



## Research Article

# Determine competitiveness of Indonesian export commodities using static and dynamic revealed comparative analysis

Suparmono

Sekolah Tinggi Ilmu Manajemen YKPN Yogyakarta, Indonesia.

**\*Corresponding Author email:** [suparmono@stimykpn.ac.id](mailto:suparmono@stimykpn.ac.id)

Submission: 27 December 2020

Revised: 24 March 2021

Accepted: 16 April 2021

## ABSTRACT

The government continues to promote non-oil and gas exports because oil and gas exports have continued to decline since the decades of the 90s. Main commodity products are still dominated by primary products such as mining, agriculture and some low technology manufactured products. This results in low added value of the product. Indonesia needs products that are highly competitive in the international market. This article aims to analyze the level of competitiveness of Indonesian products in world trade. The analytical tool used is the static revealed comparative advantage (SRCA) and dynamic revealed comparative advantage (DRCA). The data used from the International Trade Centre are classified according to the Harmonized System (HS) from 2013 to 2019. The result is that by using SRCA, Indonesia has competitiveness for products: tin and articles group only contribute to the export value of 0.95% of Indonesia's total exports. The biggest share of exports is the group of mineral fuels, mineral oils, and products of their distillation; bituminous substances; minerals, group of goods Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal by 13.60%. In the DRCA, the largest export value is 10 groups included in the rising star category: natural rubber and its derivatives, cars and other motorized vehicles, fatty acids and their derivatives for industry, lignite, lead not forged, ferroalloys, wire, cable, and the like, refined copper, petroleum and mineral, and margarine and its derivatives. This indicates these products had positive growth, but growth in Indonesia was higher than the growth of similar products in the world.

**Keywords:** *Competitiveness, Static RCA, Dynamic RCA, Specialization, Commodities***JEL Classification:** C61, N70, P52

## 1. INTRODUCTION

Indonesia's non-oil and gas exports continue to be encouraged by the government, as oil and gas exports have begun to decline since the 1990s. Primary products such as logging, manufacturing and some low technology processed products also dominate the key commodity products. This results in the commodity getting poor added value. The lack of a meaningful causal relationship between transparency and regional inequality in Indonesia was pointed out by fixed effects and complex Arellano-Bover panel studies (Rodríguez-Pose, 2012).

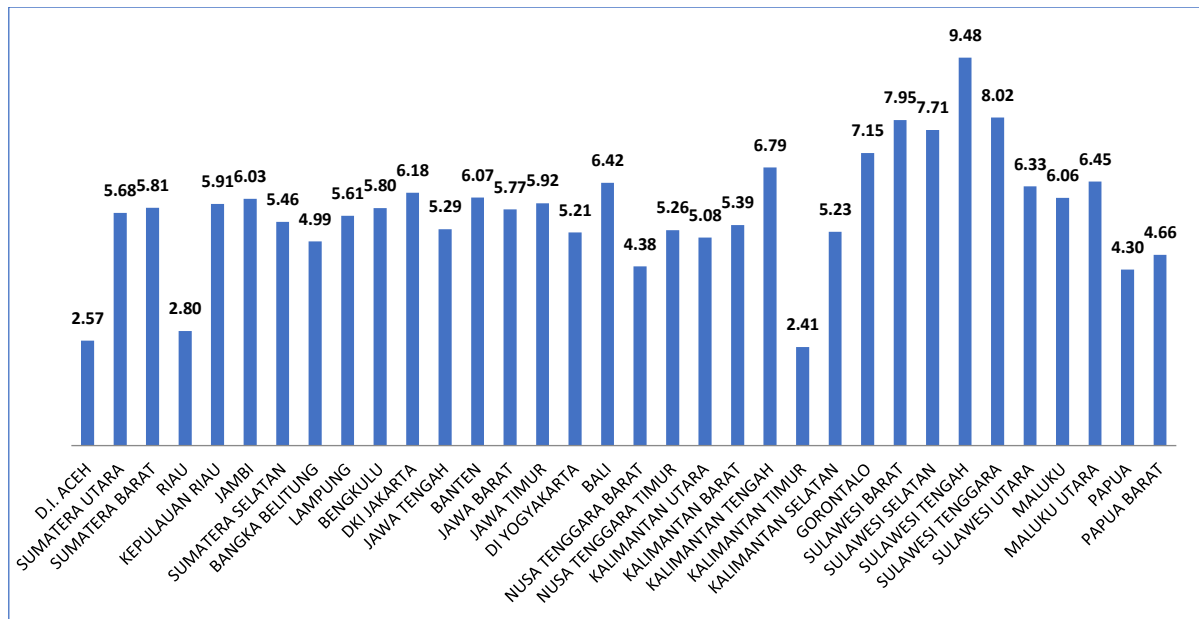
The last few decades have seen dramatic shifts in the patterns of competitiveness and industrial specialization in the global economy (Deng, 2017). In the past decade, the principle of competition has been extensively debated in economic studies and economic policy articles but there is little consensus on its interpretation real world (Benalywa, Ismail,

Shamsudin, & Yusop, 2019). The system dynamics approach is expected to be able to provide solutions to complex problems that many agroindustries face from the upstream to downstream levels (Sumadi, Jumintono, & Ardiani, 2020). The variation of concepts derives from the complexity of the expectations, viewpoints, and goals of policy experts (Rahardjo, Akbar, Iskandar, & Shalehah, 2020). Competitiveness can be looked at three different levels: regional or macroeconomic, manufacturing, and firm or microeconomic. Competitiveness often takes into account the geographical areas of the inquiry, comparing businesses or commerce within an area within a different world or nations (Daulika, Peng, & Hanani, 2020). Trade liberalization not only provides export growth incentives but also brings with it a more productive climate in international, regional, and domestic markets (Widodo, 2009).

Such statistics tend to be more important for emerging countries in part because of the recent industrialization trends and the increase of trade from South to South, which accounted for approximately 40 percent of overall global trade with manufacturers (Esquivias, 2013). A key concern regarding country-specific specialization and the complex changes in comparative advantage trends arise in tandem with the convergence cycle on the world market (Widodo, 2009). Increased transparency resulted in a greater rise in import growth over exports and a steady improvement in trade deficits (Kazuo & Abstract, 2012).

Overall, Indonesia's competitiveness index in 2017/2018 reached 4.68. This figure is higher compared to 2016/2017 which amounted to 4.51. The decline in the value of the competitiveness index occurred during 2014-2016. Indonesia's competitiveness ranking from 2016 to 2017 showed an increase from rank 41 to rank 36. In the same year, India declined from rank 39 to rank 40, as well as Singapore from rank 2 to rank 3.

During the period 2010-2019, the national economy grew by an average of 5.39% per year. This growth rate is considered high if we look at the dynamics of the regional and global economies which show a tendency to stagnate. By using the 2010-2019 constant price GRDP data, during that period Central Sulawesi Province showed the highest average economic growth of 9.48% per year, while East Kalimantan Province was the province with the lowest average economic growth, which was only 2, 41% per year. By using geometric averages, the average economic growth of all provinces reaches 5.50%. From Fig. 1 below, it can be seen that the economic growth between provinces has quite high variations.



**Fig. 1.** Comparison of Average Economic Growth 2010-2019 Inter-Provinces in Indonesia

**Source:** Central Bureau of Statistics, compiled

From the review of the sectoral competitiveness of the economy using LQ, it will be seen the comparison of sectoral competitiveness from one province to another. The LQ value of the agriculture, forestry and fisheries sectors in almost all provinces has an LQ value > 1. Out of 34 provinces, only 9 provinces have LQ scores below one. West Sulawesi is the province with the largest LQ value for this sector, namely 3.0799. This implies that the agricultural, forestry and fisheries sectors in West Sulawesi have an output that is far better than the average output of all provinces. The LQ value above 1 also indicates that the agriculture, forestry and fisheries sectors in West Sulawesi have great potential to be exported outside West Sulawesi.

Judging from the value of Indonesia's Global Value Chain (GVC), in 2019 Indonesia's participation in the global chain was still low, namely at 43.5, below Fig. 2 the average aggregate participation of developing countries which was 48.5. Malaysia is a country that has a very high, with an index reaching 60.8. Likewise with Thailand (54.3) and China (47.7). This participation index indicates the involvement of a country in the production of a good which involves many countries during production. The value chain includes design & development, input of raw materials and other factors, selection, and assembly, physical transformation and processing, acquisition of required services such as transportation and financing, response to consumer demand. Indonesia's participation in the Global Value Chain is mainly contributed by the mining industry, wholesale and retail trade, and agriculture. The three main countries that take advantage of the input of goods from Indonesia are China, South Korea and Malaysia. Indonesia is still producing intermediate goods which will be bought again after they become finished goods.

The low level of Indonesia's participation in the GVC is due to the fact that Indonesia is still dependent on exports of agricultural and mining products which do not provide significant added value for Indonesia.

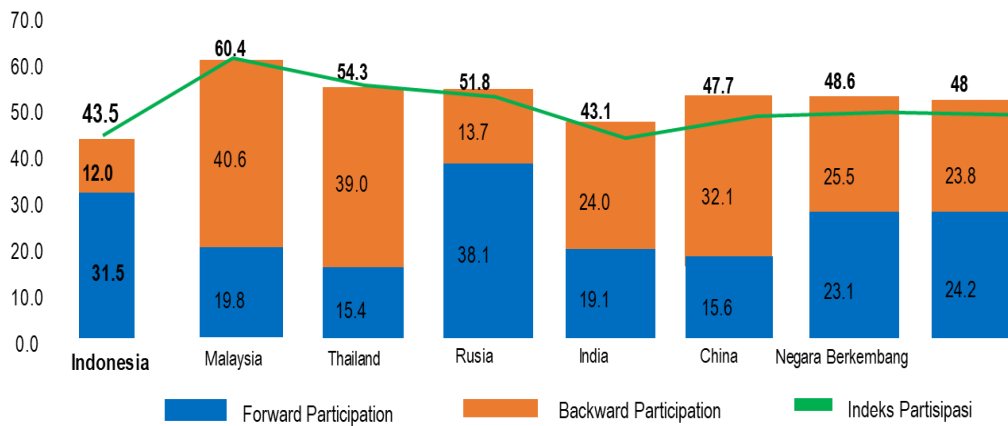


Fig. 2. Indonesia's GVC Value compared to Several Countries

Source: World Bank, 2019

## 1.1. OBJECTIVES

The purpose of this analysis is to examine the extent of competition of foreign trade in Indonesian goods. The empirical method used is the static exposed comparative advantage (SRCA) and dynamic revealed comparative advantage (DRCA).

## 2. LITERATURE REVIEW

However, manufacture of general items that call for low-cost labor mostly take place in low-wage countries, including China, Indonesia, India and Vietnam, and Korea still lags behind advanced nations, such as Italy, Germany and Japan in terms of high value-added and high-end products (Son, 2014).

To see trade flows and patterns, an index measure can be used, namely the Trade Intensity Index (TII). This index basically describes the bilateral trade between the two countries in relation to the total international trade in the world. In addition, TII can also be used to see the intensity of trading, namely in intra-trade or extra-trade. This index is used to measure whether the value of trade between the two countries is greater (or smaller) than expected, based on their importance to world trade. An index value greater than 1 indicates that there is intense trade between the exporting country and the partner country when compared to their trade with the rest of the world (Constantinescu & Panagoret, 2017).

The definition of competitiveness is complex and compared to the various meanings often used to describe specific circumstances. Competitiveness, in general, is the capacity to manufacture goods and services that satisfy foreign market criteria and offer increased and long-term quality of life for people (Bernardini Papalia, Calia, & Filippucci, 2015). Competitiveness also applies to the willingness of companies/industries/regions/countries to achieve sustained sales and fairly stable job rates, while staying free to external competition (Fundeanu & Badele, 2014).

In today's world, the most important concept affecting the global development ranking of countries is undoubtedly "competitiveness" (Erkan & Author, 2019). The product-level comparative advantage of aggregated trade flows in a very general theoretical framework

and developed an approach for estimating trade costs using pooled product-level trade data (French, 2017) (Shahzad, 2015). While the macro-economic variables such as inflation, unemployment, interest rate, tax rate, economic growth rate are important, they are not effective enough to enable countries to compete at the global level in today's world (Łapińska, Huterska, Zdunek-Rosa, & Huterski, 2020). However, it is not a condition to achieve competitive power in global markets today to export more products. In this perspective, the factor density of the exported product is the key concept in the context of achieving competitiveness (Ćorović, Gligorijević, & Manasijević, 2020).

The definition of comparative advantage applies to a regional competition. The comparative advantage hypothesis notes that trade fluxes occur because of relative cost disparities between trading partners (Benalywa et al., 2019). Another issue is the strategic attitude to the competitiveness of price, which is just one way to prevent optimal competitiveness (Cinquetti, 2018). The foreign economic factor reverts to a sustainable price: labor cost absorbs all marginal revenues in every domestic factor sector. Accordingly, quality pricing is related exclusively to cost selection by foreign exporters (Khaliqi, Gurning, Novanda, & Simamora, 2020). If a nation has a strategic edge in producing and selling these commodity categories, its profitability is strong on global markets. (Erkan & Author, 2019). The field of inquiry is characterized by a diversity of conceptual, methodological, and empirical approaches that inhibit the creation of clear conclusions about the export performance determinants (Granabetter Doris, 2016).

### 3. METHODOLOGY

This study uses secondary data obtained from the World Trade Organization (2019) and the International Trade Center (2019). The data series used are trade data for Indonesian products traded with trading partners from 2013 to 2019. The data is then processed using static and dynamic Revealed Comparative Advantage.

There are some studies done by researchers and policymakers to highlight the determinants of export competitiveness used RCA Balassa index to calculate comparative advantage (Irsahd & Xin, 2017). Revealed comparative advantage (RCA) indices use the trade trend to classify those industries in which an economy has a competitive advantage by contrasting the trading profile of the country of interest with the world average (Hossain, Dechun, Zhang, & Van, 2017). This paper looks at the profitability of exports using the Balassa index (Balasa, 1958). The Balassa index is based on the work of Balassa (Balasa, 1958), who developed Liesner's principle (1958), The index measures comparative export advantages based on the Ricardian exchange theory, using the following equation (Falkowski, 2017):

$$RCA_{ij} = \left( \frac{X_{ij}}{X_{it}} \right) / \left( \frac{X_{nj}}{X_{nt}} \right)$$

X reflects the export flows from a given country j, of a given sector or commodity I while t is a product group and n are a country group. A recorded export comparative advantage (or disadvantage) index is calculated by comparing the export share of total exports in the world with the export share of a comparable category of total exports in the

countries (Łapińska et al., 2020). The RCA index is relatively easy to understand (OBADI, 2016). If the index value is greater than 1, the country has a disclosed competitive advantage, i.e., the nation is fairly skilled in producing and selling the commodity in question. The nation has a comparative disadvantage when the value is  $0 < RCA < 1$  (Oelgemöller, 2013). Established competition exchange metrics such as the reported Comparative Advantage Index (RCA) and the published Competition Index (RC) to measure the international competitiveness of the industries evaluated (Figiel & Kufel, 2013).

Dynamic analysis of RCA changes by separating the factors causing its growth is called Dynamic Revealed Comparative Advantage. (DRCA) (Hossain et al., 2017). The advantages of DRCA are (1) being able to identify product advantages over time, (2) DRCA explains the position of products in export destination markets by categorizing each product based on its position in the destination market. Therefore, the DRCA is better able to explain changes in competitiveness compared to RCA in general, especially to identify what products are experiencing an increase or loss of market share. DRCA provides policy recommendations regarding products by export market conditions. As previously mentioned, a product that experiences an increase in RCA value is not necessarily categorized as a product with good export performance and vice versa. These have in common a balanced relationship in which bilateral trade in a particular industry and year can be decomposed into an export-fixed effect industry which measures the export potential of the exporting country in the industry; a fixed importer-industry effect capturing the effective demand of the importing country for foreign goods in an industry; and an exporter-importer portion, which accounts for bilateral trade frictions (Hanson, Lind, & Muendler, 2015).

$$DRCA_j = \frac{\Delta RCA_j}{RCA_j} = \frac{\Delta \left( \frac{X_{i,j}}{\sum_j X_{i,j}} \right)}{\frac{X_{i,j}}{\sum_j X_{i,j}}} - \frac{\Delta \left( \frac{X_{m,j}}{\sum_j X_{m,j}} \right)}{\frac{X_{m,j}}{\sum_j X_{m,j}}}$$

$X_{i,j}$  = export of commodity  $j$  from the country  $i$  to destination market (region or world),  $X_{m,j}$  = export of commodity  $j$  from region or world to destination market. If the RCA value increases due to an increase in the export share of the country of origin which is simultaneous for the proportion of export Country of destination with a higher export share of the country of origin, then the company is considered to be a rising star. Conversely, if the share of export countries rises lower than the increase in the share of destination countries, the RCA value will decrease, and the product is said to be a lagging opportunity or unable to take advantage of the increase in market size (Siggel, 2006). A product with an increased RCA value can be said to be a falling star if the increase in RCA is caused by a decrease in the share of export destinations, which means the market size for the product is getting smaller and smaller. Fig 3 shows the position of export competitiveness in DRCA.

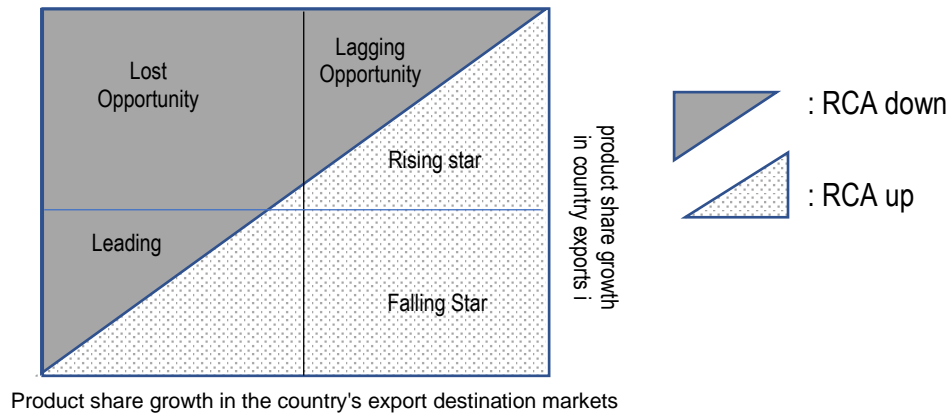


Fig. 3. The position of export competitiveness in DRCA

#### 4. RESULT AND DISCUSSION

Analysis of the competitiveness of export products, based on static RCA calculations from HS2, from 99 groups of Indonesian goods having 30 groups of goods with an RCA value above 1. The first rank is the group of Tin and articles thereof with HS79 code which had the highest RCA value during 2013 - 2017. The high value of this RCA indicates that Indonesian exports to the world of these goods have very high competitiveness. Indonesia can dominate or hold an important role of these products in the world market for goods of the same type. The competitiveness of these goods in 2017 increased slightly compared to 2013, from 27.52 to 28.14.

Table 1 shows that during 2013-2018 of the 30 groups of goods, 9 types of goods showed a decrease in competitiveness even though the decline was very small. The biggest decrease occurred in the group of ores, slag, and ash with the HS26 code that was equal to -1.12. Meanwhile, the biggest increase in competitiveness occurred for the group of vegetable plaiting materials; vegetable products not elsewhere specified or included which showed an increase in competitiveness of 11.02 and then in second place were animal or vegetable fats and oils and their cleavage products; prepared edible fats with an increase of 3.95.

Table 1. Exported Goods Group with RCA > 1.

No	PRODUCT LABEL	2013	2019	+/-
1	Tin and articles thereof	27.52	28.14	0.62
2	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal	20.14	24.10	3.95
3	Musical instruments; parts and accessories of such articles	8.49	9.11	0.62
4	Vegetable plaiting materials; vegetable products not elsewhere specified or included	4.64	15.67	11.02
5	Man-made staple fibres	5.87	5.94	0.07
6	Prepared feathers and down and articles made of feathers or down; artificial flowers; articles	3.98	5.63	1.65
7	The pulp of wood or other fibrous cellulosic material; recovered (waste and scrap) paper	4.13	5.27	1.14
8	Coffee, tea, maté, and spices	4.48	3.93	-0.55
9	Rubber and articles thereof	4.69	4.36	-0.32
10	Footwear, gaiters and the like; parts of such articles	3.10	3.56	0.45
11	Nickel and articles thereof	3.36	3.33	-0.02

No	PRODUCT LABEL	2013	2019	+/-
12	Manufactures of straw, of esparto or other plaiting materials; basket ware and wickerwork	3.40	3.21	-0.18
13	Wood and articles of wood; wood charcoal	2.89	3.05	0.16
14	Fish and crustaceans, mollusks and other aquatic invertebrates	2.82	2.85	0.03
15	Cocoa and cocoa preparations	2.72	2.37	-0.35
16	Tobacco and manufactured tobacco substitutes	2.12	2.84	0.71
17	Man-made filaments; strip and the like of man-made textile materials	2.59	2.11	-0.47
18	Paper and paperboard; articles of paper pulp, of paper or paperboard	2.26	2.44	0.18
19	Preparations of meat, fish or crustaceans, mollusks or other aquatic invertebrates	2.05	1.99	-0.05
20	Miscellaneous chemical products	2.14	2.14	0.00
21	Mineral fuels, mineral oils, and products of their distillation; bituminous substances; mineral	1.80	1.96	0.15
22	Articles of apparel and clothing accessories, not knitted or crocheted	1.94	1.89	-0.05
23	Ores, slag and ash	2.74	1.51	-1.22
24	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial	1.87	1.88	0.00
25	Articles of apparel and clothing accessories, knitted or crocheted	1.56	1.72	0.15
26	Cotton	1.19	1.51	0.32
27	Miscellaneous edible preparations	1.09	1.54	0.45
28	Copper and articles thereof	1.08	1.46	0.37
29	Preparations of cereals, flour, starch or milk; pastrycooks' products	1.03	1.43	0.40
30	Lac; gums, resins and other vegetable saps and extracts	0.96	1.38	0.41

**Source:** International Trade Center, UN, proceed.

Based on these static RCA measurements, quite a lot of Indonesian products have high competitiveness in the international market. However, the use of high technology in export-oriented goods is still low. The tin and articles group thereof in 2018 turned out to only contribute to the export value of 0.95% of Indonesia's total exports. The biggest share of exports is the group of mineral fuels, mineral oils, and products of their distillation; bituminous substances; minerals, namely 21.84%, followed by the group of goods Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal by 13.60%. Both of these goods have an RCA value of more than 1. Goods with a fairly large export share but having an RCA below 1 include the group of electrical machinery and equipment and parts and goods there; sound recorders and reproducers, television at 5.01% but the RCA value was only 0.34 in 2017. This indicates that electrical machinery products are quite vulnerable to competition in the international market. Commodity plotting based on competitiveness group is in Table 2 below.

**Table 2.** Commodity Plotting Based on Competitiveness Group.

Year	Rising Star	Lagging Lost		Lagging		
		Falling Star	Retreat	Opportunity	Leading Retreat	Opportunity
2013	02, 03, 05, 06, 07, 08, 14, 19, 10, 12, 13, 15, 16, 20, 21, 22, 23, 24, 30, 32, 33, 17, 28, 29, 37, 38, 39, 44, 45, 46, 48, 53, 54, 50, 52, 70, 71, 55, 56, 58, 59, 64, 66, 69, 72, 74, 93, 73, 75, 78, 81, 83, 84, 87, 90, 92, 96, 99			01, 04, 09, 11, 25, 26, 27, 31, 40, 43, 51, 89		18, 35, 57, 60, 61, 62, 63, 65, 67, 68, 79, 94

---

2014	07, 08, 09, 14, 15, 18, 19, 20, 21, 02, 05, 06, 10, 27, 36, 41, 11, 12, 16, 31, 37, 01, 04, 17, 23, 29, 40, 50, 03, 34, 54, 63, 22, 24, 25, 28, 30, 32, 33, 35, 13, 26, 49, 72	80	38, 39, 45, 51, 74, 75	66, 84, 85, 94, 95
	42, 43, 44, 46, 47, 48, 52, 53, 55, 56, 57, 58, 59, 60, 61, 62, 64, 65, 67, 68, 70, 71, 73, 78, 79, 81, 82, 86, 87, 88, 92, 96, 99		76, 83, 89, 90, 91, 93, 97	
2015	03, 12, 14, 16, 19, 21, 22, 26, 32, 04, 05, 23, 25, 41, 52, 66, 02, 06, 07, 08, 10, 27, 36, 46, 49, 50, 53, 01, 13, 15, 17, 24, 33, 34, 35, 37, 38, 39, 45, 56, 28, 29, 31, 42, 75		09, 11, 18, 20, 40, 54, 55, 58, 73, 76, 80, 81, 30, 44, 62, 92	
	57, 59, 61, 63, 64, 65, 71, 79, 43, 51, 67, 69, 84, 87, 90, 96, 99	72, 74, 86, 89, 91, 97	47, 48, 60, 68, 93	70, 78, 82, 83, 85, 88, 94, 95
2016	04, 15, 28, 40, 47, 72, 74, 76, 08, 11, 14, 19, 20, 01, 07, 13, 24, 26, 33, 43, 02, 03, 06, 09, 10, 12, 16, 05, 27, 81			
	78, 79, 80	25, 29, 38, 42, 23, 34, 48, 67, 85, 86, 95	17, 18, 21, 22, 30, 31, 32, 45, 50, 91, 93, 61, 68, 87	35, 36, 37, 39, 41, 44, 46, 49, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 62, 63, 64, 65, 66, 69, 70, 71, 73, 75, 82, 83, 84, 88, 89, 90, 92, 94, 96, 99
2017	13, 21, 23, 25, 28, 31, 33, 38, 39, 10, 12, 14, 16, 17, 01, 04, 07, 05, 29, 30, 45, 02, 03, 06, 08, 09, 11, 15, 27, 47, 75			
	44, 46, 53, 72, 73, 76, 81	18, 22, 26, 35, 19, 24, 41, 67, 69, 74, 84, 20, 32, 34, 40, 43, 51, 52, 36, 37, 42, 48, 55, 60, 71, 97	54, 55, 57, 58, 63, 64, 68, 49, 50, 59, 61, 80, 91, 92	78, 83, 85, 86, 89, 90, 94
		62, 65, 66, 70, 79, 82, 87, 88, 93, 95, 96, 99		
2018	08, 10, 11, 12, 13, 15, 16, 19, 21, 14, 17, 24, 32, 48, 50, 55, 18, 20, 26, 27, 31, 01, 02, 03, 04, 06, 07, 25, 05, 09, 96			
	22, 23, 28, 30, 33, 34, 38, 40, 35, 47, 53, 56, 57, 92	39, 42, 63, 65, 29, 36, 37, 41, 43, 44, 45, 64, 67, 71, 72, 74, 75, 78, 79, 87, 88, 89, 91, 80, 81	68, 73, 83, 85, 46, 49, 51, 52, 54, 58, 59, 86, 90, 93, 94	60, 61, 62, 66, 69, 70, 76, 82, 84, 95, 97

---

**Source:** International Trade Center, UN, proceed.

In the Dynamic RCA calculation using more detailed HS4 standards, from 30 commodity groups that have the largest export value, there are 10 groups included in the rising star category, namely HS 4001 (natural rubber and its derivatives), HS 8703 (cars and other motorized vehicles), HS 3823 (fatty acids and their derivatives for the industry), HS 2702 (lignite), HS 8001 (lead not forged), HS 7202 (ferroalloys), HS 8544 (wire, cable, and the like), HS 7403 (refined copper), HS 2710 (petroleum oil and mineral oil), and HS 1517 (margarine and its derivatives). This indicates that during 2015-2018 these products had positive growth both in Indonesia and in the world, but growth in Indonesia was higher than the growth of similar products in the world. Such goods have shown an improvement in the share of world exports over the period 2015-2018.

Also, there are products in the falling star category, such as HS 4703, HS 4802, and HS 7108. This indicates that although Indonesia's export growth in 2015-2017 has increased, world growth on these products has decreased. For the lost opportunity category, there are four types of products included in the HS 2709, HS 2603, HS8708, and HS 0901. The lost opportunity category is an indication that Indonesia is unable to respond optimally to the export of these products whereas in the world the exports of these products have increased

growth caused by both internal and external factors. One factor that needs to be considered is the dependence of these products on certain export destination countries so that aspects of market expansion (market extensification) need to be studied in more depth.

## **5. CONCLUSION AND POLICY RECOMMENDATIONS**

### **5.1. CONCLUSION**

1. The result is that the majority share of exports by the use of SRCA is: (a) the group of mineral fuels, mineral oils, and distillation products; (b) bituminous substances; stones, category of goods Animal or vegetable fats and oils and their cleavage products; processed edible fats; livestock.
2. The result is that by using DRCA, there are 10 groups included in the rising star category are natural rubber and its derivatives, cars and other motorized vehicles, fatty acids and their derivatives for industry, lignite, lead not forged, ferroalloys, wire, cable, and the like, refined copper, petroleum oil and mineral oil, margarine and its derivatives. This indicates that during 2015-2018 these products had positive growth both in Indonesia and in the world, but growth in Indonesia was higher than the growth of similar products in the world.
3. From the results of the SRCA and DRCA calculations it can be seen that from 2013 to 2018, the competitiveness of Indonesian products in world trade experienced a shift in competitiveness. This shows that Indonesia's competitiveness has not been consistent in the world market due to various aspects, such as commodity price volatility and Indonesia's dependence on imported products.
4. The most important thing is that Indonesian products that have such competitiveness are primary products that are still dependent on natural resources using low technology. This low technology results in low added value and each is highly dependent on the instability of the price of the product on the world market.

### **5.2. POLICY RECOMMENDATION**

1. From the calculation of product competitiveness in international trade, it is found that products that are competitive, are products of agriculture and processing using medium and low technology. The main strategy that the government must undertake is to increase the growth in exports of goods and services through the utilization of global production chains and expansion of export products and markets.
2. The main strategies that must be carried out by the Ministry of Trade of the Republic of Indonesia are:
  - a) Increasing export market access, through (1) Strengthening market intelligence; (2) accelerated settlement of negotiations; (3) Economic diplomacy for safeguarding, deepening and expanding export markets; (4) Integrated promotion and trade missions, buying missions, exhibition participation and

- positive campaigns for Indonesian products; (5) Establishment of Indonesian international cooperation funding agencies; and (6) Repositioning and strengthening the role/contribution of trade representatives abroad
- b) Integration in marketing networks and production chains through (1) Increasing independence, competitiveness and standards of export products; (2) Increased participation in Global Production Network (GPN) and Global Value Chains (GVC); (3) Strengthening export support infrastructure (including logistics); and (4) Increasing the continuity and standardization of products from upstream to downstream; (5) Strengthening of logistics management institutions.
- c) Increasing the added value of export products, through (1) Diversification of export products, especially manufactured products with medium-high technology; (2) Increasing service exports; and (3) Assistance and facilitation of small and medium industries which have an export orientation.

## Acknowledgements

The author would like to thank Sekolah Tinggi Ilmu Manajemen YKPN Yogyakarta for funding this research. To the National Development Planning Agency of the Republic of Indonesia which has provided data and information. Sinergi Visi Utama Consulting provides journal references and access.

## Reference:

- Balasa, B. (1958). Trade Liberalisation and " Revealed " Comparative Advantage ' Id ,, *Trade Liberalisation and "Revealed" Comparative Advantage. The Manchester School*; 33(2); 99–123. Doi:10.1111/j.1467-9957.1965.Tb00050.X, *The Mancha*(33), 99–123.
- Benalywa, Z. A., Ismail, M. M., Shamsudin, M. N., & Yusop, Z. (2019). Revealed comparative advantage and competitiveness of broiler meat products in Malaysia and selected exporting countries. *International Journal of Business and Society*, 20(1), 383–396. Retrieved from <http://www.ijbs.unimas.my/images/repository/pdf/Vol20-no1-paper24.pdf>
- Bernardini Papalia, R., Calia, P., & Filippucci, C. (2015). Information Theoretic Competitiveness Composite Indicator at Micro Level. *Social Indicators Research*, 123(2), 349–370. <https://doi.org/10.1007/s11205-014-0745-0>
- Cinquetti, C. A. (2018). Comparative Advantages and Demand in the New Competitive Ricardian Models. *Foreign Trade Review*, 53(1), 29–48. <https://doi.org/10.1177/0015732516681884>
- Constantinescu, L. M., & Panagoret, I. (2017). Digital Economy a Link to Competitiveness of Romania from Regional to Global. *Revista de Management Comparat Internațional*, 18(3), 326–342.

- Ćorović, E., Gligorijević, Ž., & Manasijević, A. (2020). Revealed Comparative Advantages and Competitiveness of the Manufacturing Industry of the Republic of Serbia. *Economic Themes*, 57(3), 307–327. <https://doi.org/10.2478/ethemes-2019-0018>
- Daulika, P., Peng, K.-C., & Hanani, N. (2020). Analysis on Export Competitiveness and Factors Affecting of Natural Rubber Export Price in Indonesia. *Agricultural Social Economic Journal*, 20(1), 39–44. <https://doi.org/10.21776/ub.agrise.2020.020.1.6>
- Deng, L. (2017). Specialization Dynamics, Convergence, and Idea Flows. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2871162>
- Erkan, B., & Author, C. (2019). *Comparative Specialization and Competition Analysis According to the Technology Hardware of Turkey and South Korea*. (October), 92–98. Retrieved from [https://www.researchgate.net/publication/336879030\\_Comparative\\_Specialization\\_And\\_Competition\\_Analysis\\_According\\_To\\_The\\_Technology\\_Hardware\\_Of\\_Turkey\\_And\\_South\\_Korea](https://www.researchgate.net/publication/336879030_Comparative_Specialization_And_Competition_Analysis_According_To_The_Technology_Hardware_Of_Turkey_And_South_Korea)
- Esquivias, M. A. (2013). *An Analysis In Comparative Advantage In Manufacturing Sector As A Determinant Of Trade Expansion : The Indonesian And Mexican CASE 1989-2011 Researcher Economic in South East Asia and Amerika Latin*. (2), 43–53.
- Falkowski, K. (2017). Innovativeness of Belarusian Economy Through the Prism of Its Competitive Position in International Trade. *CBU International Conference Proceedings*, 5, 120–127. <https://doi.org/10.12955/cbup.v5.912>
- Figiel, S., & Kufel, J. (2013). Macroeconomic Performance and International Competitiveness of the Agro-food Sectors in the EU Countries: Implications for the Future CAP. *Procedia - Social and Behavioral Sciences*, 81, 405–410. <https://doi.org/10.1016/j.sbspro.2013.06.451>
- French, S. (2017). Revealed comparative advantage: What is it good for? *Journal of International Economics*, 106(December), 83–103. <https://doi.org/10.1016/j.jinteco.2017.02.002>
- Fundeanu, D. D., & Badele, C. S. (2014). The Impact of Regional Innovative Clusters on Competitiveness. *Procedia - Social and Behavioral Sciences*, 124, 405–414. Retrieved from <http://dx.doi.org/10.1016/j.sbspro.2014.02.502>
- Granabeter Doris. (2016). Revealed Comparative Advantage Index: an Analysis of Export Trade in the Austrian District of Burgenland. *Review of Innovation and Competitiveness*, 2(2), 97–114. Retrieved from [www.phasing-out.at](http://www.phasing-out.at)
- Hossain, M., Dechun, H., Zhang, C., & Van, V. (2017). Dynamics of Comparative Advantage and Competitiveness of Textile and Apparel Industry: An Empirical Analysis for China and Bangladesh. *British Journal of Economics, Management & Trade*, 16(1), 1–19. <https://doi.org/10.9734/bjemt/2017/30840>
- Irsahd, M. S., & Xin, Q. (2017). Determinants of Exports Competitiveness: An Empirical Analysis through Revealed Comparative Advantage of External Sector of

- Pakistan. *Asian Economic and Financial Review*, 7(6), 623–633. <https://doi.org/10.18488/journal.aefr.2017.76.623.633>
- Kazuo2, M. S. I., & Abstract. (2012). *Dynamics of Comparative Advantage and Export Potentials in Bangladesh* (pp. 471–484). pp. 471–484.
- Khaliqi, M., Gurning, H. R. H., Novanda, R. R., & Simamora, O. N. (2020). Competitiveness Indonesia tea in international market. *IOP Conference Series: Earth and Environmental Science*, 454(1). <https://doi.org/10.1088/1755-1315/454/1/012039>
- Łapińska, J., Huterska, A., Zdunek-Rosa, E. W. A., & Huterski, R. (2020). Poland's competitive position in foreign trade in sports articles and equipment with china and selected eu countries. *Journal of Physical Education and Sport*, 20(2), 1044–1049. <https://doi.org/10.7752/jpes.2020.s2145>
- OBADI, S. (2016). REVEaLED COMPaRaTIVE aDVaNTaGE aND COMPETITIVENESS IN THE EU 28 aND THE USa1. *Ekonomické Rozhl'ady/Economic Review*, 45(2).
- Oelgemöller, J. (2013). The International Competitiveness of the Industry in Portugal, Ireland, Greece and Spain –Analyzing the Revealed Comparative Advantages (RCA). *Intereconomics*, 2013(61), 1–16.
- Rahardjo, B., Akbar, B. M. B., Iskandar, Y., & Shalehah, A. (2020). Analysis and strategy for improving Indonesian coffee competitiveness in the international market. *BISMA (Bisnis Dan Manajemen)*, 12(2), 154. <https://doi.org/10.26740/bisma.v12n2.p154-167>
- Rodríguez-Pose, A. (2012). Trade and Regional Inequality. *Economic Geography*, 88(2), 109–136. <https://doi.org/10.1111/j.1944-8287.2012.01147.x>
- Shahzad, K. (2015). *An RCA Analysis of Textiles and Clothing in Pakistan, India, and Bangladesh*. 1(Summer), 157–168. <https://doi.org/10.35536/lje.2015.v20.i1.a6>
- Son, M. (2014). A Comparative Analysis on the Competitiveness of the Korean, Chinese and Japanese Fashion Industries: The Generalized Double Diamond Model Approach. *Fashion Business*, 18(6), 67–85. <https://doi.org/10.12940/jfb.2014.18.6.67>
- Sumadi, Jumintono, & Ardiani, F. (2020). Supply chain brown sugar agroindustry in Banyuwangi district: Analysis study with a dynamic system approach. *International Journal of Supply Chain Management*, 9(1), 626–632.
- Widodo, T. (2009). Dynamic Comparative Advantages in the ASEAN+3. *Journal of Economic Integration*, 24(3), 505–529. <https://doi.org/10.11130/jei.2009.24.3.505>