



COMPETITIVENESS ANALYSIS OF INDONESIA'S EXPORT COMMODITIES (RCA, RSCA and RTA approaches)

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Abstract

This research was conducted in Indonesia. The purpose of this research is to find out how Indonesia's coffee and natural rubber export commodities have comparative advantage or have competitiveness in the world market or in the global market. The methods used are RCA, RSCA and RTA. The research results obtained are RCA values > 1 . For coffee and natural rubber, Indonesia has a comparative advantage or competitiveness in the world or global market, even though its value fluctuates and tends to decrease. Meanwhile, the RSCA value is > 0 or less than 1, for coffee and natural rubber Indonesia has a comparative advantage or competitiveness in world or global markets, although for coffee commodities, the value fluctuates while for natural rubber commodities it tends to decrease. Furthermore, the RTA value is > 1 , both for coffee and natural rubber commodities have a comparative advantage or competitiveness in world or global markets, even though the RTA values for the two commodities fluctuate and tend to decrease.

Keywords : Export, Comparative Advantage, RCA, RSCA, RTA.

I. Introduction

Goods and services produced or produced in the era of globalization can easily cross national borders thanks to ideas, talents, and science and technology from humans (Hady, 2001). The free movement of people, goods and services produced has created interdependence, but has also created intense competition between countries. The effect of free trade or globalization is that there are no longer isolated countries because all countries already have economic, financial and international trade relations.

International trade allows each country to carry out international trade in the form of producing goods and services on the one hand and on the other hand each country can obtain the goods it needs and can gain advantages of economies of scale without sacrificing its needs (Salvatore, 1997), so that international trade has a role which is very important. The importance

of international trade in the development of a country, especially economic development, so that both classical and neo-classical economists refer to international trade as an "engine of growth". As a result of trade in goods and services between countries, specialization arises or countries that specialize in the production of certain goods and services, so that these countries can export commodities that are produced at lower costs and then exchange them for the goods and services produced. other countries with lower production costs.

The production process is one of the determining factors in creating a comparative advantage in the global market, in terms of commodity prices. In addition, a country's comparative advantage depends on the innovations it undertakes to develop these commodities. The ability of a commodity to make it a leading commodity depends on the comparative advantage of the commodity, (Nopirin, 2007).

Export is an activity of removing goods from the customs area or export is all goods brought out of the territory of a country, both commercial and non-commercial in nature which can be in the form of grants, donations or gifts. International trade is carried out between countries, where each country can achieve economies of scale, so that it can send excess domestic production that is not consumed to other countries. The result of excess domestic production that is not consumed domestically is the basis for trade between countries or international trade. With the benefits of trade felt by each country, it will result in an increase in a country's national income which will ultimately drive the country's growth rate.

According to Winardi (1977), exports are goods or services sold to residents of other countries, coupled with services provided to residents of the country, in the form of transportation by means of transportation, capital. Meanwhile, according to Musselman and Jackson (1992) Exports are goods and services produced in this country and sold abroad. According to Hatauruk (1983), export can be interpreted as handing over goods to a freight forwarder to be transported abroad to be sent abroad. Furthermore Triyoso (1994), Exports can also be interpreted as activities related to the production of goods and services produced by a country for consumption outside the country's borders. According to Amir (2000), put forward related to commodities, namely goods and services that can meet the needs and desires of consumers. Furthermore, according to Simatupang and Sudaryanto (1993), the concept of comparative advantage is a measure of potential competitiveness that will be achieved if the economy does not experience any distortion at all.

Economic growth that increases continuously is the main goal of a country in order to increase overall economic development, especially through exports. The performance of international trade is one of the important indicators in macroeconomics which can be seen through net exports or net exports, namely the difference between exports and imports which is reflected in the international trade balance (balance of trade).

In international trade transactions are carried out, especially exports and imports. With the development of trade between countries, export activities become important, because they are the driving force of a country's economy. The current era of free trade has encouraged competition in commodity production between countries, so that competition is getting tougher.

Each country, including Indonesia, continues to strive to increase the quantity and quality of its exports. Each country seeks to increase the competitiveness of its products so that they can sell well in the international market. According to Tambunan (2001), the RCA value indicates the comparative advantage or export competitiveness of a country in a commodity against the world.

Indonesia's international trade performance from the export side can be seen from the development and contribution of export commodities to total non-Oil and Gas exports for Coffee and Rubber, 2018 – 2022, can be seen in table 1.1. below this :

Table 1.1

Development and Contribution of Coffee and Rubber Export Commodities Year 2018-2022

Year	Coffee Commodity Value (million USD)	Commodity Contribution to Total Non-Oil and Gas Exports (%)	Rubber Commodity Value (million USD)	Commodity Contribution to Total Non-Oil and Gas Exports (%)
2018	817,789	18%	6,831,285	20%
2019	883,123	19%	6,025,627	19%
2020	821,937	18%	5,618,805	18%
2021	858,558	19%	7,116,003	23%
2022	1,149,168	25%	6,395,164	20%
Total	4,530,575	100%	31,536,884	100%

Source: Trade Map -Trade Statistics for International Business Development 2023 (Data processed)

Indonesia's main export commodity groups, especially coffee and rubber, can be seen from table 1.1. above, the coffee commodity shows a continuous increase from 2018 of 817.789 million USD, then increased to 883.123 million USD while its contribution to non-oil and gas exports increased from 18% to 19%. Furthermore, in 2021 it increased from 858,558 million USD to 1,149,168 million USD while the contribution increased from 19% to 25%. Meanwhile, the total value of coffee commodities is USD 4,530,575 million. Meanwhile, the rubber commodity fluctuated. For 2018, it was 6,831,285 million USD, decreasing to 6,025,627 million USD, then in 2021 it was 7,116,003 million USD, decreasing to 6,395,164 million USD in 2022. Meanwhile, the contribution for 2018 was 20%, decreasing to 19% for 2019. Furthermore, for 2021 by 23% dropping to 20% in 2022. This shows that the Indonesian coffee commodity fluctuates according to unstable world economic conditions.

The advantages attached to a commodity produced by a country compared to the same commodity produced by other countries are commodity advantages. Export commodities that have certain advantages are caused by, among others: geographical location, natural resources, the production process is able to reduce production costs, coupled with good production

management, a comparative advantage will be created. The commodity production process is one of the determining factors in creating commodity competitiveness in the international market, in terms of commodity prices, in addition to the innovations that are owned. Nopirin, said that the ability of a commodity to become a superior export commodity depends on the comparative and competitive advantages of the commodity.

Indonesia's export commodities are very important for identifying Indonesia's position among other exporting countries, in addition to evaluating the competitiveness of some of Indonesia's main commodities on the international market and providing several policies to increase the competitiveness of the main commodities on the international market. Indonesia must be able to face intense competition in the international market. Thus the quality or quality of commodities needs to be continuously improved so that these commodities have an important role in international trade. Indonesia's commodity trade is recorded in the United Nations Commodity Trade, so Indonesia has 10 main commodities with the highest export value, based on the Standard International Trade Classification (SITC Rev.3) with 2 commodities, including: coffee and rubber which are agricultural commodities.

Simatupang (1991), said that the concept of comparative advantage is a measure of competitiveness or potential advantage in terms of competitiveness that will be achieved if the economy does not experience obstacles or distortions. A product will become a major commodity, if production is greater than domestic consumption accompanied by lower prices with high quality. This condition causes the need for more attention, especially to the competitiveness of export commodities. The country that has the highest competitiveness is the country that emerges as the winner, so that country will enjoy the maximum profit in international trade.

Increasing a country's competitiveness is determined by its export performance. Then the analysis of the competitiveness of Indonesia's 2 main export commodities, namely coffee and rubber commodities. Both of these commodities are considered as commodities that have a large contribution to the total value of Indonesia's non-oil and gas exports, this is the basis for conducting research to determine the position of competitiveness of the 2 main Indonesian export commodities. The purpose of this research is to find out how the competitiveness of Indonesia's 2 main export commodities, namely coffee and rubber in the world market.

II. Method

This study uses a quantitative approach with the RCA method, RSCA with RTA. This research was conducted in Indonesia using 2 types of Indonesia's main export commodities, namely coffee and rubber. The data used is secondary data, in the form of time series data with a period of 5 years, namely from 2018 – 2022. The data used is data on the realization of the total export value of all world Indonesian commodities from 2 commodities, namely coffee and rubber, while the comparative data is the realized value world exports of 2 world commodities, namely coffee and rubber as well as data on the realization of the export value of all world commodities. Data obtained from BPS, Trade Map – Trade Statistics for International Business

Development Year 2023, using International Standard Trade Classification data, Rev -3, plus literature studies.

The method used to determine competitiveness or comparative advantage is RCA with the aim of measuring the relative advantage of a product. RCA value > 1 indicates strong competitiveness. The higher the RCA value of a commodity, the higher the competitiveness of the product, so it is advisable to continue to improve it by specializing. Conversely, if the RCA value < 1 , it means that the comparative advantage for the commodity is low. The purpose of using RCA is to determine the competitive advantage of Indonesia's 2 main export commodities, namely coffee and rubber. RCA is measured by calculating the share of a product's export value to a country's total exports compared to the share of the product's value in world trade, namely:

$$RCA = \frac{X_{ij}/X_{tj}}{X_{iw}/X_{tw}}$$

wherein :

C = RCA numbers

X_{ij} = export value of commodity I in Indonesia (\$US)

X_{tj} = Indonesia's total export value (\$US)

X_{iw} = export value of commodity I in the world (\$US)

X_{tw} = the total value of world exports (\$US).

$$RSCA = RCA - 1/RCA + 1$$

$$RTA = RCA - RSCA$$

III. Discussion

A.Revealed Comparative Advantage (RCA)

Performance in world trade of a country can be seen from the extent to which the country concerned has a comparative advantage in a commodity. So that the comparative advantage of a commodity can be measured or its competitive position can be measured by using the Revealed Comparative Advantage (RCA) analysis tool. RCA measures the share of a country's commodity exports compared to the share of world commodity exports on international or world markets. The results of calculations using the RCA analysis tool will show values ranging from 0 to infinity, a country is considered to have the competitiveness or superiority of a commodity, if the RCA value is greater than 1 or $RCA > 1$. The greater the RCA value, it will indicate a country has a comparative advantage that is getting bigger and conversely the smaller the RCA value, the comparative advantage that is owned is getting weaker or does not have competitiveness.

A. Comparative competitiveness of Indonesia's 2 main export commodities

The level of competitiveness of the main commodities can be seen from the RCA value. The magnitude of the RCA values of the 2 main Indonesian export commodities, can be seen in table 1.2, below:

1. Coffee Commodity

Table 1.2
Revealed Comparative Advantage Value of Coffee, 2018 – 2022

Year	Indonesian Coffee	Indonesian Exports	World Coffee Value	World Exports	RCA	RSCA	RTA
	Xij	Xtj	Xiw	Xtw			
2018	808,735	180,215,036	30,535,417	19,327,850,785	2.84050	0.47923	2.36
2019	872,355	167,682,996	29,594,449	18,747,560,729	3.29563	0.53441	2.76
2020	809,164	163,306,490	30,735,212	17,492,204,376	2.81995	0.47643	2.34
2021	849,373	231,587,887	36,371,362	22,143,579,327	2.23291	0.38136	1.85
2022	1,136,296	291,979,103	35,045,294	20,274,171,513	2.25140	0.38488	1.87

Source: Trade Map – Trade Statistics for International business Development, Year 2023 (Data processed)

Coffee commodity is a commodity that has an RCA value of > 1 or RCA above 1. The RCA value of the coffee commodity from 2018 was 2.84050, increasing to 3.29563, this shows that the development of coffee exports tends to be better, even though from 2020 to 2022 it has decreased but is still greater than 1, meaning that as long as Indonesia exports coffee commodities during The past 5 years have strong competitiveness. Therefore, efforts need to be made to increase coffee exports and the quality must be maintained so that they can compete with the largest coffee producing country in the world, namely Brazil. The main coffee producing province in Indonesia is Sumatra.

2. Rubber Commodity

Table 1.3

Year	Indonesian Rubber	Indonesian Exports	World Rubber Value	World Exports	RCA	RSCA	RTA
	Xij	Xtj	Xiw	Xtw			
2018	3,951,451	180,215,036	13,194,767	19,327,850,785	32.12	0.93961	31.18
2019	3,527,202	167,682,996	12,501,289	18,747,560,729	31.55	0.93855	30.61
2020	3,011,840	163,306,490	11,099,694	17,492,204,376	29.06	0.93348	28.13
2021	4,016,955	231,587,887	16,600,125	22,143,579,327	23.14	0.91714	22.22

2022	3,544,961	291,979,103	11,462,243	20,274,171,513	21.48	0.91101	20.56
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Revealed Comparative Advantage Rubber Value, 2018 - 2022

Source: Trade Map – Trade Statistics for International Business Development, Year 2023 (processed data)

In table 1.3. The natural rubber commodity is one of the commodities that has an RCA value in the last 5 years greater than 1 or $RCA > 1$, namely in 2018 it was 32.12, increased in 2019 it was 31.55 and subsequently decreased even though it reached in 2022 of 21.48 but still has strong competitiveness, this shows that economic conditions are still stable. The highest RCA value for the natural rubber commodity, namely in 2018, was 32.12 indicating that the natural rubber commodity has increased compared to other countries, although Indonesia is still unable to compete with Thailand, which is the largest natural rubber producer in the world. The main producing provinces of natural rubber in Indonesia are South Sumatra, North Sumatra, Riau, Jambi and West Kalimantan.

1.1 Trend of RCA 2 of Indonesia's main export commodities

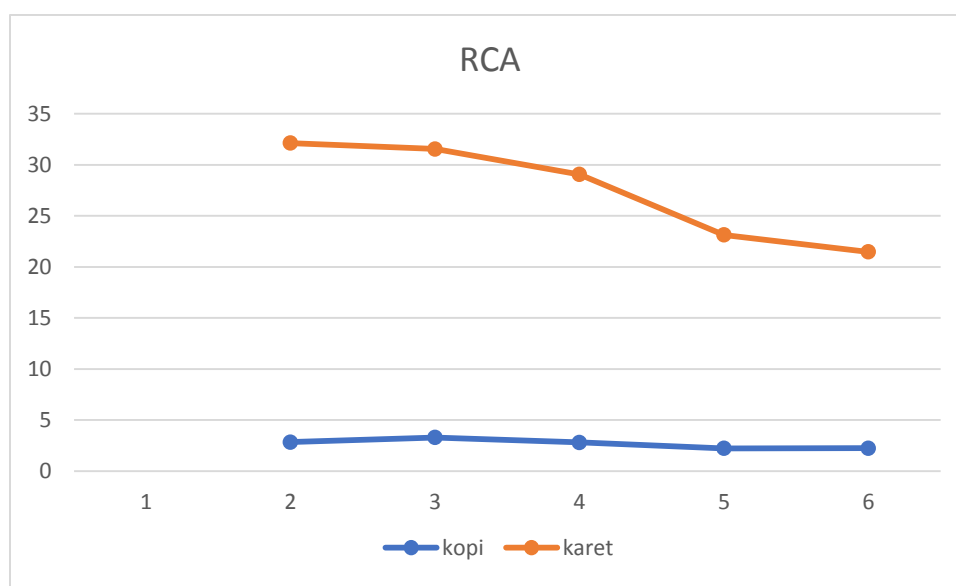


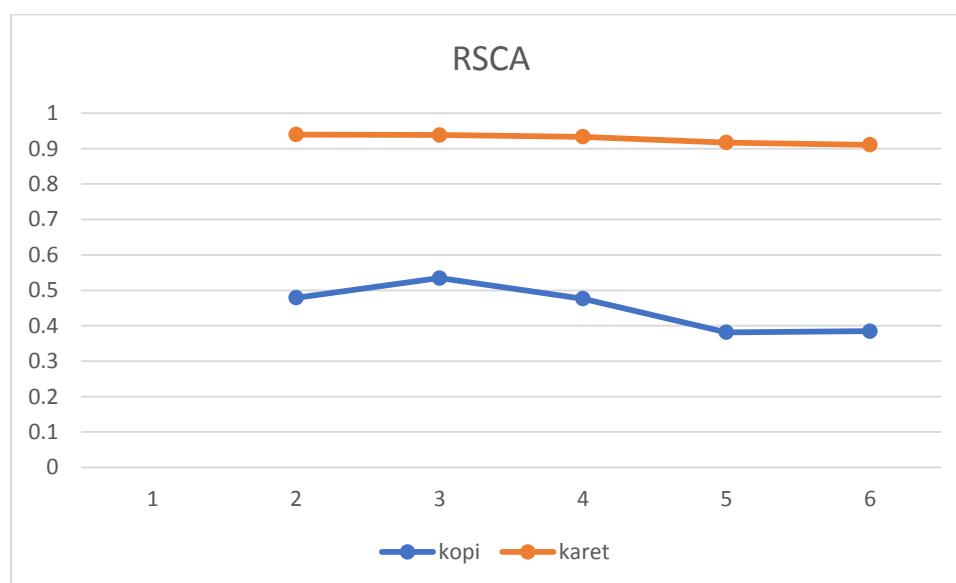
Figure 1.1. shows that the development of Indonesia's export value, especially rubber commodities has decreased from 2018 - 2022, although in the last 2 years it has only decreased slightly. In 2018 the RCA value was 32.12. in 2019 it fell to 31.55, in 2020 it fell again to 29.06, then in 2021 it fell again to 23.14 and in 2022 it fell again to 21.48. Meanwhile, the development of the export value of the coffee commodity shows a stable development. In 2018 the RCA value was 2.84, the following year 2019 it rose to 3.29, then in 2020 it dropped to 2.81, then in 2021 it dropped again to 2.23 and in 2022 it became 2.25.

B.Revealed Symmetric Comparative Advantage (RSCA)

RSCA was developed because of the limitations of RCA analysis tools. RSCA analysis is almost the same as RCA analysis, only the RSCA value is limited to between -1 to 1. In table 1.2. the results of calculating the value of coffee export competitiveness with RSCA in Indonesia are as follows: in 2018 it shows an RSCA value of 0.47923, the following year 2019 the RSCA value is 0.53441, then in 2020 it is 0.47643, in 2021 it is 0.38136 and in 2022 the RSCA value is 0.38488 . This shows that the Indonesian state for the coffee commodity is at a value greater than 0, meaning that the Indonesian coffee processing industry and domestic facilities are inadequate, so this needs attention from the government.

While in table 1.3. The RSCA for Indonesian natural rubber commodities has an average value in the last 5 years which is greater than 0. For 2018 the RSCA value was 0.93961, in 2019 it was 0.93855, then in 2020 it was 0.93348 while in 2021 and 2022 each was 0.91714 and 0.91101, meaning that Indonesia has low competitiveness, so it needs government efforts in developing rubber plantations, expanding rubber plantations, innovating through research institutes

Trend of RSCA 2 of Indonesia's main export commodities



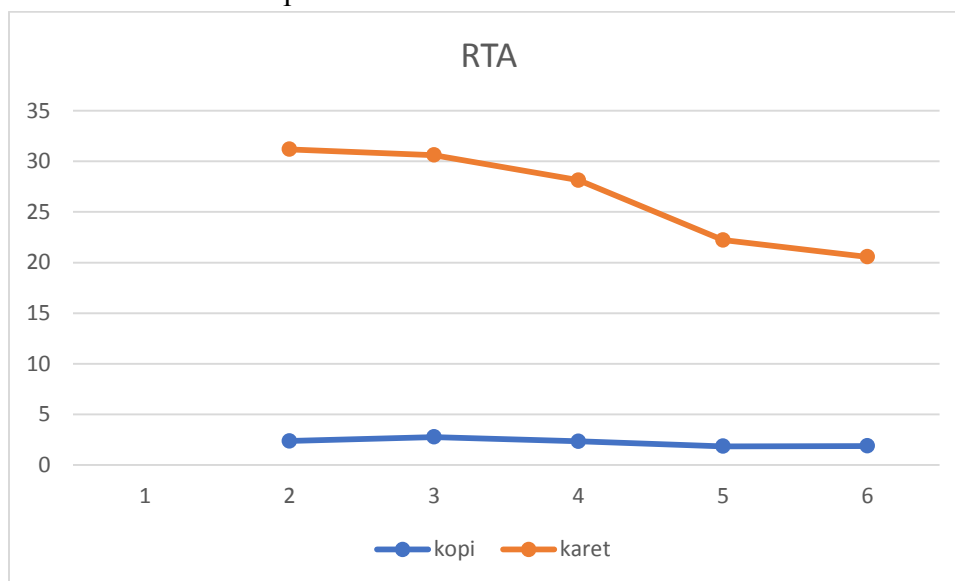
From figure 1.2. Regarding the RSCA trend for Indonesia's 2 main export commodities, namely coffee, it seems to fluctuate while for rubber it looks stable. In the coffee commodity the RSCA value fluctuated from 0.47923 in 2018, in 2019 the value was 0.53441, in 2020 it was 0.47643, in 2021 it was 0.38136 and in 2022 it was 0.38488. Whereas the RSCA for natural rubber commodities in 2018 was 0.93961, in 2019 it was 0.95855, in 2020 it was 0.93348, in 2021 it was 0.91714 and in 2022 the RSCA value for natural rubber commodities was 0.91101. The RSCA value for natural rubber from 2018 – 2022 looks stable.

C. Relative Revealed Comparative Trade Advantage (RTA)

RTA can show the comparability of a country from both sides, namely exports and imports to determine the actual competitiveness of a product. If the $RTA > 0$ indicates that a commodity has a comparative advantage on all sides, namely exports and imports, conversely, if the $RTA < 0$, it indicates that a commodity does not have a comparative advantage on all sides, both exports and imports.

From table 1.2. Indonesia's main export commodity is coffee, where the RTA value is > 0 . The RTA value of 2.36 in 2018 increased to 2.76 in 2019, in 2020 decreased to 2.34 then in 2021 and 2022 decreased to 1.85 and 1.87 respectively, but still the RTA value > 0 . While in table 1.3. natural rubber export commodity, the RTA value for each of 2018 was 31.18, in 2019 it fell to 30.61, in 2020 it fell again to 28.13 and in 2021 and 2022 it fell to 22.22 and 20.56 respectively, but still the RTA value is greater of 0, meaning that Indonesia's main export commodities are coffee and natural rubber, which have a comparative advantage.

Trend RTA 2 komoditas utama ekspor Indonesia



In figure 1.3. For Indonesia's main export commodity, namely coffee, it shows a stable development with a tendency to decline. In 2018 the RTA value was 2.36, in 2019 it was 2.76, in 2020 it fell by 2.34 then in 2021 it continued to drop to 1.85 and in 2022 it became 1.87. Whereas for Indonesia's main export commodity natural rubber shows a decrease every year from 2018 of 31.18, then continues to decline respectively from 2019 of 30.61, 2020 of 28.13, 2021 to 22.22 and 2022 to 20.56

Based on the research results obtained, a general picture of Indonesia's main commodity exports has fluctuated for the rubber commodity and is stable for the coffee commodity. This situation is probably due to the effects of the economic crisis. Unstable socio-economic conditions that are full of uncertainty. Factors that also influence are the inhibiting factors in the

service of export activities, especially the knowledge of exporters about economic conditions, and government policies in the convoluted export bureaucracy.

The problems faced by exporters are domestic problems or internal problems with problems originating from abroad or external problems. Internal problems can be in the form of weak export commodity competitiveness, diminishing or scarce availability of raw materials, low quality of human resources and low technology. While external problems can be in the form of increasingly fierce competition in producing products by each country and developed countries tend to accelerate liberalization. Therefore, to increase exports, Indonesia must evaluate various government policies related to exports, increase production as well as the quality or quality of the products produced, need adequate infrastructure and take action against those who commit violations in export activities.

Regardless of the various problems that occur, each country always tries to improve its competitiveness, so that competitiveness tends to be dynamic or always strives to increase continuously. Conditions of comparative advantage tend to also fluctuate, one moment a particular commodity may achieve a comparative advantage but at another time the commodity may no longer have a comparative advantage. Thus, the comparative advantage that we have must always be maintained and maintained so that we always have an advantage compared to competing countries. Efforts are made so that commodities are always superior, namely increasing productivity, efficiency, product quality and service in timely delivery, certainty in the availability of raw materials, other services demanded by importers, the tenacious attitude of exporters to seek marketing of products that already have strong competitiveness. as well as trying to increase market share overseas.

The government's efforts to carry out promotions in other countries that are trading partners, it is necessary to maintain economic stability, both in the real sector and in the monetary sector. Parties related to exports, such as: regional governments, regional banks, business actors, stakeholders, Bank Indonesia need to be involved in various policy formulations that can affect business activities in general and exports in particular.

The government is also always trying to create a conducive investment climate, issuing policies regarding the wage system or UMP, licensing processes, procedures for obtaining tax incentives or tax holidays, ease of procedures for importing raw materials, especially for export products. An absolute requirement for increasing the competitiveness of export commodities is success in increasing export products.

IV. Conclusion

The results of the discussion described above, it can be concluded, as follows:

1. Based on the RCA value of the coffee commodity obtained, in 2018 – 2022 or the last 5 years, the RCA value is greater than 1 or $RCA > 1$, meaning that the competitive position of the Indonesian coffee commodity is strong, compared to other coffee producing countries, although it tends to decrease but the value is still greater than 1 while for natural rubber commodities obtained in 2018 - 2022 or the last 5 years, RCA values are

seen to be greater than 1 or $RCA > 1$, meaning that the position of competitiveness of Indonesia's natural rubber commodity is also strong compared to other natural rubber producing countries, although it tends to fluctuate but is still greater than 1.

2. Based on the RSCA value of the coffee commodity obtained, in 2018 – 2022 or the last 5 years the RSCA value is less than 1 or $RSCA > 0$, meaning that in general the country's coffee commodity Indonesia has competitiveness in the international or global market but needs to increase coffee production, and industries that produce coffee need to be equipped with domestic processing facilities and focus on the development of coffee plants. Whereas for natural rubber commodities obtained in 2018 - 2022 or the last 5 years, the RSCA value is less than 1 or $RSCA > 0$, meaning that in general the Indonesian natural rubber commodity has competitiveness in the international market or global market but it needs to be seen that its production is still small. so it is necessary to expand the expansion of rubber plantations as well as make innovations that can increase natural rubber production in Indonesia.
3. Based on the RTA value of the coffee commodity, obtained in 2018 – 2022 or the last 5 years, it can be seen that the RTA value is greater than 1 or $RTA > 1$, meaning that the country's coffee commodity Indonesia has a comparative advantage on the export side or has competitiveness in the world market, although the RTA value tends to decrease, it is still greater than 1, so it is necessary to maintain its competitiveness and even increase it. As for the Indonesian natural rubber commodity, it was obtained in 2018 – 2022 or in the last 5 years, it can be seen that the RTA value is greater than 1 or $RTA > 1$, meaning that the Indonesian country natural rubber commodity has a comparative advantage or competitiveness in the world market, even though the RTA value tends to decrease but remains greater than 1, so it is necessary to increase natural rubber production in order to continue to compete with other rubber producing countries in the global market.

References

- Amir. 2000. Dalam Sri Rahayu Utami. Analisis Daya Saing Komoditas Ekspor Indonesia (Pendekatan RCA).
- Hady. 2001. Ekonomi Internasional – Teori dan Kebijakan Perdagangan Internasional. Buku 1. Edisi Revisi. Penerbit Ghalia Indonesia, Jakarta.
- Hatauruk.1983. Dalam Sri Rahayu Utami. Analisis Daya Saing Komoditas Ekspor Indonesia/ (Pendekatan RCA)
- Musselman , VA dan Jackson JH. 1994. Pengantar Ekonomi Perusahaan. Erlangga. Jakarta.
- Nopirin. 2014. Ekonomi Internasional. Edisi Ketiga, BPFE, Yogyakarta
- Salvatore, Dominick. 1997. *International Economics Fifth Edition*, Prentice-Hall, Inc, A Simon &Company, New Jersey.

Simatupang.P. 1991. *The Conception of Domestic Resource Cost and Net Economic Benefit for Comparative Advantage Analysis*, Agribusiness Division Working Paper No. 2/91 Centre for Agro- Socioeconomic Research, Bogor.

Sudaryanto. T dan P Simatupang. 1993. Analisis dalam Prosiding Perspektif Pengembangan Agribisnis di Indonesia. Pusat Penelitian Sosial Ekonomi Pertanian, Bogor.

Tambunan. Tulus. 2001. Perdagangan Inetrnasional dan Neraca Pembayaran, Teori dan Temuan Empiris. LP3ES, Jakarta.

Triyoso Bambang. 1994. Model Ekspor non migas Indonesia untuk Proyeksi Jangka Pendek. Ekonomi dan Keuangan Indonesia.

Winardi. 2006. Ekonomi Internasional. Cetakan Kelima.. Rineka Cipta . Jakarta.