

ANALYSIS OF FACTORS INFLUENCING VOLUME EXPORT AND COMPETITIVENESS OF CRUDE PALM OIL INDONESIAN AND MALAYSIAN

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ABSTRACT

Production of crude palm oil is increasing along with the number of oil palm plantations. Global market demand also increases exports and competitiveness. This study aims (I) to analyze the development of Indonesia's CPO export volume from 2000 to 2020, (II) to analyze the factors that affect Indonesia's CPO export volume, and (III) to analyze the competitiveness of Indonesia's CPO with Malaysia. The research was conducted in December 2021-February 2022 using a quantitative descriptive method. The data type is secondary data in the form of time series for 2000-2020. The data consists of CPO export volume, production volume, international CPO price, sunflower seed oil price, CPO export value, Indonesian export value, CPO export value and Malaysian export value and CPO export value, and world export value. The percentage growth of Indonesia's CPO export volume is 7%, with a growth of 12% in export value. Simultaneously, production volume, international CPO prices, and sunflower seed oil prices influence Indonesia's CPO export volume. The volume of CPO production and international CPO prices partially have a significant and real effect, while the price of sunflower seed oil has no partial effect on the volume of CPO exports. Malaysia's RCA index was 2.17, and Indonesia's was 2.12, where Malaysia has a competitive advantage and higher CPO export competitiveness than Indonesia.

Keywords: CPO; competitiveness; export; Indonesian; Malaysian

ABSTRACT

Produksi crude palm oil semakin meningkat seiring peningkatan jumlah tanaman kelapa sawit. Permintaan pasar global turut meningkatkan ekspor dan daya saingnya. Penelitian ini bertujuan (I) menganalisis perkembangan volume ekspor CPO Indonesia tahun 2000 hingga 2020 (II) menganalisis faktor-faktor yang mempengaruhi volume ekspor CPO Indonesia (III) menganalisis daya saing CPO Indonesia dengan Malaysia. Penelitian dilaksanakan pada Desember 2021-Februari 2022 dengan metode deskriptif kuantitatif. Jenis data adalah data sekunder dalam bentuk time series periode tahun 2000-2020. Data yang digunakan terdiri dari volume ekspor CPO, volume produksi CPO, harga CPO internasional, harga minyak biji bunga matahari, nilai ekspor CPO dan nilai ekspor Indonesia, nilai ekspor CPO dan nilai ekspor Malaysia serta nilai ekspor CPO dan nilai ekspor dunia. Presentasi pertumbuhan volume ekspor CPO Indonesia sebesar 7% dengan persentase pertumbuhan nilai ekspor sebesar 12%, secara serempak volume ekspor CPO Indonesia dipengaruhi oleh volume produksi, harga CPO internasional dan harga minyak biji bunga matahari. Volume produksi CPO dan harga CPO internasional secara parsial berpengaruh nyata dan signifikan, sedangkan harga minyak biji bunga matahari tidak berpengaruh secara parsial terhadap volume ekspor CPO. Indeks RCA Malaysia sebesar 2,17 dan Indonesia sebesar 2,12 dimana Malaysia memiliki keunggulan kompetitif dan daya saing ekspor CPO yang lebih tinggi dari Indonesia.

Kata kunci : CPO; daya saing; ekspor; Indonesia; Malaysia.

INTRODUCTION

International trade is buying and selling activities in the global market due to differences in the resources of a country. International trade activities carried out become one of the contributors to the country's foreign exchange. Based on data from the Central Statistics Agency (2021), Indonesia's foreign exchange reserves in 2020 amounted to US\$135,897 million, an increase from the previous year, namely in 2019, which amounted to US\$129,183.28 million. The existence of a surplus in the production of goods from one country becomes an opportunity to meet the needs of other countries. According to Hutabarat (2011), export activities are a way to expand markets, absorb labor, and increase the productivity of a product. Export is an activity of selling domestic products abroad which is regulated by government regulations. Indonesia's exports consist of many sectors, including the agricultural sector. Based on the Central Bureau of Statistics (2020a), the primary commodities in the agricultural sector exported in 2019 were coffee, palm oil, and coal.

Crude palm oil, or *crude palm oil* (CPO), is a product widely exported to the agricultural sector as a processing

industry commodity. The destination countries for Indonesia's CPO exports are India, Spain, Singapore, and the Netherlands. High production volumes will support export activities, but various factors will influence demand and supply in the global market. This condition resulted in a high production volume but decreased exports. The determination of international CPO prices affects the volume and value of exports, where if the international CPO price increases, export activities will increase. According to Sugiyanto and Romadhina (2020), this statement is in accordance with the supply theory, if prices rise, the supply of goods will increase. If viewed from the consumer side, an increase in price will reduce demand, this is in accordance with the concept of exports. Rising international CPO prices will stimulate consumers to replace it with other substitute products. Paramahita (2017) added that a shift in consumption will increase the price of substitute products and affect demand for CPO on the global market.

Indonesia's CPO export market competitor is Malaysia. The global demand for CPOs originating from Malaysia is increasing every year. Based on data from the *Malaysia Palm Oil Board* (2019), the area of Malaysian oil palm

plantations in 2019 was recorded at 5,900,157 ha, with an export volume of 18,471,065 tonnes and an export value of RM 38,027.44 million. Malaysia's large CPO export volume indicates that Malaysia also has a comparative advantage and competitiveness in the global market. Based on this, this study aims to: 1) analyze the development of Indonesia's CPO export volume from 2000 to 2020, 2) analyze the factors that affect Indonesia's CPO export volume, and 3) analyze the competitiveness of Indonesian CPO with Malaysia.

METHODS

Time of Research

The research was carried out from December 2021 to February 2022.

Types of Data and Data Collection

The secondary data consists of Indonesian CPO export volume, Indonesian CPO production volume, international CPO prices, sunflower seed oil prices, CPO export values, Indonesian export values, CPO export values, and Malaysia export values, as well as CPO export values. And the value of world exports. The secondary data used is time series data for 2000-2020. Secondary data were obtained from the Central Statistics Agency, *World Bank*, *International Monetary Fund*,

Food and Agriculture Organization, and other related literature.

Data analysis

This study used secondary data from several sources, then analyzed descriptively and statistically using multiple linear regression analysis with the *Ordinary Least Square* (OLS) estimation method. A good regression model that meets the classical assumption test. The classical assumption test aims to ensure that the regression model is unbiased and reliable (Siyoto & Sodik, 2015).

CPO export competitiveness was analyzed descriptively through *Revealed Comparative Advantage* (RCA) calculations and *independent sample t-test analysis*. RCA calculation is done by comparing the proportion of the export value of a commodity in a country's total exports to the proportion of exports of that commodity in the global market. The RCA calculation is carried out on the export value of Indonesian and Malaysian CPO and the total value of these countries' exports compared to the value of CPO exports from the world and the total value of world exports (Granabetter, 2016). *Independent sample t-test* analysis was used to determine whether there was a significant

difference between the Indonesian RCA index and the Malaysian RCA index.

Multiple Linear Regression Analysis

Multiple linear regression analysis is an analysis that aims to examine the influence or relationship of a linear relationship between two or more independent variables with one dependent variable (Purnomo, 2016). The test is based on the following regression equation:

$$\text{Log}Y = a + b_1 \text{Log}X_1 + b_2 \text{Log}X_2 + b_3 \text{Log}X_3 + e$$

Information:

Y = CPO export volume (tons)

a = Constant

b_1 - b_3 = Regression coefficient of independent variable

X_1 = Indonesian CPO production volume (tons)

X_2 = International CPO Price (USD/mt)

X_3 = price of sunflower seed oil (USD/mt)

e = standard error/disturbing variable

Simultaneous Hypothesis Test (Test F)

The F test is used to simultaneously test the effect of the independent variables on the dependent variable (Purnomo, 2016). Testing can be done by comparing the $F_{\text{calculated}}$ value with the F_{table} value or using the significant

value in the SPSS analysis. The decision rule is that if the significance value is > 0.05 then H_0 is accepted and H_1 is rejected. Factors X_1 , X_2 , and X_3 simultaneously did not affect variable Y. If the significance value is ≤ 0.05 , then H_0 is rejected, and H_1 is accepted. Factors X_1 , X_2 , and X_3 simultaneously affect variable Y.

Partial Hypothesis Test (t-test)

The t-test aims to determine whether the independent variables partially have a significant effect on the dependent variable (Paramita *et al.*, 2021). Testing can be done by comparing the $t_{\text{calculated}}$ value with the t_{table} value or using the significant value in the SPSS analysis. The decision rule is that if the significance value is > 0.05 , then H_0 is accepted, and H_1 is rejected. Factors X_1 , X_2 , and X_3 partially do not affect variable Y. If the significance value is ≤ 0.05 , then H_0 is rejected, and H_1 is accepted. Factors X_1 , X_2 , and X_3 partially affect variable Y.

Calculation of Revealed Comparative Advantage (RCA)

RCA calculations are used to measure the comparative advantage of a commodity in a region. RCA is a method used to measure a country's export performance determined by its relative competitiveness against similar

products of other countries, assuming that other factors affecting export growth remain unchanged (Alatas, 2015). The RCA formula is as follows:

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

Satryana and Karmini, 2016)

Information :

X_{IK} : export value of the product I country K

X_{IM} : total export value of country K

X_{WK} : export value of world product I

X_{WM} : total value of world exports

Criteria, where if the RCA value ≥ 1 , then the competitiveness of certain products in a country has relatively strong competitiveness, and if the RCA value < 1 , then the competitiveness of certain products in a country is low.

Analysis of Independent Sample t-test

An Independent sample t-test is a test conducted to see the difference between the averages of two different populations. Decision-making rules, according to (Nuryadi *et al.*, 2017), are as follows:

1. If the significance value of *Levene's test for equality of variances* was ≥ 0.05 , then the variances of the two groups are the same. Taking decisions based on *sig. (2-tailed)* in the first row (*equal variances assumed*). If the significance

value of equal variances assumed is > 0.05 , then there is no difference.

2. If the significance value of *Levene's test for equality of variances* is ≤ 0.05 , then the variances of the two groups are different. Decision-making based on *sig. (2-tailed)* on the second line (*equal variance not assumed*). If the significance value of *equal variances not assumed* is ≤ 0.05 , then there is a significant difference.

RESULTS AND DISCUSSION

Development of Indonesian Palm Oil Exports

Export-import activities in Indonesia consist of two commodities: oil and gas and non-oil and gas. Exports of non-oil and gas commodities include agricultural, manufacturing, mining, and other sectors. The Central Bureau of Statistics (2021c) noted that in the period 2013-2020, the manufacturing sector was the sector that

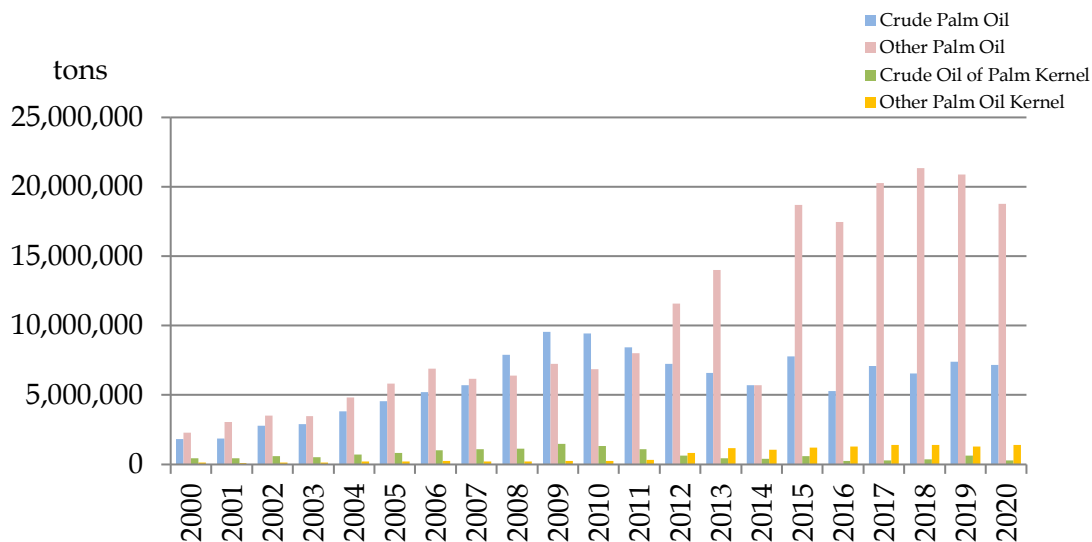
provided the largest *share* in the value of Indonesia's non-oil exports. The commodity that provides the largest *share* in this sector is palm oil. Palm oil and its various derivatives are also traded on the global market. The Central Bureau of Statistics (2021b) notes several groups with the *Harmonized System* (HS) code in the palm oil trade. *Crude Palm*

Oil (HS Code 15111000), *Other Palm Oil* (HS Code 15119000), *Crude Oil of Palm Kernel* (HS Code 15132110), and *Other Palm Oil Kernel* (HS Code 15132900) are the group with the most exports. The development of palm oil export volume based on the 2000 HS code until 2020 can be seen in Figure 1.

Figure 1. Development of Indonesian Palm Oil Export Volume

Based on Illustration 1, the *crude palm oil commodity* from 2000 to 2020 has a fluctuating export volume. The presentation of CPO export volume growth from 2000-2020 is 7%. When viewed on a *year-on-year* (YoY) basis, the decline in CPO export volume occurred

32%, 7%, and 3%. *Other palm oil* commodities have a growth percentage of 11% with several declines in export volume. The decline in export volume that occurred in 2003 was 1%; in 2007, it was 11%; in 2010 was 6%; in 2014 was 59%; in 2016 was 6%; in 2019 was 2%;



from 2010 until 2014 by 1%, 11%, 14%, 9%, and 13%, respectively. Another decline occurred in 2016, 2018, and 2020, with successive percentage decreases of

and in 2020, it was 10%. The *crude oil of palm kernel* commodity has a decrease in the percentage growth from 2000 to 2020 of 2%, this can be seen only in the period

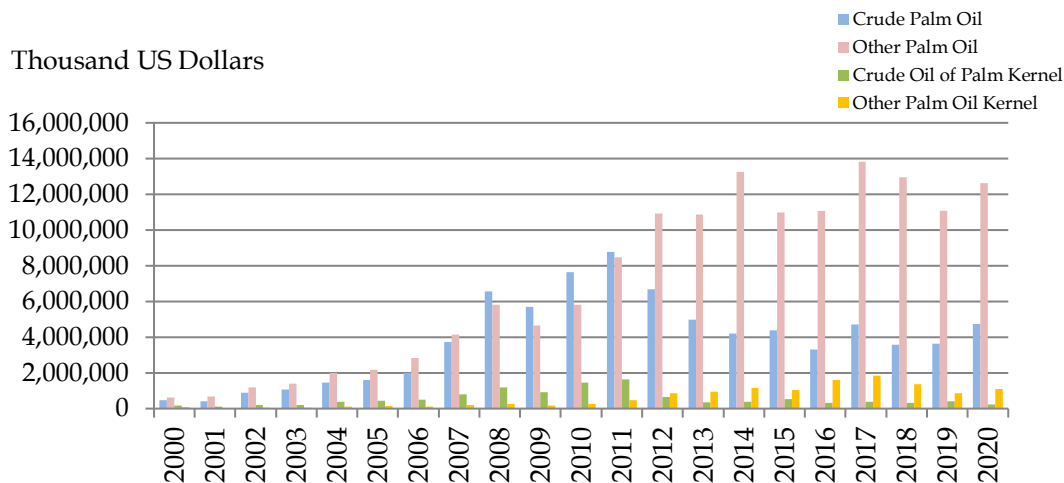
2006 to 2011 export volumes increased. Commodity *other palm oil kernel* has a growth percentage of 12% with several years of decreased export volume. The

development of the export value of palm oil based on the HS code from 2000 to 2020 can be seen in Figure 2.

Figure 2. Development of Indonesian Palm Oil Export Value

Based on Figure 2. it can be seen that the export value of palm oil from the four commodities fluctuated. The *crude palm oil* commodity has a percentage growth in export value from 2000 to 2020 of 12%. The presentation of growth in the export value of *other palm oil* was 16%, *crude oil of palm kernel* was 2%, and *another palm oil kernel* was 14%. Export volume and value are generally related to product prices in global

producer side, high prices on the global market will increase the supply of export products and the value of exports; conversely, if prices on the international market are low, then the volume and value of exports will decrease. When viewed from the demand side, low international prices will increase global market demand so that international prices and export values often fall, but export volumes



markets. Export-import activities will always pay attention to prices that apply internationally. This price is in accordance with Aprilia's opinion (2012) which states that when viewed from the

increase.

Factors Affecting Palm Oil Export Volume

Based on the results of the data analysis, the results of multiple linear regression tests were obtained using the

Statistical Product Service Solutions (SPSS)

tool, shown in Table 1.

Table 1. Multiple linear regression test results

Variable	Unstandardized Coefficients		t	Sig.
	B	std. Error		
(Constant)	1,913	0.574	3,334	0.004
CPO production volume	0.341	0.106	3,219	0.005
International CPO price	0.505	0.245	2,063	0.055
Price of sunflower seed oil	0.306	0.232	1.319	0.205
F count: 38.019				
Significance F count: 0.000				
Adjusted R Square: 0.847				

Source: Secondary Data (2022), *processed*.

Based on Table 1, the *adjusted R square* value is 0.847, which means that 84.7% of the production volume variable, CPO price, and sunflower seed oil price can explain the CPO export volume variable. In comparison, 15.3% is influenced by other variables outside the research. The significance value in the F test is 0.000, less than 0.05. It is concluded that the independent variables have a simultaneous effect on the dependent variable. The significance value of the calculated t variable price of the sunflower seed oil was more than 0.05, so partially the variable price of sunflower seed oil does not affect the volume of CPO exports. The significance value of t calculated CPO production volume is 0.005, and the international CPO price is 0.055, which means that there is a partial effect between CPO production volume and CPO export volume and international CPO prices

with CPO export volume. The regression equation of the factors that influence the volume of Indonesian CPO exports that is formed is as follows:

$$Y = 1.913 + 0.341X_1 + 0.505X_2 + 0.306X_3$$

Based on the regression equation, it can be seen that the constant in the equation is 1.913. The positive sign on the constant means that there is a unidirectional effect between the independent and dependent variables. If CPO production (X_1), international CPO prices (X_2), and sunflower seed oil prices (X_3) do not change, then the CPO export volume is 1,913. The coefficients X_1 , X_2 , and X_3 have a positive sign which means they have a unidirectional effect. These results were in accordance with the opinion of Janie (2012), which states that the positive sign on the regression coefficient means that the independent variable has increased, so

the dependent variable has also increased.

Effect of CPO Production Volume on CPO Export Volume

CPO production volume partially has a positive effect on export volume, where the significance value is less than 0.05. Generally, the increase in exports is due to an increase in production, because exports are carried out when the product is in a surplus state. Based on data from the Central Statistics Agency (2021b), CPO production has increased from 2000 to 2019. However, it will decrease in 2020, while export volume in the same period tends to fluctuate. Internal and external factors can cause this decrease. Internal factors that influence government policies related to export taxes. According to Pratiwi *et al.* (2013), export taxes are incurred by CPO producers to trade CPO to the global market. The applied export tax will increase in line with the increase in global CPO prices. Rising global CPO prices will stimulate producers to export more, so the government raises taxes to reduce the rate of exports from producers.

Implementing this policy needed to be more effective because the government only increased its export levies but did not limit the amount of

CPO to be exported. So, if producers are willing to pay high taxes, then exports will still be carried out. This matter impacted export activities, where the increased volume of CPO production has not increased exports. External factors that influence include the *Renewable Energy Directive* (RED) II policy by the European Union. This policy is a problem for Indonesia because it discriminates against palm oil products. After all, palm oil does not meet the set targets and is not environmentally friendly. Indonesia is considered not to meet the qualifications of RED II in article 17, paragraphs 3 and 5 because most of the land for oil palm plantations is on peat land, and there is much deforestation for oil palm land. This situation causes a decrease in demand for CPO in the global market. This situation was supported by the opinion of the Institute for Economic and Social Research FEB UI (2020), which states that absorption of CPO is carried out by diverting it to the domestic market by accelerating the target of blending biodiesel. The domestic market was done to absorb excess stock on the global market and stabilize prices.

Effect of International CPO Prices on CPO Export Volume

Based on the study results, the international CPO price partially affects the volume of CPO exports, where the significance value of t-critical is 0.055. Generally, if the global market price rises, it will increase the export of goods. The global market was in accordance with the concept of supply, where if the price of goods rises, the product supply will also increase. Based on the opinion of Kindangen *et al.* (2017), when viewed from the demand side, rising prices will reduce the demand for goods. Based on data from *the World Bank*, CPO prices increased in 2001-2004, and export volumes also increased in the same

Effect of Sunflower Seed Oil Prices on CPO Export Volume

Based on the study's results, the calculated significance value of the variable price of the sunflower seed oil is 0.205, which means that there is no partial effect between the price of sunflower seed oil and the export volume of CPO. The sunflower seed oil has a higher price than CPO. In the opinion of Sari *et al.* (2014), which explains that to produce 1 ton of *sunflower oil*, a land area of 1.52 ha is required. This production process is what makes production costs also incurred high. Consumers will choose substitute products at lower prices

period. Another comparison for CPO prices in 2019 to 2020 has increased from 601.37 USD/ton to 751.77 USD/ton. Compared to export volume, in 2019, CPO exports were 7,401,796 tons and decreased in 2020 to 7,170,956 tons. If CPO prices rise, it will stimulate producers to export. However, to make the domestic product available, the government will increase the cost of export taxes on CPO. This CPO tax follows the opinion of the Ministry of Trade (2015) which states that if more CPO is offered in the global market, then the domestic market and processed CPO products will be scarce.

when viewed from the price side. Consumption patterns and consumer tastes also affect demand. The Netherlands consumes *sunflower oil* even though *sunflower oil* is more expensive than CPO oil. The increase in the CPO price is generally in line with the increase in the *sunflower oil price*. However, the increase in the *sunflower oil price* does not impact the increase in the CPO price, so the impact of the increase in the *sunflower oil price* does not affect the export volume of CPO. This export volume is supported by the opinion of Muslih *et al.* (2013), which states that the factors affecting exports from the supply side are export prices,

domestic prices, real exchange rates, production, raw materials, and deregulation policies.

Indonesian Palm Oil Export Competitiveness with Malaysia

Competitiveness is a product's ability to specialize in entering and surviving in the global market. The strength of competitiveness can be seen through RCA calculations. RCA is a

method to measure the level of competitiveness of a product. The RCA index can describe the product's comparative advantage. Based on Musika and Tamami (2019) opinion, if a country has a comparative advantage in specific sectors, it may survive and compete in the global market with other countries. Indonesia's RCA index with Malaysia in CPO exports to the global market is shown in Table 2.

Table 2. Indonesian and Malaysian RCA Index

Year	Indonesian RCA Index	Malaysian RCA Index
2000	2.58	2,27
2001	2,41	2,27
2002	2.35	2.25
2003	2,26	2,24
2004	2,14	2,13
2005	2,16	2.08
2006	2,14	2,12
2007	2,28	2,14
2008	2.06	2.02
2009	2.01	2.02
2010	2,08	2,08
2011	2,09	2,05
2012	2,18	2,04
2013	2,08	2,03
2014	2,06	2,04
2015	2,05	2,02
2016	2,20	2,15
2017	2,16	2,10
2018	2,03	2,06
2019	2,07	2,11
2020	2,21	2,23

Source: Secondary Data (2022), *processed*.

Table 2 shows that from 2000 to 2020, the RCA index for Indonesia and Malaysia is greater than 1, which means that the two countries have strong

competitiveness in the global market. When viewed as a whole, Malaysia has a more extensive RCA index than Indonesia, which means that Malaysia's

CPO export competitiveness is greater. Malaysia's highest RCA index was seen in 2000 at 2.58. From 2018 to 2020, Indonesia has a more extensive RCA index than Malaysia. The largest RCA index in the last three years was seen in 2020, which was 2,226. According to Widyaningtyas and Widodo (2016), Malaysia's high RCA index is due to Malaysia's export-oriented policy and the expansion of plantation investment abroad. The area of Malaysian oil palm plantations which is smaller than Indonesia is not a problem for global trade. Based on the opinion of Ermawati and Saptia (2013), efforts to expand export markets, especially palm oil commodities, are efforts to restructure the economy to reduce poverty and economic inequality in Malaysia.

Based on the *independent sample t-test*, the significance value of *Levene's Test for Equality of Variances* was 0.144, which means that it is more significant than 0.05 so that the variances of the two groups are the same and decision-making is based on the *sig value*. (2-tailed) on *equal variances assumed*. The significance value of *equal variances assumed* is 0.134, meaning there is no significant influence between the Indonesian RCA index and the Malaysian RCA index. Based on the

average RCA index, Malaysia has a higher average of 2.17, while Indonesia has 2.12. A more extensive average RCA index means Malaysia has more substantial competitiveness than Indonesia. Indonesia's competitiveness is affected by the relatively large oil palm area, high production, and low production costs domestically. Weaknesses in Indonesia include the absence of adequate downstream industries to increase added value and government policies that are constantly changing. This added value made Malaysia more competitive in the market. Based on the opinion of Muslika and Tamami (2019), the things that must be owned by the state in order to increase its competitive advantage are technology, production efficiency, product differentiation, and the production process that is carried out using the *just-in-time system*.

CONCLUSION

The percentage growth in Indonesia's CPO export volume from 2000 to 2020 is 7%, with a growth in export value of 12%. Factors that influence CPO export volume (Y) simultaneously are CPO production volume variables (X1), international CPO prices (X2), and sunflower seed oil prices (X3). CPO export volume (Y) is

partially and significantly affected by the CPO production volume variable (X1) and international CPO price (X2). However, CPO export volume is not partially affected by the sunflower seed oil price variable (X3). CPO export competitiveness between Indonesia and Malaysia shows a number greater than one, which means that Indonesia and Malaysia have a comparative advantage and firm competitiveness in the global market. The average RCA index for Malaysia is 2.17, and the average RCA index for Indonesia is 2.12, meaning Malaysia has a more significant comparative advantage.

BIBLIOGRAPHY

- Alatas, A. (2015). Indonesian Palm Oil (CPO) Production and Export Trends. *Journal of Agribusiness and Rural Development Research*. 1(2), 114-124. DOI: <https://doi.org/10.18196/agr.1215>
- Aprilia, S., K. Sukiyono., & MM Romdhon. (2012). Effects of Rupiah Exchange Rate Instability on Indonesian Coffee Export Offers and Domestic Coffee Prices. *Agrisejournal*. 11(1), 51-60. DOI : <https://doi.org/10.31186/jagrisep.11.1.51-60>
- Central Bureau of Statistics. (2020a). Export Commodity Analysis 2012-2019 Agriculture, Industry, and Mining Sector. Retrieved from <https://www.bps.go.id/publication/2020/07/06/f0c3dc0cd9b14a04aec66ab/analysis-komoditas-Ekspor-2012-2019-sector-pertanian-industry-dan-pertambangan.html>
- Central Bureau of Statistics. (2021). Position of Foreign Reserves (Million US\$) 2018-2020. Retrieved from <https://www.bps.go.id/indikator/13/1091/1/position-cadangan-devisa.html>
- Central Bureau of Statistics. (2021b). Indonesian Palm Oil Statistics 2020. Retrieved from <https://www.bps.go.id/publication/2021/11/30/5a3d0448122bc6753c953533/statistik-kelapa-sawit-indonesia-2020.html>
- Central Bureau of Statistics. (2021c). Export Commodity Analysis 2013-2020 Agriculture, Industry and Mining Sector. Retrieved from <https://www.bps.go.id/publication/2021/07/06/c864f14600e93136e8919fce/analysis-komoditas-ekspor-2013-2020-sector-pertanian-industri-dan-pertambangan.html>
- Ermawati, T. & Y. Saptia. (2013). Indonesian Palm Oil Export Performance. *Commerce R&D Scientific Bulletin*. 7 (2), 129-147. DOI: <https://doi.org/10.30908/bilp.v7i2.104>
- Granabetter, D. (2016). Revealed Comparative Advantage Index: An Analysis Of Export Trade In The Austrian District Of Burgenland. *Journal of Economics and Social Research*. 2(2), 97-114. DOI: <https://doi.org/10.32728/ric.2016.22/3>

- Hutabarat, B. (2011). Free Trade in the ASEAN-China Region: Implications for Indonesian Agricultural Trade and Investment. *Journal of Agricultural Policy Analysis*. 9(1), 19-31. DOI: <http://repository.pertanian.go.id/handle/123456789/4480>
- Janie, D. (2012). Descriptive Statistics And Multiple Linear Regression With SPSS. Semarang University Press: Semarang.
- Ministry of Trade. (2015). Analysis of Indonesia's Strategy to Increase Market Access for Indonesia's Crude Palm Oil (CPO) Products to the United States. Center for International Trade Cooperation Policy Agency for the Study and Development of Trade Policy, Ministry of Trade. Jakarta.
- Kindangen, H., S. Hartono & LM Baga. (2017). Developments in Productivity, Land Area, Domestic Prices, Demand, and Exports of Indonesian Cocoa Beans in the 1990-2013 Period. *Journal of Management and Agribusiness*. 4(2), 118-126. DOI: <https://doi.org/10.17358/jma.14.2.118>
- Malaysian Palm Oil Board. (2019). Overview Of The Malaysian Oil Palm Industry 2019. Retrieved from <http://taicip.catas.cn/UploadFiles/yjbg/2020/3/202003251537582465.pdf>
- Muslih, AM, WA Zakaria & E. Kasymir. (2013). Factors Influencing CPO Exports in Lampung Province. *Journal of Agribusiness Sciences*. 1(2), 92-97. DOI: <http://dx.doi.org/10.23960/jiia.v1i2.234>
- Muslika, R., & NDB Tamami. (2019). Competitiveness of Indonesian Export Commodities (Rubber) to China. *Journal of Socioeconomics and Agricultural Policy*. 8(2), 194-205. DOI: <https://doi.org/10.21107/agrieconomicka.v8i2.5426.g3876>
- Nuryadi, TD Astuti., ES Utami & M. Budiantara. (2017). Fundamentals of Research Statistics. Sibuku media: Yogyakarta.
- Paramahita, AP (2017). Analysis of Factors Influencing Indonesia's Exports of Crude Palm Oil (CPO) 1984-2014. *Journal of Development Economics*. 9(1), 1-10. DOI: <https://jurnal.uns.ac.id/dinamic/article/view/36189>
- Paramita, RWD, N. Rizal., & RB Sulistyan. (2021). Quantitative Research Methods. Widya gama press: Lumajang, East Java.
- Purnomo, R. (2016). Economic And Business Statistical Analysis With SPSS. CV. Wave Group: Ponorogo.
- Sari, AR, DB Hakim., & L. Anggraeni. (2014). Analysis of the Influence of Non-Tariff Measures Exports of Indonesia's Crude Palm Oil (CPO) Commodity to Main Export Destination Countries. *Journal of Economics and Development Policy*. 3(2), 111-135. DOI: <https://doi.org/10.29244/jekp.3.2.2014.111-135>
- Satryana, M.H., & NL Karmini. (2016). Analysis of Indonesia's Tea Export Competitiveness to the ASEAN Market for the 2004-2013 Period.

Journal of Development Economics of Udayana University. 5(5), 598-613.
DOI:
<https://ojs.unud.ac.id/index.php/eep/article/view/20482>

Siyoto, S., & A. Sodik. (2015). *Basic Research Methodology*. Literacy Media Publishing: Yogyakarta.

Sugiyanto, & AP Romadhina. (2020). *Introduction to Micro and Macro Economics*. Advanced Indonesian Education and Social Foundation (YPSIM): Banten.

Widyaningtyas, D., & T. Widodo. (2016). Analysis of Indonesian CPO Market Share and Competitiveness in the European Union. *Journal of Resource Management Economics*. 18(2), 138-145. DOI : [10.23917/dayasaing.v18i2.4510](https://doi.org/10.23917/dayasaing.v18i2.4510)