Balance Index analysis, regression on some variables affecting comparative advantages can be conducted for further research.

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