

Indonesia's Rubber Exports to the United States



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ABSTRACT: Rubber is one of Indonesia's leading plantation commodities exported to various countries, one of Indonesia's natural rubber market destinations is the United States. Based on data from the trade map, the export value of Indonesian natural rubber in the US market is in first place with an average value of 1,158,164 USD. The purpose of this study is to analyze the trend of Indonesian rubber exports to the United States and to analyze the competitiveness of Indonesian rubber in the United States. The data used is secondary data from 2013-2022. The analysis method used is trend analysis to determine the trend of export development and Revealed Comparative Advantage (RCA) analysis to analyze competitiveness. The results showed that the trend of Indonesia's natural rubber export volume decreased every year. RCA shows an average value of 67.856 which means that Indonesian natural rubber has a comparative advantage and strong competitiveness in the American market.

KEYWORDS: competitiveness, natural rubber, trends

INTRODUCTION

Rubber (*Hevea brasiliensis*) belongs to the genus *Hevea* of the family Euphorbiaceae, which is a tropical timber tree native to the Amazon forest. Rubber plants are tropical plants. The area suitable for rubber plants is in the zone between 150 LS and 150 LU. When planted outside the zone, rubber growth is slower, so starting production is also slow. Rubber is a product of the process of clumping rubber plant sap (latex). The product of latex agglomeration is then processed to produce rubber sheets (sheets), chunks (boxes), or crumb rubber which is the raw material for the rubber industry (Chafid, 2022).

In the current era of globalization, free trade is the main focus for countries to conduct international trade competition. Each country competes to increase its economic strength by conducting export-import trade. Export is one of the activities of selling an item from one country to another. In export activities, it is necessary to analyze trends, namely to see the development of exports of a product. Then in order to compete in the world market and domestic market well, it is necessary to increase competitiveness. The definition of competitiveness in general is the strength of a product to enter and survive in the market, including in the world market (Aurelia et al. 2022; Harahap and Segoro 2018; Sulaiman et al., 2018).

The plantation sector has an important role in economic growth in Indonesia, including providing employment, improving people's welfare, and a source of national development. According to the Central Bureau of Statistics (2021) this sector consists of raw materials for rubber, coffee, cocoa, tea, and palm oil and contributes significantly to 50% of the country's export value. Plantation commodities are also Indonesia's mainstay export commodities, as well as a mainstay for national income and foreign exchange, it can be seen from the export value in 2020 reaching US\$ 28.24 billion or equivalent to IDR 395.3 trillion. Indonesia is the country with the highest rubber production because it has the largest rubber plantation area in the world. Rubber is one of Indonesia's leading export plantation commodities, around 84% of Indonesia's natural rubber production is exported in the form of raw rubber and 16% for domestic needs. (Lindung and Jamil 2018).

Indonesia's natural rubber production in 2019 reached 3,100,000 tons, behind Thailand with production reaching 4,900,000 tons. Both Indonesia and Thailand have a downward trend in production from the previous year with growth rates of -11.1% and -4.8% respectively in 2019 and are predicted to continue in 2020 with growth of -9.7% and -8.0% respectively (IRSG, 2020). This condition is thought to occur due to the influence of seasonality and leaf fall disease attacks that hit almost all major natural rubber producing countries, especially in Southeast Asia. This is in line with the trend of world natural rubber production growth which tends to decline, reaching -1.4% until the final quarter of 2020 (I. R. Fauzi et al., 2021).

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Based on data from FAO (2020) Indonesia is the second producer of natural rubber in the world after Thailand with a contribution of 32% of total world natural rubber production. The United States is one of the dominating natural rubber market shares in the world (Nainggolan & Budyanra, 2021) and is also a major importer destination country for Indonesia. This is evidenced by Indonesia's market share in the United States market in the 2008-2019 period which has the largest contribution value of natural rubber exports among other exporters, namely 71.96% (Meliany et al., 2021).

Indonesia is a natural rubber producer, a member of the International Rubber Consortium Limited (IRCo) which serves as a controller of world natural rubber prices. In addition, Indonesia together with Thailand and Malaysia are also members of the International Tripartite Rubber Council (ITRC), which is a major rubber producing country and a major rubber exporter in the international market. Even these three countries agreed to make an Agreed Export Tonnage Scheme (AETS) policy that implements a reduction in the amount of rubber exports in order to maintain the stability of world rubber prices (Ardanari and Mukiwihando 2020).

The state of the rubber market in the world shows a good thing, indicated by the price of rubber which continues to increase in line with the large demand for natural rubber. The increasing growth in demand for natural rubber makes rubber producing countries try to increase their natural rubber production. Therefore, rubber plantations in Indonesia need attention in order to have high productivity (Amiruddin & Heliawaty, 2022; Perdana, 2019; Wahyudy et al., 2019).

Indonesia must calculate the position of natural rubber competitiveness among other exporting countries as well as market opportunities, especially to the United States, which has a relatively high import demand. This situation shows that there is a dependency of natural rubber export market destinations. High export dependence on certain markets will also adversely affect the ability of trade in Indonesia when there are internal and external problems faced by the country (Hotsawadi 2020; Meliany et al. 2021; Meliany and Novianti 2022).

The difference between this research and the research studied by (Ardanari & Mukiwihando, 2020), namely the time period used, namely from 2013-2022 and the destination country. Then in previous studies no one has examined the competitiveness analysis of Indonesian rubber exports to America. Though it is very important to research because Indonesian rubber exports to America have the highest percentage value of 21%. As for other countries such as Japan, only 18% and in previous research on rubber competitiveness there were still a few who used the RCA method (Ardanari & Mukiwihando, 2020; Meliany et al., 2022).

This research uses a type of quantitative analysis, namely a method in the form of data collection information expressed in numbers (Priadana & Sunarsi, 2021). The purpose of this research is to analyze the trend of Indonesian natural rubber exports and the competitiveness of Indonesian rubber in the United States. This research is expected to provide insight into the strategies needed to maintain and improve the market position of both countries in the global rubber market industry.

METHODS

The analysis method used to analyze the development of rubber export value is trend analysis, while to analyze the competitiveness of rubber exports using the analysis method. The data used in this study are secondary data in the form of time series data starting from 2013-2022 (Trademap, 2017). Data is obtained based on the Harmony System code, namely 4001 (Natural rubber, balata, gutta-percha, guayule, chicle and similar natural gums).

Trend analysis is used to make an estimate of Indonesia's rubber exports in the future. Trend analysis in this study discusses the trend (tendency) of the export value of Indonesian natural rubber. Indonesian natural rubber export value data in this study uses time series data with the last ten years, namely the period 2013-2022. Trend analysis uses a simple regression model. The following model is used to determine the trend of Indonesian rubber exports (Baroh & Evi Yanti, 2018).

$$y = a + bx$$

Where:

Y : Rubber export value (USD)

a : Intercept

b: Regression Coefficient of Time Change

x : Time variable

RCA analysis was used to analyze the competitiveness of Indonesian natural rubber. The RCA index shows the comparative advantage of Indonesian rubber in America. If the RCA index of natural rubber exports shows a value of more than one (>1), then the country's natural rubber export value has a comparative advantage and has competitiveness and if the RCA

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index of natural rubber exports is less than one (<1), then the country's natural rubber exports do not have competitiveness in America. The following is the RCA analysis formula (Tampubolon, 2020).

$$RCA = \left(\frac{X_{IK}}{X_{IM}} \right) / \left(\frac{X_{WK}}{X_{WM}} \right)$$

Where:

XIK : The value of Indonesian rubber exports in the America

XIM : Total export value of all Indonesian commodities in the America

XWK : The value of world exports of rubber products to America

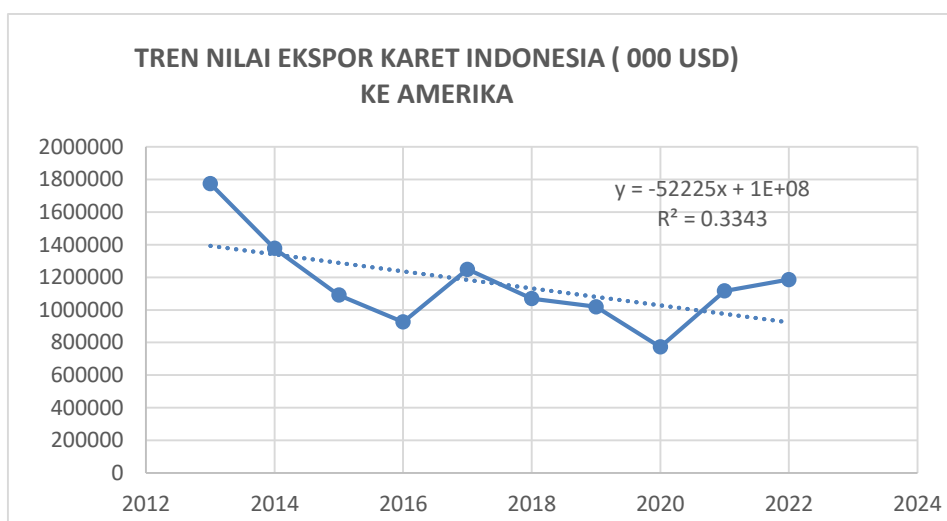
XWM : Total export value of all world commodities to the America

The provisions or decision-making criteria for the RCA analysis method are as follows:

-If $RCA \geq 1$, then Indonesian rubber has a comparative advantage.

-If $RCA < 1$, then Indonesian rubber does not have a comparative advantage.

RESULTS AND DISCUSSION



Picture 1: Trends in the Value of Indonesian Rubber Exports to the America

Source: (Trademap, 2017), processed (2023)

Picture 1 explains that the trend in the value of Indonesian natural rubber exports from 2013-2022 has a downward trend. The trend line graph of the export value of Indonesian natural rubber has a model equation that is $y = -52225x + 1E + 08$. The model can be interpreted that every one year the export value has decreased by 52,225 USD. The trend of the highest export value occurred in 2013 which reached US \$ 6,906.95 million. This is in line with research conducted by Welatama. (2017), namely in 2013 rubber production increased to 3.24 million tons which caused the export volume to increase, reaching 2.70 million tons. The trend of rubber export value declined again in 2014-2016 due to falling rubber prices and declining Indonesian rubber production. During the period 2017-2020, the performance of rubber production in Indonesia showed a downward trend of 4.03% per year, from 3.68 million tons in 2017 to 3.12 million tons in 2021. However, it can be seen in the graph that in 2017 there was an increase in rubber prices which made rubber production increase, causing planters to fertilize and optimize production retrieval (Syarifa et al., 2023).

Furthermore, in 2018 rubber production declined until it continued in 2020. During this period, the rubber trend declined due to the decline in rubber prices in 2018, which caused farmers to be unable to maintain their rubber plantations, and leave their rubber plantations to switch to other livelihoods. This condition was further exacerbated by the attack of Pestalotiopsis leaf fall disease that occurred from 2018 to throughout 2019 in several major rubber producing countries including Indonesia. The need for rejuvenation of rubber trees is also still lacking attention, this has led to a decrease in rubber productivity in Indonesia. In 2020 conditions worsened due to the impact of the pandemic which resulted in lower rubber prices and unfavorable weather conditions causing a decrease in tapping activities. Therefore, the thing that must be done to increase rubber productivity is by replanting old rubber trees (Wati et al., 2023).

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Another cause of declining rubber production in Indonesia is the conversion of rubber land to oil palm. This happens for several reasons, namely in terms of harvesting time, palm oil only takes 1-2 days while rubber takes 2-3 days. Time is money, if it takes less time with more production then this is more profitable to reduce labor costs. Then the profit obtained from palm oil is also higher than rubber, this is due to the increasing price of palm oil while the price of rubber is decreasing (Yanda et al., 2020).

This is in line with the increasing trend of palm oil export development. Palm oil is the mainstay commodity of Indonesia's plantation exports and continues to increase in its export capacity and its value is quite high. According to Rosita, Haryadi, and Amril (2014), Indonesia is the largest CPO producer in the world. The amount of palm oil production that continues to experience a significant increase is able to supply 47% of the world's CPO needs. The increase in domestic palm oil production has resulted in increased palm oil export offers to various countries. To be able to increase the volume of Indonesian palm oil production can be done by developing Indonesian CPO production technology. If the technology used is more sophisticated, it is expected to be able to increase the production of Indonesian palm oil so that export volumes can also increase. So far, Indonesian CPO producers still use conventional tools (Nurmalita & Wibowo, 2019).

The use of technology in the production process is necessary to be able to utilize all parts or components of palm oil to become more economically valuable products. Using more sophisticated technology can produce products with higher quality and quantity when compared to the use of conventional technology used by palm oil producers. In addition to production, international palm oil prices also have an impact on the volume of Indonesian palm oil exports. An increase in international palm oil prices results in an increase in the volume of palm oil exports from Indonesia. When commodity prices in the global market are higher than in the domestic market, demand for Indonesian palm oil tends to increase, so the volume of palm oil exports also increases (Lukas et al., 2017; Mejaya et al., 2016).

In addition, the decline in export trends in natural rubber is also influenced by the existence of synthetic rubber, which is relatively cheap compared to natural rubber. Synthetic rubber also has a stable price unlike natural rubber which in a certain period of time can experience drastic price changes. Then in terms of quality, synthetic rubber is also superior to natural rubber, including being easy to process, has perfect elasticity, is not easily heated and has high stickiness to various materials. This makes some of the natural rubber market share replaced by synthetic rubber (Setyawati et al., 2014; Xu et al., 2018).

The downward export trend also occurred in coffee plantation commodities, which from 2016-2018 experienced a significant decline, falling from 11,394 tons in 2016 to 2,237 tons in 2018 with a difference in export volume of up to 9,157 tons. However, the upward trend occurred in 2019-2021, reaching 20,219 tons (A. Fauzi et al., 2023). According to Ferguson (2017), Colombia has also experienced changes in coffee prices at the global level, which has an export value and has decreased due to the weak competitiveness of coffee commodities. The decline in coffee prices in Colombia was caused by an outbreak of coffee leaf rust in 2008-2011. The impact of the outbreak of coffee leaf rust caused coffee prices to decline dramatically and as many as 100,000 Colombians lost their jobs as coffee farmers. Over-supply of coffee in the world, the global economic crisis, declining demand for coffee in several major consumer countries such as the United States and Europe, world wars that disrupt the security of coffee production and exports, and uncertain climate change are important factors in the decline in the value of coffee exports in Colombia.

However, in the tea plantation commodity in 2006-2015 the value trend tended to increase due to the rupiah exchange rate against the US Dollar continuing to increase, which resulted in export prices continuing to creep up. Meanwhile, in that year the volume trend in tea decreased due to the US Dollar exchange rate which increased (Ariandi et al., 2019). In cocoa plantation commodities, there was also a decline in export trends in the 2011-2020 time period fluctuating with an average growth decline of 0.68%. This condition is caused by the absence of revitalization of old cocoa plants, making plants vulnerable to pests and diseases that can spread in a short time. Climate change and land constriction are also the causes of Indonesia's declining cocoa productivity (Pusdantin, 2022).

The decline in cocoa production in Indonesia has prompted the Ministry of Agriculture to launch the Bun 500 Program through the Directorate General of Plantations. The program aims to spur increased production in an effort to restore the glory of high-value commodities in the world market and improve farmers' welfare. High-quality seedlings are provided under the program for leading commodities such as coffee, cocoa, rubber, and coconut. The program is planned to run for a period of five years, 2019-2024. There are six steps in the Bun500 program, including the structuring of the seed system, the introduction and dissemination of new superior varieties, the growth of seedling businesses through seed independent villages, the implementation of standardization of certification bodies, the structuring of seed producers, and the development of seedling databases (Ditjenbun, 2019).

However, an increasing trend has occurred in Indonesia's processed cocoa products. Since 2011, Indonesia's exports have increased in intermediate products such as cocoa paste, cocoa butter, and cocoa powder, making Indonesia one of the largest

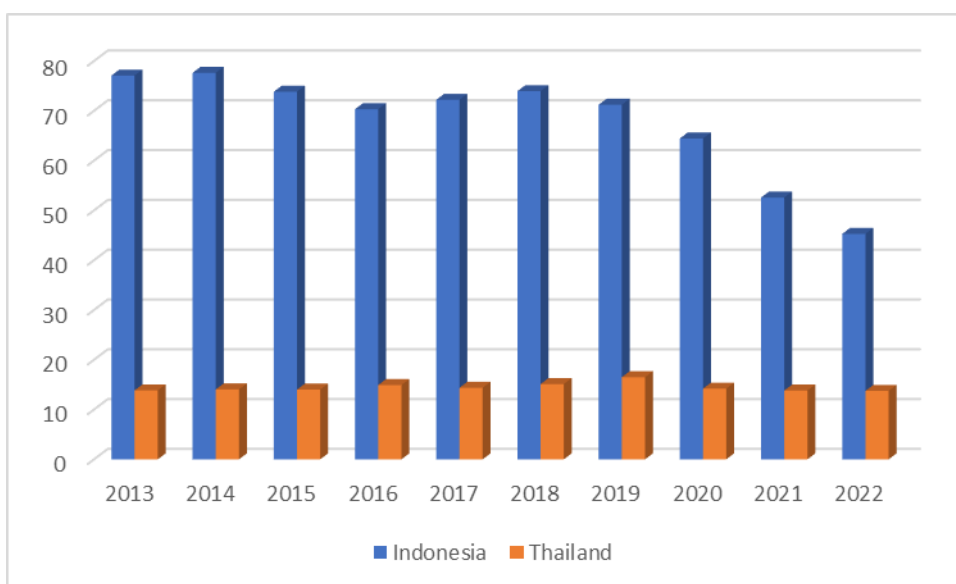
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exporters of processed cocoa in the world after Ivory Coast and the Netherlands. According to BPS data in 2021, Indonesia's cocoa bean exports reached 5.82%, exported to various countries in Asia, America, Africa, Europe, and Australia (BPS, 2022). This is in line with the government's goal to develop the cocoa processing industry and add value to cocoa which is directed to be exported in the form of processed cocoa. Changes in Indonesia's export trends indicate a significant increase in the cocoa processing industry with reduced availability of cocoa beans for export (Faizah et al., 2023).

Then on the coconut industry commodity. In Indonesia itself, coconut, which has a variety of benefits and a variety of derivative products, has not been improved from the processing potential. The coconut industry in Indonesia lost IDR 53.85 trillion of its potential added value in 2018. According to data from the Ministry of Agriculture (MOA), the coconut industry should be able to reach a value of IDR 74.23 trillion, but in fact only received IDR 20.38 trillion. This shows that in Indonesia, the coconut industry has not been utilized to its full potential. Not only that, the products and processed derivatives of coconut in Indonesia actually have a high export value in the international arena. First, the export value of processed copra reached US\$309.4 million with a market share of 25.5%. Second, raw copra reached US\$236.3 million with a market share of 22.92%. Third, the processed dried grated coconut also has a fairly high export value of US\$178.8 million with a market share of 24.28%. On the other hand, other derivative products such as coconut sugar have an export value of US\$79.1 million with a market share of 3.99% and fresh coconut in shells only has an export value of US\$58.7 million with a market share of 29.8% (Center for Budget Studies of the Expertise Agency of the Secretariat General of the DPR RI, 2022).

Indonesia has 3.4 million hectares of coconut plantations. Of this amount, 97% is dominated by smallholder plantations. The average coconut is quite old and post-harvest handling and processing uses traditional methods. This is due to the budget and availability of new superior varieties that have not been rejuvenated, which has an impact on the decline in coconut production. In fact, coconut is an agricultural commodity that is value-added and has high economic value (Center for Budget Studies of the Expertise Agency of the Secretariat General of the DPR RI, 2022).

The same is true for pepper. Indonesia is the largest supplier in the international pepper market. However, in Indonesia itself, pepper consumption is very small, which is around 26% of national production and the other 74% is sold abroad. In the international market, Indonesian pepper is known as Lampung Black Pepper (black pepper) and Muntok White Pepper (white pepper) and both types of pepper are used as parameters of the world pepper trade. The largest exports of black pepper are the United States, Singapore and the Netherlands. While white pepper is mostly exported to Singapore, the Netherlands and Germany. In the last ten years, between 1990-2000, Indonesia was able to export an annual average of 43,193 tons. In addition, the growth of pepper exports in Indonesia actually experienced negative growth of 0.20%. The peak of pepper commodity exports was in 1992 which amounted to 62,136 and in 1993 it decreased dramatically by 27,684 tons. This is because there is a competitor country of Indonesia, namely Vietnam. Vietnam is in one continent and one ASEAN organization. The country is a developing country so that the increase in production and export of pepper is more increased and quality (Elizabeth, 2015).



Picture 2. Indonesia RCA Chart

Source: (Trademap, 2017), processed, (2023)

picture 2 shows that the RCA values of natural rubber in Indonesia and Thailand for the period 2013-2022 fluctuate. Although

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the value of the RCA calculation shows fluctuations, Indonesia and Thailand always have a positive value. with an average RCA value of Indonesia 67.85 and Thailand 14.46. This shows that Indonesia is one of the largest rubber exporters, in contrast to Thailand which has an RCA value far below Indonesia. This is because Indonesia has the largest plantation area in the world which causes the value of Indonesian rubber production to be high (Sahir, 2021).

This is different from Indonesia's rubber exports in the Chinese market with an average RCA value of less than one, which means that Indonesia does not have a comparative advantage. In accordance with research researched by (Muslika & Tamami, 2019) that, Indonesia has a competitiveness that is still relatively weak because Indonesia's RCA index value which has a value of more than one only exists in the period 2006 to 2009. This indicates that Indonesia has a low comparative advantage in rubber commodities. Indonesia's average RCA value for rubber commodities from 2003 to 2017 was 0.528. This value is very different from Thailand.

From the results of this study, rubber still has a comparative advantage, the same thing with other plantation commodities, namely coffee. In the coffee commodity itself, although it has a comparative advantage in the international market, it still cannot compete with its competitor countries. In line with research conducted by Amanda & Rosiana (2023) with the title Analysis of Indonesian Coffee Competitiveness in the International Market. Based on the results of the RCA calculation, Indonesian coffee has competitiveness in the world market, indicated by a positive RCA value in the period 2011 to 2021. However, when compared to its competitor countries, Indonesia is still in the weak competitive category because in 2018-2021 the RCA value tends to decrease when compared to 2017 which was at 6.00 (Amanda & Rosiana, 2023). This illustrates that Indonesian coffee is still weakly competitive in the international market.

This is in line with research conducted by Doni Sahat Tua Manalu, Harianto, Suharno (2022) He explained that Colombia also experienced a decline in the value of coffee exports. This is due to competition in global trade which is indicated by fluctuations in the export value of each country which is different and results in comparative and competitive advantages. The results of this study also have similarities with research conducted by Sabrina Tasya & Suhaeni (2022), who stated that the high and low value of a country's RCA of a particular product is driven by the export trade value of that product and the total export of all products of a particular country. Therefore, the export value of these goods is influenced by the price of raw materials in the international market. In the international market, prices have the power to measure the purchasing power of the world population, the consumers of a product.

Based on research conducted by Patone et al (2020), the RCA value of Indonesian palm oil has competitiveness or has a comparative advantage, but there has been a very sharp decline. The highest RCA value was recorded in 2010 with a value of 10.26, the lowest RCA value was recorded in 2019 which amounted to 1.99. The decline in RCA that occurred in 2019 was due to a decrease in the value of Indonesian exports to India, the total value of Indonesian exports amounted to US \$ 3,695,664,000 and the total value of palm oil exports to India outside of Indonesia rose to US \$ 3,811,153,500 which in 2018 was only US \$ 1,918,264,769, so that the RCA value of Indonesian palm oil in 2019 decreased by 2.65 from 2018. The decline in demand for Indonesian palm oil in India was due to the Indian government's policy of setting a new base price for CPO imports of US\$ 802 per ton. This policy makes CPO import prices more expensive. However, Indonesian palm oil still has strong competitiveness as evidenced by the positive RCA value.

This is also the case for cocoa, which has an RCA value of more than one. This means that the share of cocoa in the exports of all Indonesian commodities is greater than the share of cocoa in the exports of all commodities of all countries. In 2011 and 2012 there was a sharp decline in RCA compared to previous years. The policy of setting export duties for cocoa beans to be exported issued by the government had an impact on the decline in the competitiveness of Indonesian cocoa beans. This is in line with the statement (Rifin & Naully, 2016) that the policy affected the change in the composition of Indonesian cocoa exports, which in 2009 the composition of cocoa beans amounted to 75%, has decreased in 2011 to 51%, while the contribution of cocoa butter, paste, and powder increased significantly. The low competitiveness of Indonesian cocoa beans is also due to low quality and unfermented cocoa beans that are subject to automatic detention, especially in the United States market, which is the second largest cocoa bean export destination after Malaysia (Tresliyana et al., 2014).

The same thing happened to other plantation commodities, namely cloves. According to data from the Central Bureau of Statistics, the development of clove export volume in Indonesia during 2012-2021 fluctuated but tended to increase. In the annual period, Indonesia was able to increase the volume of cloves by an average of 34.04%. In 2012, Indonesia's clove volume was 5.94 thousand tons, and in 2021 it reached 20.14 thousand tons. The highest export volume was shown in 2020, which amounted to 47.77 thousand tons (Center for Agricultural Data & Information Systems, Secretariat General of the Ministry of Agriculture, 2022).

The statement is in line with research conducted by Hidayah et al (2022) he revealed that the analysis with the RCA method during the period 2012-2016 related to the competitiveness of Indonesian clove commodities has a very diverse RCA value in each year in each market. However, overall Indonesian clove commodities in the ten main markets studied and have strong competitiveness. The results of the analysis of the average RCA value show that clove commodities have a comparative advantage

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and competitiveness position with the highest average RCA value in the Saudi Arabia market with an average RCA value of 32.10 then in second place with the Thai market and followed by Australia, Germany, Egypt, the Netherlands, Pakistan, the United Arab Emirates, Vietnam and Malaysia.

In 2008 and 2011, Indonesia's clove production declined. This was the cause of Indonesia's loss of export market share in the Malaysian and Dutch markets. In 2008 Indonesia's clove production fell by 12.27% and in 2011 Indonesia's clove production fell by 26.57%. This was caused by a shift in clove imports in the Malaysian market by the comparative value of Indonesian clove exports with world cloves in the Malaysian market in 2009, 2011, 2014, and 2016 (Hidayah et al, 2022).

Plantation commodities such as molasses also contribute to Indonesia's exports in the world market. Indonesia's molasses production in 2018 was able to be exported to 29 countries. Then in the 2012-2018 period, the production of molasses produced continued to grow with an average export value of US\$65.5 million and had a growth of 45% which made Indonesia the largest molasses exporting country in the world. The contribution of Indonesia's molasses exports is around 78.4% of the total exports of sugarcane products. This is in line with research conducted by Ariningsih (2014) who said that the development of molasses exports in 2012-2018 had a fairly fluctuating pattern where in 2012-2014 it experienced a very high increase and in 2015-2016 it decreased, then increased in 2017 and increased again in 2018. In 2014, the total export volume of molasses was 938.66 thousand tons and in 2018 it decreased by around 45.62% making the export volume of sugarcane 510.48 thousand tons. This is influenced by the amount of production. The more a production increases, the more the exports increase (Juliarta & Setyari, 2021).

CONCLUSIONS

Based on the results of the analysis, it can be concluded that:

1. The trend of Indonesia's natural rubber export value in 2013-2022 shows a downward trend. This is due to trade competition with rubber producing countries in the world, Indonesian rubber plantations that experience obstacles such as fungal disease disorders, weather changes and pestaloptiosis sp leaf fall disease which causes Indonesian rubber production to decline.
2. The Revealed Comparative Advantages (RCA) value of Indonesian natural rubber in 2013-2022 is more than one, meaning it has strong competitiveness in the American market.

REFERENCES

- 1) Amanda, S., & Rosiana, N. (2023). Analisis Daya Saing Kopi Indonesia Di Pasar Internasional. *Forum Agribisnis*, 21(1), 11. <https://doi.org/10.36841/agribios.v21i1.2807>
- 2) Amiruddin, A., & Heliawaty, A. F. (2022). Posisi Keunggulan Kompetitif Daya Saing Karet Indonesia. *Jurnal Agrisepe*, 23(2), 1–6. <https://doi.org/10.31186/jagrisepe.22.01>.
- 3) Ardanari, S. D., & Mukiwihando, R. (2020). Daya Saing Ekspor Karet Alam Tiga Negara Itrc (Indonesia, Thailand, Malaysia) Di Pasar Internasional Periode 1994-2018. *Jurnal Manajemen Keuangan Publik*, 4(1), 81–87. <https://doi.org/10.31092/jmkp.v4i1.806>
- 4) Ariandi, Y., Baroh, I., & Ibrahim, J. T. (2019). Analisis Trend Ekspor Teh Indonesia. *Journal Agriecobis Journal of Agricultural Socioeconomics and Business*, 02(01), 23–31. <https://doi.org/https://doi.org/10.22219/agriecobis.Vol2.No1.%25p>
- 5) Ariningsih. (2014). Masa Depan Penerapan Strategi Relationship. Marketing pada Industri Jasa Perbankan. *Jurnal Studi Manajemen Dan Bisnis*, 01(3), 299–309. <https://doi.org/https://doi.org/10.21107/jsmb>
- 6) Aurelia, R., Kurniati, D., & Hutajulu, J. P. (2022). Daya Saing Ekspor Pisang Indonesia di Negara Tujuan Ekspor Periode 2000-2019. *Jurnal Agribisnis Indonesia*, 10(2), 335–349. <https://doi.org/10.29244/jai.2022.10.2.335-349>
- 7) Baroh, I., & Evi Yanti, L. (2018). *Export Trend Analyze Indonesian Cassava to The Republic Of Korea and Malaysia*. 172(FANRes), 98–100. <https://doi.org/10.2991/fanres-18.2018.20>
- 8) BPS. (2021). *perkebunan*. <https://www.bps.go.id/subject/54/perkebunan.html#subjekViewTab4>
- 9) BPS. (2022). *Statistik Kakao Indonesia* (dan P. Direktorat Statistik Tanaman Pangan, Hortikultura (ed.); Issue september 2016). Badan Pusat Statistik.
- 10) Chafid, M. (2022). Outlook Komoditas Perkebunan Karet. In A. Susanti & K. R. Putra (Eds.), *Pusat Data dan Sistem Informasi Pertanian* (2022nd ed.). kementerian pertanian.
- 11) Ditjenbun. (2019). Statistik Perkebunan Unggulan Nasional 2019-2021. In *Direktorat Jendral Perkebunan Kementerian Pertanian Republik Indonesia*. <https://ditjenbun.pertanian.go.id/template/uploads/2021/04/Buku-Statistik-Perkebunan-2019-2021-Ok.Pdf>
- 12) Elizabeth, R. (2015). Keragaan Komoditas Lada Indonesia (Studi Kasus Di Kabupaten Bangka). *SOCA: Socioeconomics of Agriculture and Agribusiness*, 5(1), 1–21.

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- 13) Faizah, S. N., Pascasarjana, P., Gadjah, U., Studi, P., Ekonomi, S., Universitas, P., & Mada, G. (2023). *Integrasi Pasar Biji Kakao Indonesia Dengan Pasar Dunia Integration of the Indonesian with World Cocoa Beans Markets*. 41(1), 39–49.
- 14) Fauzi, A., Wiguna, Mahmud, A., & Sulaeman, E. (2023). Analisis Forecasting Volume Ekspor Kopi dari Indonesia ke India dengan Metode Time Series. *Jurnal Pendidikan Tambusai*, 7(2), 7461–7467. <https://doi.org/https://doi.org/10.31004/jptam.v7i2.7411>
- 15) Fauzi, I. R., Syarif, L. F., Ginting, R., Lindawati, D., Penelitian, B., Putih, S., & Karet, P. (2021). Situasi Perdagangan Internasional Dan Analisis Pengaruh Faktor Harga Dan Produksi Terhadap Volume Ekspor Karet Alam Indonesia Tahun 2015-2020. In *Jurnal Penelitian Karet* (Vol. 39, Issue 1). <https://doi.org/10.22302/ppk.jpk.v39i1.740>
- 16) Ferguson, L. A. (2017). The Impact of Coffee Production on the Economy of Colombia. *Scholar Commons*.
- 17) Harahap, N. H. P., & Segoro, B. A. (2018). Analisis Daya Saing Komoditas Karet Alam Indonesia ke Pasar Global. *Jurnal Transborders*, 1(2), 130–143.
- 18) Hotsawadi, W. (2020). Diversifikasi Ekspor Non Migas Indonesia Ke Pasar Non Tradisional (Diversification of Indonesia ' s Non-Oil Gas Export to Non-Traditional Markets). *Buletin Ilmiah Litbang Perdagangan*, 14(2), 215–238. <http://jurnal.kemendag.go.id/bilp/article/view/442>
- 19) Juliarta, I. W., & Setyari, N. P. W. (2021). Analisis Faktor-Faktor Yang Mempengaruhi Volume Ekspor Tetes Tebu di Indonesia 2012-2018. *E-Jurnal EP Unud*, 10(8), 3474–3500. <https://doi.org/10.24843/eum>
- 20) Lindung, L., & Jamil, A. S. (2018). Posisi Daya Saing Dan Tingkat Konsentrasi Pasar Ekspor Karet Alam Indonesia Di Pasar Global. *Jurnal AGRISEP: Kajian Masalah Sosial Ekonomi Pertanian Dan Agribisnis*, 17(2), 119–128. <https://doi.org/10.31186/jagrisep.17.2.119-128>
- 21) Lukas, A., Ngudiwaluyo, S., Noor, I. M., & La Teng, P. N. (2017). Aplikasi teknologi radiasi panas pada pengolahan sawit terpadu. *Jurnal Industri Hasil Perkebunan*, 12(2), 53–65.
- 22) Manalu, D. S. T., Harianto, Suharno, & Hartoyo, S. (2022). Analisis Daya Saing Serta Faktor-Faktor yang Memengaruhi Pangsa Pasar Negara Eksportir Utama Kopi di Negara Importir Utama Kopi. *Buletin Ilmiah Litbang Perdagangan*, 16(1), 1–24. <https://jurnal.kemendag.go.id/bilp/article/view/445>
- 23) Mejaya, A. Saleh, Fanani, D., & Mawardi, M. K. (2016). Pengaruh Produksi, Harga Internasional, dan Nilai Tukar terhadap Volume Ekspor. *Jurnal Administrasi Bisnis*, 35(2), 20–29.
- 24) Meliany, B. S., & Novianti, T. (2022). Competitiveness of The Top 15 Main Export Destinations of Indonesia's Natural Rubber for 1991–2020. *Jurnal Manajemen Dan Agribisnis*, 19(1), 37–47. <https://doi.org/10.17358/jma.19.1.37>
- 25) Meliany, B. S., Syaikat, Y., & Hastuti. (2021). Struktur Pasar Dan Daya Saing Karet Alam Indonesia Di Amerika Serikat. *Buletin Ilmiah Litbang Perdagangan*, 15(2), 235–256. <https://doi.org/10.30908/bilp.v15i2.623>
- 26) Meliany, B. S., Syaikat, Y., & Widyaastutik, W. (2022). The Potential of Diversification in the Indonesian Natural Rubber Export Market. *Buletin Ilmiah Litbang Perdagangan*, 16(1), 25–40.
- 27) Muslika, R., & Tamami, N. D. B. (2019). Daya Saing Komoditas Ekspor (Karet) Indonesia Ke China. *Agriekonomika*, 8(2), 194–205. <https://doi.org/10.21107/agriekonomika.v8i2.5426>
- 28) Nainggolan, D. G. B. F., & Budyanra, B. (2021). Daya Saing Dan Variabel-Variabel Yang Memengaruhi Nilai Ekspor Ban Karet Indonesia Ke Sepuluh Negara Importir Terbesar Di Dunia Tahun 2001-2018. *Seminar Nasional Official Statistics, 2020*(1), 843–854. <https://doi.org/10.34123/semnasoffstat.v2020i1.538>
- 29) Nurmalita, V., & Wibowo, P. A. (2019). Analisis Faktor-faktor Yang Mempengaruhi Ekspor Minyak Kelapa Sawit Indonesia Ke India. *Economic Education Analysis Journal*, 8(2), 605–619. <https://doi.org/10.15294/eeaj.v8i2.31492>
- 30) Patone, C. D., Kumaat, R. J., & Mandei, D. (2020). Analisis Daya Saing Ekspor Sawit Indonesia Ke Negara Tujuan Ekspor Tiongkok Dan India. *Jurnal Berkah Ilmiah Efisiensi*, 20(3).
- 31) Perdana, R. P. (2019). Kinerja Ekonomi Karet dan Strategi Pengembangan Hilirisasinya di Indonesia. *Forum Penelitian Agro Ekonomi*, 37(1), 25–39. <https://doi.org/10.21082/fae.v37n1.2019.25-39>
- 32) Priadana, S., & Sunarsi, D. (2021). *Metode Penelitian Kuantitatif* (2021st ed.). Pascal Books.
- 33) Pusdantin. (2022). Outlook Komoditas Perkebunan Kakao. In *Pusat data dan Sistem informasi Pertanian*.
- 34) Rifin, A., & Naully, D. (2016). The Effect of Export Tax on Indonesia's Cocoa Export Competitiveness. *AgEcon Search*, 18.
- 35) Rosita, R., Haryadi, & Amri. (2014). Determinan Ekspor CPO Indonesia Ratih Rosita, Haryadi, Amri Program Magister Ilmu Ekonomi Fakultas Ekonomi dan Bisnis Universitas Jambi. *Jurnal Perspektif Pembiayaan Dan Pembangunan Daerah*, 1(4), 183–190. <https://doi.org/https://doi.org/10.22437/ppd.v1i4.1714>
- 36) Sabrina Tasya, Suhaeni, I. P. E. W. (2022). Analisis Daya Saing Komparatif Komoditas Kopi (Coffea Sp.) Indonesia Di Pasar Internasional. *Ilmiah Wahan Pendidikan*, 8(12), 335–341.

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- 37) Sahir, S. H. (2021). Prospek Transaksi Komoditas Karet Indonesia Sesudah Pandemi Covid 19: Kajian Pustaka. *Warta Perkaratan*, 40(1), 15–30. <https://kepegawaian.uma.ac.id/wp-content/uploads/2022/03/syafrida-prospek-komoditas-karet.pdf>
- 38) Setyawati, I. K., Shenn, L. Y., & Setiawan, B. (2014). Analisis Permintaan Ekspor Karet Alam Indonesia Ke Amerika Serikat. *Agrise*, XIV(2). <https://doi.org/https://doi.org/10.21776/ub.agrise>.
- 39) Sulaiman, A. A., Subagyono, K., Hermanto, Suwandi, & Sayaka, B. (2018). *Sekretariat Badan Litbang Pertanian PERDAGANGAN INTERNASIONAL Perdagangan Internasional Komoditas Pangan Strategis* (T. Sudaryanto & Yulianto (eds.); 2018th ed., Issue 29). IAARD PRESS.
- 40) Syarif, L. F., Agustina, D. S., Alamsyah, A., Nugraha, I. S., & Asywadi, H. (2023). Outlook Komoditas Karet Alam Indonesia 2023. *Jurnal Penelitian Karet*, 41(September), 47–58. <https://doi.org/10.22302/ppk.jpk.v41i1.841>
- 41) Tampubolon, J. (2020). *Perdagangan dan Bisnis Internasional: Teori dan Analisis Empiris* (H. Ramdhani (ed.); 2020th ed.). Deepublish.
- 42) Trademap. (2017). *List of importing markets for a product exported by Indonesia. Product: 4001 Natural rubber, balata, gutta-percha, guayule, chicle and similar natural gums, in primary forms or in plates, sheets or strip*. [Http://www.Trademap.Org](http://www.Trademap.Org).
- 43) Tresliyana, A., Fariyanti, A., & Rifin, A. (2014). Daya Saing Kakao Indonesia Di Pasar Internasional. *Jurnal Manajemen Dan Agribisnis*, 12(2), 150–162. <https://doi.org/10.17358/jma.12.2.150>
- 44) Wahyudy, H. A., Khairizal, K., & Heriyanto, H. (2019). Perkembangan Ekspor Karet Alam Indonesia. *Dinamika Pertanian*, 34(2), 87–94. [https://doi.org/10.25299/dp.2018.vol34\(2\).2642](https://doi.org/10.25299/dp.2018.vol34(2).2642)
- 45) Wati, M. H., Nasution, J., & Ahmani, N. A. B. (2023). Pengaruh Produksi Karet dan Harga Karet Alam Internasional Terhadap Nilai Ekspor Karet Alam Indonesia Tahun 2016-2021 dalam Perspektif Ekonomi Islam. *Jurnal Rumpun Ekonomi Syariah*, 6(1), 181–192.
- 46) Welatama, A. (2017). Dampak Kebijakan International Tripartite Rubber Council Dalam Membatasi Kuota Ekspor Karet Alam Terhadap Indonesia. *Jom FISIP*, 4(2), 1–8.
- 47) Xu, D., Yang, Y., & Wu, K. (2018). Data processing method for constitutive relation of the rubber core material in spherical blowout preventer. *Journals Sagepub*, 10(7), 1–11. <https://doi.org/10.1177/1687814018789523>
- 48) Yanda, A., Khairunnisyah, & Hendrawan, D. (2020). Analisis Konversi Lahan Karet Menjadi Lahan Kelapa Sawit di Desa Parmainan Kecamatan Hutaraja Tinggi Analysis. *Jurnal Ilmu Pertanian*, 8(2), 149–157. <https://doi.org/https://doi.org/10.30743/agr.v8i2.3080>.



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