



## Factors Affecting the Competitiveness of Indonesian Cocoa Exports

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**Abstract** Competitiveness is the economic ability of a country to innovate, increase productivity, and maintain its position in the global market. Competitiveness is one of the most important activities for the development of the Indonesian economy, high competitiveness helps countries to adapt to global changes, improve the welfare of their people, and achieve sustainable economic growth. International trade is a trading activity carried out by the people of a country with the people of another country on the basis of mutual agreement. Trading activities are activities related to transactions of goods and services domestically and between countries with the aim of gaining profit. With the advancement and development of technology, in the future, international economic and trade activities will also increase. This international trade occurs because a country is unable to meet its needs, this encourages a country to trade. International trade consists of export and import activities. Export is the activity of removing goods from the Indonesian customs area and services from the territory of the Republic of Indonesia. The customs area is the territory of the Republic of Indonesia which includes land, waters, airspace above it, and certain places in the exclusive economic zone and continental shelf. Cocoa is one of Indonesia's leading export commodities. Cocoa commodities consistently act as a source of foreign exchange that contributes to the structure of the Indonesian economy. This study aims to analyze competitiveness, the influence of production, and international prices on the competitiveness of Indonesian cocoa exports. The data used in the study are secondary time series data from 1990 to 2023. The analysis used in this study is Relevant Comparative Advantage (RCA) and multiple linear regression. Based on the results of the Relevant Comparative Advantage (RCA) analysis, the RCA value is greater than 1, indicating that Indonesian cocoa exports have strong competitiveness. Based on the results of multiple linear analysis, it shows that production does not have a significant effect on the competitiveness of cocoa exports, international prices have a positive and significant effect on the competitiveness of cocoa.

**Keywords** : Cocoa, Export, Production, Price, RCA

### 1. INTRODUCTION

Indonesia is one of the developing countries that adopts an open economic system, namely being able to trade between countries. Trade between countries or often referred to as international trade is a trade activity carried out by the people of one country with the people of another country on the basis of mutual agreement. Trade activities are activities related to transactions of goods and services domestically and between countries with the aim of making a profit. With the advancement and development of technology, in the future, economic activities and international trade will also increase.

This international trade occurs because a country is unable to meet its needs, this encourages a country to trade. International trade consists of export and import activities. Indonesia is one of the countries that relies on international trade activities to spur economic growth. The progress of a country's economy in international trade if the export value is higher than the import value, and vice versa if the export value is lower than the import value indicates a low contribution of a country's economy to international trade (Khizbullah, 2019).

Export and import activities arise from the awareness that no country is truly independent because each other needs each other. Generally, Indonesia exports goods with two types of commodities, namely oil and gas and non-oil and gas.

**Table 1. Development of Oil and Gas Export Value – Non-Oil and Gas 2017-2023 (US\$ Million)**

Year	Export Components	
	Oil and Gas	Non-Oil and Gas
2017	15,744.4	153,083.8
2018	17,171.7	162,841.0
2019	11,789.3	155,893.7
2020	8,251.1	154,940.7
2021	12,247.4	219,362.1
2022	15,998.2	275,906.1
2023	15,922.6	242,874.6

Source: Central Bureau of Statistics of Indonesia, 2024

Goods that are included in oil and gas include kerosene, gasoline, diesel and others. As for goods that are included in non-oil and gas, they include agricultural and plantation products such as cocoa, rubber, rice and others. According to data from the Central Statistics Agency, it can be seen that Indonesia's export activities are dominated by non-oil and gas sector exports. One of the efforts to increase Indonesia's exports is by developing exports, especially non-oil and gas sector products to encourage economic growth (Saragih et al, 2018).

The export value of the non-oil and gas sector decreased in 2023 to US\$ 242 million, which was initially US\$ 275 million in 2022, while exports of the oil and gas sector were far below the non-oil and gas sector figure, which was only US\$ 15 million in 2022. Based on these data, the non-oil and gas sector in Indonesia has a high potential to drive the country's economic growth. This proves that the plantation sub-sector commodity can be used as Indonesia's main export commodity. This can be seen from the contribution of the plantation sub-sector to Gross Domestic Product (GDP) with an average of 3.51 percent during the 2017-2021 period, while food crops were 3.03 percent, livestock 1.16 percent, horticulture 1.52 percent, and other livestock services 0.19 percent (Dahiri, 2022).

**Table 2. Growth in Non-Oil and Gas Product Exports (Percent) 2018-2023**

Year	Non-Oil and Gas Sector		
	Agriculture, Forestry and Fisheries	Processing Industry	Mining
2018	-6.54	4.01	20.50
2019	5.29	-2.11	-14.99
2020	14.02	2.91	-20.75
2021	2.99	35.18	92.14
2022	15.40	16.29	71.30
2023	17.29	18.67	50.05
Average	8.75	12.49	33.41

Source: Central Statistics Agency of Indonesia, 2024.

From Table 2 shows that the Agriculture, Forestry, and Fisheries sector has an average of 8.75, the processing industry sector 12.49 and mining 33.41 in the last 6 years. Of these three sectors, agriculture, forestry and fisheries is the lowest sector, this is due to several reasons, one of which is that Indonesian farmers still use traditional methods in their farming. The rapid urbanization process has also caused many people to move to cities, looking for work in the industrial and service sectors, thus reducing the number of workers in the agricultural sector. This causes the agriculture, forestry, and fisheries sector to have the lowest average in the last 6 years, when compared to other non-oil and gas sectors.

In the plantation subsector, there are several exported commodities, including palm oil, cocoa, tea, coffee, and sugar cane. Overall, the plantation subsector continues to show strong and consistent growth, with various superior products dominating product exports and playing an important role in the economy. The table of developments in agricultural export products in the plantation subsector from 2018-2023 is as follows:

**Table 3. Five Most Exported Products from the Indonesian Plantation Subsector's Agricultural Sector (Tons) 2018-2023.**

Year	Plantation commodity products				
	Palm oil	Rubber	Coconut	Coffee	Cocoa
2018	8,576,726	3,360,357	2,840,148	277,411.2	380,827
2019	9,424,049	3,301,405	2,839,852	355,766.5	358,481
2020	9,148,369	3,037,348	2,811,954	375,555.9	377,849
2021	9,024,296	3,045,314	2,777,530	384,510.6	382,712
2022	9,363,934	2,717,081	2,859,515	433,780.8	385,421
2023	9,820,893	2,392,933	3,510,000	276,280.8	340,190
Average	9,226,378	2,975,740	2,939,833	350,551.5	319,884.8

Source: Directorate General of Plantations, 2024.

From table 3, it can be seen that the cocoa commodity export product has the lowest export volume in the last 6 years, which is 319,884.8 on average cocoa in the last 6-year period. When compared to palm oil, rubber, and coconut commodities, cocoa is far below. This is because cocoa production in Indonesia has stagnated and is not comparable to other commodities. Many farmers have switched to other crops, such as palm oil or vegetables, which provide greater profits or are easier to care for. In addition, the lack of counseling and modern technology also hampers the increase in cocoa yields. This is very unfortunate, especially since Indonesian cocoa has the advantage that Indonesian cocoa has a higher melting point, which makes it very suitable for high-quality chocolate products. This higher melting point can provide a better texture in the final product and increase its appeal in the premium market. By utilizing the advantages of a higher melting point and extraordinary cocoa quality, Indonesia has a great opportunity to improve its position in the premium chocolate market. Through effective marketing strategies, farmer education, and collaboration with chocolate producers, Indonesia can strengthen the reputation of cocoa in the international market and increase added value for farmers and the cocoa industry as a whole.

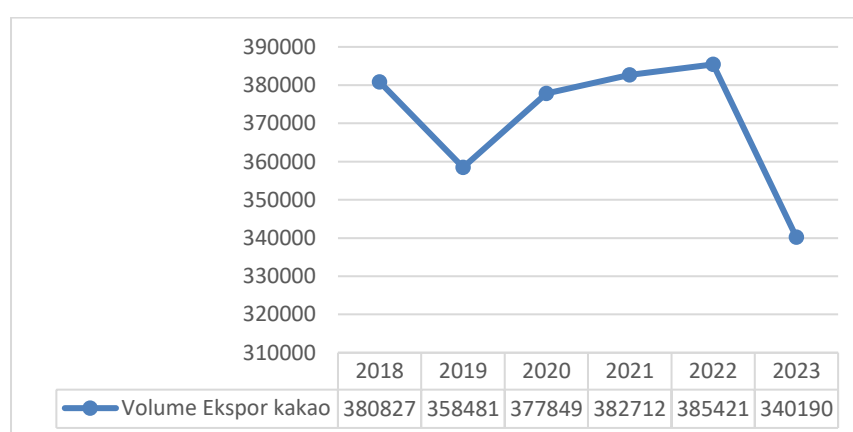
Cocoa is also one of the plantation commodities that plays a significant role in the Indonesian economy. Cocoa is also an export commodity of the agricultural subsector and the country's main commodity. The Indonesian Cocoa Council (DEKAINDO) also stated that in 2013, Indonesia became the world's third largest cocoa producer after Ivory Coast and Ghana, and was recognized and officially joined the International Cocoa Organization or ICCO.

Cocoa plants can grow in Indonesia because the climate and soil types in Indonesia are very suitable, so that Indonesia is able to produce and manufacture cocoa. Therefore, it is expected that the government will provide guidance to cocoa farmers in order to increase the harvest, cocoa quality and competitiveness of cocoa products. In addition, the problems faced in the development of cocoa in Indonesia are low productivity due to attacks by cocoa fruit borer (PBK) pests, low product quality, development of upstream and downstream cocoa products is not optimal, and continuity of cocoa supply has not been met. So that a study is needed on increasing the competitiveness of Indonesian cocoa, this is also in accordance with research on competitiveness that analyzes the competitiveness of Indonesian cocoa commodities in International Trade.

The results of the study show that in general Indonesia is specialized as an exporting country for all its cocoa products, both beans and processed cocoa. Almost all Indonesian cocoa products have comparative advantages, only a few cocoa products cannot be said to have comparative advantages (Hanafi & Tinaprilla, 2017). This aims to ensure that Indonesian cocoa

exports, both in the form of beans and processed cocoa, must have competitiveness in the form of comparative and competitive advantages in order to remain competitive and even become a leader in the international market. Comparative advantage (productivity) is a concept that a region or place that does not have an advantage can produce or export products that have the smallest comparative advantage. While competitive advantage in general is a broader advantage, including price, quality, strategy and policy advantages.

Less supportive cocoa beans, make cocoa commodities more exported than sold in the domestic market. Indonesian cocoa bean exports are also required to increase competitiveness in order to compete with other cocoa bean exporting countries. Increasing cocoa bean exports can be done by focusing on factors that influence exports. Several factors that can affect Indonesian cocoa exports include international cocoa prices and cocoa production. The data on the development of cocoa export volume in 2018 - 2023 is as follows

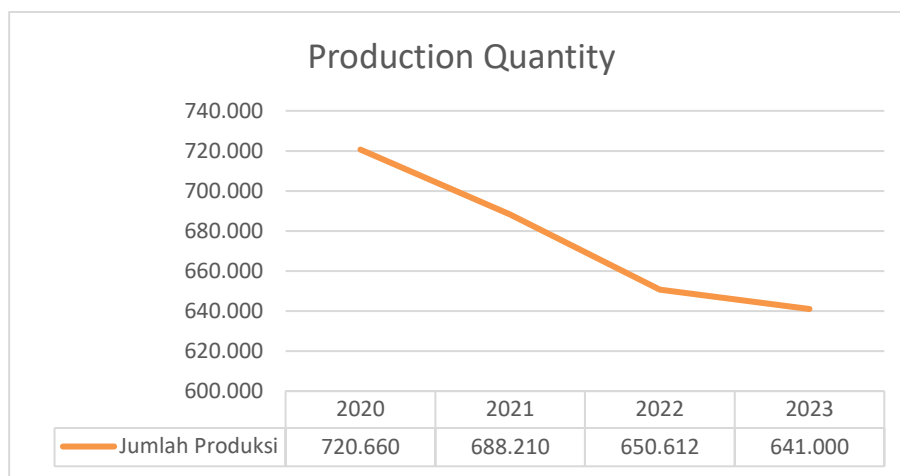


**Figure 1. Development of Indonesian Cocoa Export Volume (Tons) 2018-2023**

Source: Central Statistics Agency, 2024.

Based on Figure 1 above, it can be seen that Indonesia's cocoa export volume has fluctuated. In 2023, Indonesia's cocoa exports decreased from the previous year, namely 340,190 tons from 385,981 tons in 2022. This was caused by pests that attacked cocoa plants and land conversion for other uses, the availability of production resources and good commodity quality were the main drivers of the increase in exports (Central Statistics Agency 2021).

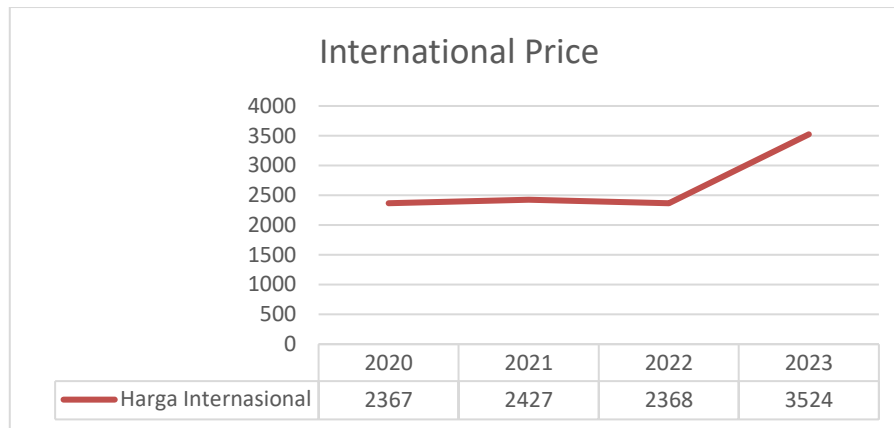
In Figure 2 below, it can be seen that the amount of cocoa production in 2023 has decreased, namely from 650,612 tons in 2022 to 640,000 tons. With the decline in production, a country will not be able to meet market needs, this can cause a decrease in competitiveness because a country cannot meet the market share of both the domestic and international markets, if production decreases, it will cause production costs to increase, the product cannot compete with prices in the market share, and this is also followed by the availability of commodities which are decreasing. Many factors underlie the decline in production, one of which is that old trees cannot bear fruit optimally, obstacles to maintenance and care are also the main focus so that trees are not easily attacked by pests and diseases.



Source: Central Bureau of Statistics, 2024

**Figure 2. Development of Indonesian Cocoa Export Production (Tons) 1990 – 2023.**

Human desires are fulfilled and supported by purchasing power, then demand and supply will be in balance with the price variable. If there is an increase in the price of a product, the availability of goods will be increased by the producer. However, if the price of goods is getting more expensive, it can result in a decrease in the level of consumption (*ceteris paribus*). With the increase in international cocoa prices, Indonesia can export more cocoa to destination countries. One of the factors that causes the price of cocoa in Indonesia to fluctuate unstably is the level of world cocoa consumption, where prices will increase due to the high level of consumption (Septyana, 2022). Based on Figure 1.3, the international price of cocoa increased in 2023, namely from US \$ 2,368 / ton in 2022 to US \$ 3,524 / ton in 2023.



Source: International Cocoa Organization (2022).

**Figure 3. Development of International Cocoa Prices (US\$) 1990-2022.**

## 2. METHOD

This study uses a quantitative approach method and is associative in nature. This quantitative method is used because the data used is data in the form of numbers. In addition, data processing is carried out using statistical analysis. So it can be said that this research is quantitative research. According to Hardani (2020), quantitative research is a systematic scientific research on parts and phenomena and their relationships that uses quantitative data in the form of numbers and statistics.

This research method is also associative, because this study is used to find the effect of independent variables on dependent variables. The study was conducted to determine the relationship of several variables, namely the amount of cocoa production, international cocoa prices, cocoa exports to the competitiveness of cocoa in Indonesia.

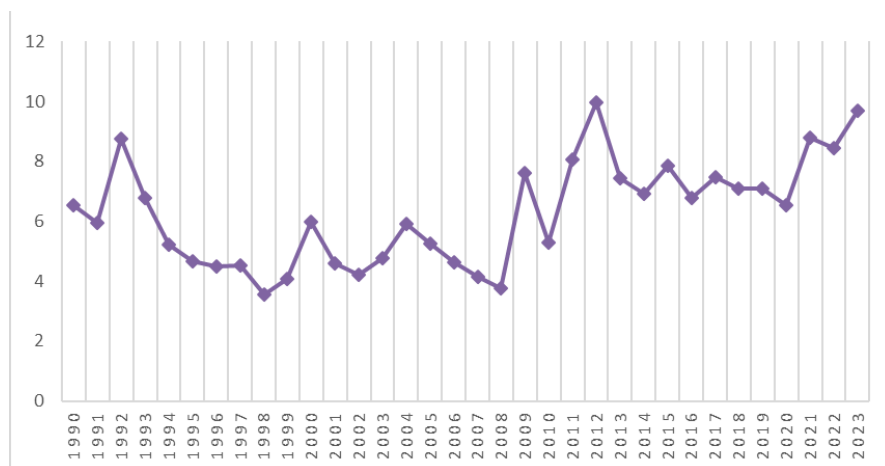
This study uses time series data. Time series data is data obtained from observations of one object from several time periods. The data used is in the last 34 years, namely from 1990 - 2023. The analysis used in this study is Relevant Comparative Advantage (RCA) and multiple linear regression.

### 3. RESULTS AND DISCUSSION

#### Inferential Analysis of Research Data

##### Revealed Comparative Advantage (RCA) Analysis Results

The comparative advantage analysis in this study uses the RCA index analysis method. Ballasa (1965) stated that a country that has competitiveness in producing certain commodities will be superior when compared to other countries, meaning that the country produces commodities at the lowest cost opportunity compared to other countries. The RCA calculation is used to determine the level of competitiveness of Indonesian cocoa export commodities in the global or world market. The competitiveness index shows the comparison of Indonesian cocoa exports from year to year. In the RCA calculation, if the RCA index value  $> 1$  indicates that Indonesia for cocoa commodities is said to have a comparative advantage or has competitiveness and if the RCA value  $< 1$  indicates that Indonesia for cocoa commodities can be said that Indonesia does not have a comparative advantage. The RCA value of Indonesian cocoa in 1990-2023 is as follows.



Source: data processed by Excel.

**Figure 4. Development of the RCA Index of Indonesian Cocoa Export Competitiveness 1990-2023 (US\$).**

The results of the RCA analysis in Figure 4 above show that Indonesia has a comparative advantage for Indonesian cocoa exports in the international market where the RCA index  $> 1$  in the period 1990-2023. If the RCA value is greater than 1, it means that Indonesian cocoa is competitive. A Revealed Comparative Advantage (RCA) Index value of less than 1 indicates that the commodity in the country's total exports is smaller than the average share of the commodity in question in exports of all countries (the world). This means that the country



does not have a comparative advantage or does not have competitiveness so that it does not specialize in the commodity group in question.

The highest Revealed Comparative Advantage (RCA) Index occurred in 2012, which was 9,978, while the lowest Revealed Comparative Advantage (RCA) Index occurred in 2013, which was 9,978. In 1998, it was 3,542. From Appendix 2, it can be seen that overall the RCA index value experienced fluctuating movements and tended to increase. Indonesian cocoa has made a major contribution to the need for cocoa in the international market and supports the world chocolate industry. Based on data from the International Cocoa Organization (ICCO), Indonesia is one of the five largest cocoa producing countries in the world. In 2023, Indonesia produced around 300,000 to 350,000 tons of cocoa, making it one of the main global producers. According to data from the Indonesian Central Statistics Agency (BPS), in 2022, Indonesia exported cocoa with a value of around \$2.5 billion. The main destination countries for Indonesian cocoa exports include the United States, Germany, the Netherlands, and other countries in Europe and Asia. Data from ICCO shows that Indonesia contributes around 15% of the total global cocoa production. This places Indonesia as one of the main suppliers of cocoa in the international market.

#### Multiple Linear Analysis Test Results

This study uses a multiple linear regression equation model to determine the effect of independent variables, namely Production (X1), and International Prices (X2) on the dependent variable, namely the competitiveness of Indonesian cocoa exports (Y). The test results are presented in a recapitulation of multiple linear regression analysis using SPSS in Appendix 7.

**Table 4. Test Results of the Influence of Production Amount and Price on the Competitiveness of Indonesian Cocoa Exports.**

Model	Standard Coefficient		Standard Coefficient	T	Sig.
	B	Standard Error	Beta		
1 (constant)	2.113	.146		.000	1,000
Production Quantity (X1)	-.355	.197	-.355	-1,805	.081
International Price (X2)	.736	.197	.736	3,743	<.001

Source: Appendix 7

Based on the results obtained from the recapitulation of multiple linear regression data in table 4, the following equation can be made.

$$Y = 2.113 - 0.355 + 0.736 \dots \dots \dots (4.1) X_1 X_2$$

Before the equation is used to determine the magnitude of the influence of each independent variable on the dependent variable (cocoa export competitiveness).Indonesia). Then several classical assumption tests were carried out first.

**Classical Assumption Test Results**

The classical assumption test is needed so that the regression model used as an estimation tool is not biased. The following is a classical assumption test in this study:

1) Normality Test

Normality test is conducted to determine whether in a regression model, an independent variable (X) and dependent variable (Y) or both have a normal or abnormal distribution (Ghozali, 2016). The normality or abnormality of data distribution can be done using the Kolmogorov Sminov test method. The test results show an asymp sig (2-tailed) value of 0.200 which means it is greater than alpha ( $\alpha = 0.05$ ). So it can be concluded that the data in the test model has been normally distributed. The results of the normality test in this study can be presented in Appendix 3.

**Multicollinearity Test**

The multicollinearity test aims to determine whether or not there are independent variables that have similarities with other independent variables in a model. A good regression model should not have correlation between independent variables or multicollinearity.

Based on the data processing in Appendix 4, it is known that the tolerance value of the production quantity variable (X1) and international price (X2) shows a tolerance value greater than 0.1, and the VIF (variance inflation factor) value shows a value less than 10. So it can be concluded that this study does not experience multicollinearity.

**Autocorrelation Test**

The autocorrelation test aims to test whether in the regression model there is a correlation between the disturbance error in period t and the disturbance error in period t-1.(previously). A good regression model is a regression that is free from autocorrelation. A regression model is said to be free from autocorrelation if it meets the criteria  $du < DW$ . Autocorrelation results can be seen in appendix 5.

The test results show that the variables studied have a dw value of 1.987. With the number of data ( $n$ ) = 34 and the number of independent variables ( $k$ ) = 2 and  $\alpha = 0.05$ , the  $d_u$  figures are obtained = 1.5701 and  $d_l = 2.4299$ . Because the dw value of 1.987 lies in the area of no autocorrelation, either positive or negative, or the regression model does not contain autocorrelation symptoms, it can be formulated with the existing criteria ( $d_u$ ) and  $(4-d_u)$ . This shows that the data used in this study can be concluded that in this study there is no autocorrelation.

### **Heteroscedasticity Test**

According to Ghozali (2016:125) the heteroscedasticity test aims to test whether in the regression model there is inequality of variance from the residuals of one observation to another. One way to detect heteroscedasticity problems is by using the Glejser test. The Glejser test is carried out by regressing between independent variables with residuals of more than 0.05, then there is no heteroscedasticity. The results of the heteroscedasticity test can be seen in Appendix 6.

Based on the results of the Glejser test on the heteroscedasticity test In Appendix 6, it can be seen that the significance value of variable X1 is 0.996, the significance value of X2 is 0.937 because the significance value of each independent variable is greater than or above 0.05, which means that there is no symptom of heteroscedasticity. Thus, it can be concluded that in the regression model of this study there is no symptom of heteroscedasticity.

## **4. HYPOTHESIS TESTING RESULTS**

### **Simultaneous Regression Coefficient Test (F Test)**

Simultaneous significance test is used to determine the relationship between independent variables simultaneously or simultaneously to the dependent variable. The F statistical test shows whether all identified independent variables (production quantity, and international prices) are appropriate to be used to predict the competitiveness of Indonesian cocoa exports. The decision making of the F test is seen from comparing  $F_{table}$  and  $F_{count}$ . The F test can be formulated as follows:

#### 1) Hypothesis Formulation

Ho:  $\beta_1 = \beta_2 = 0$ , meaning that Production (X1), and International Price (X2) do not has a significant simultaneous effect on the competitiveness of cocoa exports Indonesia.

H1: one of  $\beta_i \neq 0$  ( $i = 1,2$ ), means Production (X1), International price (X2)

has a simultaneous and significant effect on the competitiveness of cocoa exports Indonesia.

2) Real Level

The real level used in this study is  $\alpha = 5\%$  with a degree of freedom  $df = (k-1), (nk) = (2-1) (34-3)$ , then the F table is 3.30.

3) Determining the magnitude of f-count

The F-count obtained from the SPSS program regression results was 7,394.

4) Testing Criteria

If  $>$ , then  $H_0$  is rejected and  $H_1$  is accepted.  $F_{hitung} > F_{tabel}$

If  $F_{count} \leq F_{table}$ , then  $H_0$  is accepted and  $H_1$  is rejected.

5) Conclusion

Based on the SPSS Fcount output results of 7.394, which is greater than Ftable 3.30,  $H_0$  is rejected and  $H_1$  is accepted. This means that the Production (X1) and International Price (X2) variables simultaneously have a significant effect on the Competitiveness of Indonesian Cocoa Exports in 1990 - 2023, in line with previous research conducted by Edi Pramono and Dini S. Nurjanah (2017) entitled "Analysis of Export Competitiveness and the Influence of Policies on Indonesian Agricultural Sector Exports" which states that government policies have a significant influence on the competitiveness of agricultural sector exports, and improvements in policies can significantly increase the competitiveness of cocoa exports. Research by Iwan Pranata and Rini K. Ananda (2019) entitled "Factors Affecting the Competitiveness of Agricultural Commodity Exports: Case Study on Indonesian Cocoa Exports" with research results showing that factors such as production costs, product quality, and trade policies have a significant impact on the competitiveness of cocoa exports. This research provides insight into how these factors contribute to Indonesia's competitive position in the global market.

Research by Yudi Setiawan and Ahmad Fauzi (2020) entitled "The Influence of Macroeconomic Factors on the Competitiveness of Indonesian Cocoa Exports" This study analyzes the influence of macroeconomic factors such as inflation, exchange rates, and economic growth on the competitiveness of Indonesian cocoa exports. The results of the analysis show that these macroeconomic factors have a significant effect on competitiveness, with exchange rates and inflation being the most dominant factors. Next is research by Santi Lestari and Budi Setiawan (2022) entitled

"Competitiveness of Indonesian Cocoa Exports: Analysis of Key Factors and Trade Policies" This study evaluates the key factors that influence the competitiveness of Indonesian cocoa exports, including trade policies and investment in infrastructure. The results of the analysis show that trade and investment policies play an important role in increasing the competitiveness of Indonesian cocoa exports, with a significant influence on Indonesia's position in the international market.

### **Partial Regression Coefficient Test (t-Test)**

#### **The Influence of Production (X1) on the Competitiveness of Indonesian Cocoa Exports (Y)**

##### 1) Hypothesis formulation

H0:  $\beta_1 = 0$  means that cocoa production has no significant partial effect on the competitiveness of Indonesian cocoa exports.

H1:  $\beta_2 < 0$  means that cocoa production has a partial negative and significant effect on the competitiveness of Indonesian cocoa exports.

##### 1) Real Level

The real level is  $\alpha = 5\% = 0.05$  with freedom  $df = (34-2-1)$  then  $= 1.696t_{tabel}$

##### 2) Determining the magnitude of t-count

The t-count obtained from the SPSS program regression results was  $-1.805$

##### 3) Testing Criteria

H0: accepted if:  $\geq$  - or significant value  $\geq \alpha (0.05)t_{hitung}t_{tabel}$

H0 is rejected if:  $\leq$ - or significant value  $\leq \alpha (0.05)t_{hitung}t_{tabel}$

##### 4) Conclusion

The probability value of production  $> \alpha 0.05$  is  $0.081 > 0.05$  and  $<$  is  $-1.805 < 1.696$ , this shows that the production variable does not have a significant partial effect on the competitiveness of Indonesian cocoa exports in 1990-2023.  $t_{hitung}t_{tabel}$

#### **The Influence of International Prices (X2) on the Competitiveness of Cocoa Exports Indonesia (Y)**

##### 1) Hypothesis formula

H0:  $\beta_1 = 0$  means that international prices partially have no significant effect on the competitiveness of Indonesian cocoa exports.

H1:  $\beta_2 < 0$  means that the international price of cocoa has a partial negative and significant effect on Indonesian rice imports.

1) Real Level

The real level is  $\alpha = 5\% = 0.05$  with freedom  $df = (34-2-1)$  then  $= 1.696t_{table}$

2) Determining the magnitude of t-count

The t-test obtained from the SPSS program regression results was 3.743

3) Testing Criteria

H0: accepted if:  $t_{(-count)} \geq -t_{table}$  or significant value  $\geq \alpha (0.05)$

H0 is rejected if:  $t_{(-count)} \leq -t_{table}$  or significant value  $\leq \alpha (0.05)$

4) Conclusion

The probability value of International Price  $< \alpha 0.05$  is  $0.001 < 0.05$  and  $t_{(-count)} > t_{table}$  is  $3.743 > 1.696$ , this shows that the international price variable has a significant partial effect on the competitiveness of Indonesian cocoa exports in 1990-2023.

## 5. DISCUSSION OF RESEARCH RESULTS

### The Influence of Production (X1) on the Competitiveness of Indonesian Cocoa Exports 1990-2023 (Y)

Based on the results of the statistical calculations that have been presented previously, it is known that Production has a negative and insignificant effect on the Competitiveness of Indonesian Cocoa Exports. Thus indicating that although the production volume is high, it does not cause a significant change in the competitiveness of cocoa exports. According to the Perfect Competition Theory by Adam Smith (1776), where increasing production will not significantly increase competitiveness. With this, the decrease in the volume of cocoa production in Indonesia can also potentially increase the quality of the cocoa produced. By reducing the amount of cocoa produced, farmers can focus more on caring for and managing plants more intensively. This allows them to implement better agricultural practices, increase attention to the selection of superior cocoa varieties, and carry out more careful processing. As a result, the cocoa produced tends to have higher quality and richer flavors, thus increasing its appeal in the global market and providing added value to Indonesian cocoa products. This is also in line with research conducted by Bennett (2012), stating that small-scale production is often associated with greater attention to quality, especially in the context of organic and premium cocoa production. O'Connell (2015) in his research explored how production scale affects cocoa quality in West Africa. This study shows that in some cases, small-scale cocoa production can contribute to higher quality due to more controlled processes and attention to detail in each batch.

Smith (2018), in this study compared quality control between small and large-scale cocoa producers. The results showed that small-scale producers often have better quality control and can produce higher quality products. Gomez (2020) in his study assessed how cocoa quality affects export performance in Latin America, with an emphasis on small-scale production. The results of this study indicate that small-scale production can improve product quality which ultimately increases export competitiveness.

Another reason is because soil quality and environmental conditions greatly affect cocoa yields. In some areas in Indonesia, the soil is not ideal for cocoa growth, or there is a decline in soil quality due to unsustainable agricultural practices, as well as a lack of knowledge about handling plant diseases and pests. This results in low cocoa commodity production so that it does not meet the demand for cocoa. The results of this study are supported by Mejaya (2016) who stated that production does not have a significant effect on competitiveness, in the research of Joko B and Sari W (2022) also stated the same thing, Wawan and Risa (2021), Fitriani and Irfan (2020), Ahmad and Nurdin (2019), Daniel and Lilyana (2022), Marwan and Budiyanto (2019) stated the same thing, namely that cocoa production is not significant for export competitiveness. Therefore, to increase the competitiveness of Indonesian cocoa exports, there needs to be an integrated effort that includes improving product quality, cost control, improving infrastructure, increasing production efficiency, effective operational cost management, and supportive government policies. This is in line with the research of Tania and Rizal (2020). This study analyzes the effect of cocoa production volume on export competitiveness. The results of the analysis show that although production volume has increased, its impact on Indonesia's cocoa export competitiveness is not significant. Other factors such as product quality and government policies have a greater influence on competitiveness.

### **The Influence of International Prices (X<sub>2</sub>) on the Competitiveness of Indonesian Cocoa Exports 1990-2023 (Y)**

Based on the results of the statistical calculations that have been presented previously, it is known that the International Price of Cocoa has a positive and significant effect on the competitiveness of Indonesian cocoa exports in 1990-2023. So the hypothesis is accepted. Thus, competitive international prices can increase competitiveness by attracting international buyers, increasing profit margins, and allowing for adjustments to production costs. Thus, this study is in line with previous studies conducted by Kose, et al. (2018), Rafael, et al. (2020), Rabah, et al. (2019), Khalid, et al. (2022). These studies show that international prices have a significant effect on export competitiveness. Fluctuations in international prices can affect the

relative price of products, profit margins, and export decisions, all of which have an impact on product competitiveness in the global market. Musfiah (2019) also stated that the International Price of Cocoa has a significant positive effect on the competitiveness of Indonesian Cocoa. This is also in accordance with the theory of the law of supply which states that prices and products offered are positively related, meaning that if the price of a product increases, the goods offered by producers also increase and vice versa if the price of the product decreases, the supply will also decrease. Producers will increase their production because they will get more profit.

## **6. CONCLUSION**

Based on the research results presented in the previous section, the following conclusions can be drawn:

- 1) Based on the results of the RCA index analysis, it shows that from 1990 to 2023, the value of Indonesia's cocoa export competitiveness was greater than one ( $>1$ ), with an average RCA value of 6,064, this shows that Indonesia's cocoa commodities have a comparative advantage and are competitive.
- 2) Based on the results of the simultaneous regression coefficient significance test (F-test), the Production and International Price variables simultaneously have a significant effect on the competitiveness of Indonesian cocoa exports. With the determinant coefficient test ( $R^2$ ) shows a value of 0.775, which means that 77% of the variation in the competitiveness of Indonesian cocoa exports can be influenced by changes in production variables and international prices. The remaining 23% is influenced by other variables.
- 3) Based on the results of the partial t-test analysis, it shows that:
  - a) Cocoa production partially does not have a significant effect on the competitiveness of Indonesian cocoa exports. The coefficient of the variable amount of production on the competitiveness of Indonesian cocoa exports is negative, meaning that the higher the production of Indonesian cocoa, the less it will affect the competitiveness of Indonesian cocoa exports. This also means that conversely, the less Indonesian cocoa production can potentially increase the quality of the cocoa produced. By reducing the amount of cocoa produced, farmers can focus more on more intensive care and management of plants. This allows them to implement better agricultural practices, increase attention to the selection of superior cocoa varieties, and carry out more careful processing. As a result, the cocoa produced tends to have higher



quality and richer flavors, thus increasing its appeal in the global market and providing added value to Indonesian cocoa products.

- b) International cocoa prices partially have a positive and significant effect on the competitiveness of Indonesian cocoa exports. The coefficient of the international price variable is positive, which means that the higher the price of cocoa in the international market, the more competitive Indonesian cocoa exports will be.

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