

THE EFFECT OF PRODUCTION, PRICE, AND EXCHANGE RATE ON EXPORT VOLUME (STUDY ON INDONESIAN COCOA BEAN EXPORT VOLUME FOR THE PERIOD JANUARY 2019-DECEMBER 2022)

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ABSTRACT

This study aims to determine the Effect of Production, Price, and Exchange Rate on the Export Volume of Cocoa Beans in Indonesia for the January 2019 – December 2022 Period in Jakarta. Data collection was carried out in descriptive quantitative research by distributing offline questionnaires to 100 respondents who knew cocoa beans in Indonesia with those domiciled in Jakarta. Data analysis was processed using multiple regression calculations through SPSS version 22. The results obtained from this study are Production (X1), Price (X2), and Exchange Rate (X3) have a significant influence on Export Volume (Y) either partially or stimulantly.

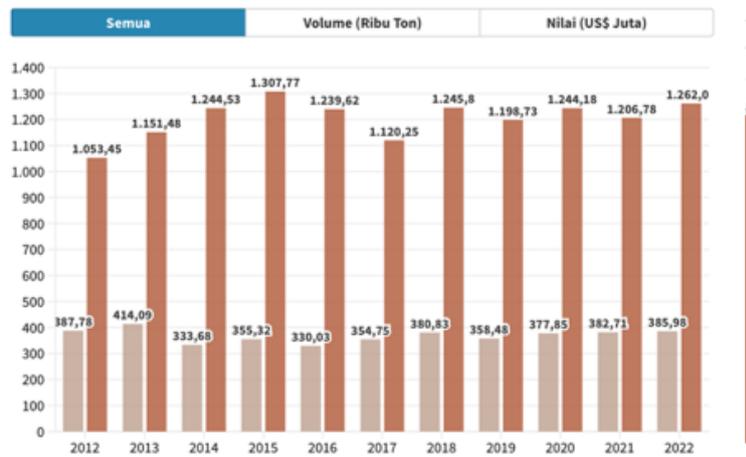
Keywords: *production, price, exchange rate, export volume, cocoa export, cocoa*

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INTRODUCTION

Cocoa beans in Indonesia have an important role in the national economy. As the third largest cocoa producing country in the world, after Côte d'Ivoire and Ghana, Indonesia utilizes cocoa as one of its main export commodities. Cocoa bean exports contribute significantly to the country's foreign exchange. Central Sulawesi Province is the largest cocoa producer in Indonesia with production reaching 128,154 tons and plantation land covering an area of 279,298 hectares. Followed by Southeast Sulawesi with production of 115,023 tons and South Sulawesi with 113,366 tons. This region contributes significantly to Indonesia's total cocoa production which is recorded at 720,660 tons (Advertorial, 2020).

As one of the major plantation commodities, cocoa plays a vital role in the Indonesian economy and as a significant export commodity, cocoa contributes to the country's foreign exchange, along with oil and gas. Indonesia, as the third largest cocoa producer and exporter in the world after Ghana and Côte d'Ivoire, has a large domestic market for cocoa beans, especially the cocoa processing industry in Java. Cocoa plantations are widespread in Indonesia, with Central Sulawesi as the main center. Indonesian cocoa bean exports mainly go to Malaysia, the United States, India, Belgium, Germany, Japan, the Philippines, and Korea (Rudy Setiawan, 2019).



Source: Central Statistics Agency (BPS)

Figure 1. Export of Cocoa and Processed Products

Source: www.dataindonesia.id, (2023)

Indonesia boasts cocoa as a superior product in the international market. This commodity, which is the basic ingredient of chocolate, has been sold to different parts of the world. According to the Central Statistics Agency (BPS), total exports of cocoa and its derivatives from Indonesia recorded 385.98 tons worth US\$ 1.26 billion in 2022. This figure shows an increase of 0.85% from 2021, where exports reached 382,712 tons with a value of US \$ 1.21 billion.

According to data from the Central Statistics Agency (BPS), in 2022 cocoa production in Indonesia reached 667,300 tons, down by 3.04% from 2021 which was recorded at 688,200 tons. From 2019 until now, there has been a downward trend in the production of this chocolate base ingredient. One of the declines is influenced by the large number of cocoa trees that have aged and become less productive (Advertorial, 2023).

Despite the decline in cocoa production in Indonesia, Dekaindo (Indonesian Cocoa Council) revealed that various factors contributed to this decline. One of them is the reduction of cocoa farming area from 1.6 million hectares to 1.2 million hectares. In addition, damage and aging in cocoa plants also have a significant impact on decreasing production. Chairman Dekaindo urged the government to be serious in addressing this problem and improving production performance, both through intensification and extensification. The goal is not only to meet domestic needs, but also to meet global market demand. Criollo cocoa is one of the first varieties cultivated in Indonesia. Based on *Graafland* records in 1949, cocoa plants have existed in Indonesia since 1826, in the era of "*cultuurstelsel*". At that time, cocoa was still classified as a plant that grew wildly and had not been systematically cultivated. However, over time, farmers began to cultivate and develop cocoa cultivation (Karim et al, 2020).

With the decline in production, the development of cocoa prices is influenced by various complex factors, where cocoa supply has a significant influence, along with demand. Factors such as purchase contracts, deliveries, and prices that have been agreed one year in advance, play an important role. If there is a decline in production in a year due to climate change, pest attacks, disease, or political instability, this can cause panic among exporters who are worried about not being able to meet contract volumes.

Year-end cocoa stocks are often used to estimate prices for the following year. If stocks are abundant, prices usually tend to fall because exporters feel secure with existing reserves. Conversely, if stocks are limited, prices tend to rise.

In the long term, it is estimated that global cocoa production will continue to increase as major producing countries continue to expand their cocoa plantation areas. In this situation, consumers, who have an important role in pricing, tend to choose high-quality cocoa at a cheaper price. (Indonesian Coffee and Cocoa Research Center, 2010)

And for the cocoa exchange rate in Indonesia has a crucial role in regulating the dynamics of the country's exports. As one of the largest cocoa producers in the world, exchange rate fluctuations can have a significant impact on Indonesia's cocoa export prices. When the rupiah strengthens against the US dollar for example, Indonesian cocoa export prices become higher for international buyers, which may affect demand. Conversely, the weakening of the rupiah can make export prices more competitive in the global market, potentially increasing foreign demand. Other factors affecting exchange rates and exports are global economic conditions, international trade policies, and domestic political stability. Therefore, effective exchange rate management is important to ensure the sustainability and competitiveness of the Indonesian cocoa industry in the world market.

In a study by Puspita et al (2015) entitled *The Effect of Domestic Cocoa Production, International Cocoa Prices, and Exchange Rates on Indonesian Cocoa Exports to the United States (Study on Cocoa Exports for the 2010-2013 Period)* concluded that the exchange rate affects 38.1% of variables tied to Indonesian cocoa exports to the United States.

In a subsequent study conducted by Putra and Sutrisna (2017) entitled *The Effect of Production and Inflation on Exports and Economic Growth in Indonesia* concluded that in Indonesia, production has a significant positive influence on exports, while inflation has a negative but not significant effect. That is, an increase in production tends to be followed by an increase in the value of exports, while an increase in inflation tends not to have a significant impact on the decrease in the value of exports. Similarly, production affects economic growth positively and significantly, whereas inflation has an insignificant negative influence. This indicates that any increase in production will be accompanied by an increase in economic growth, but an increase in inflation does not always have a meaningful negative impact on economic growth. Furthermore, production affects economic growth indirectly through exports. In this case, exports act as an intermediary variable in the influence of production on economic growth in Indonesia.

Research conducted by Mariati (2009), entitled *The Effect of National Production, World Consumption and World Prices on Crude Palm Oil (CPO) Exports in Indonesia* concluded that national production, global consumption, and international prices collectively have a real impact on CPO (Crude Palm Oil) exports in Indonesia. However, when analyzed separately, only national production variables and global prices show a significant influence on Indonesia's CPO exports.

Based on this study, researchers are interested in researching further in a study entitled *"The Effect of Production, Price, and Exchange Rate on Export Volume (Study on Indonesian Cocoa Bean Export Volume for the January 2019-December 2022 Period)"*.

The objectives of this study are: (i) to determine the effect of production on the export volume of cocoa beans in Indonesia; (ii) to determine the effect of Price on Export Volume of Cocoa beans in Indonesia; (iii) to determine the effect of the Exchange Rate on the Export Volume of Cocoa beans in Indonesia; and (iv) to determine the effect of Production, Price and Exchange Rate on the Export Volume of Cocoa Beans in Indonesia.

METHOD

Quantitative research is research that uses data analysis in the form of numerics or numbers. The purpose of quantitative research is to develop and use mathematical models, theories and /or hypotheses related to the phenomenon investigated by the researcher. Quantitative research uses more verifiative hypothetical logic. This approach starts with deductive thinking to derive hypotheses, then conducting field testing, conclusions or hypotheses are drawn based on empirical data (Suryani & Hendryadi, 2015).

In Suryani & Hendryadi (2015) summarize several important points in quantitative research, including:

1. The essence of quantitative research is that researchers study theories using conceptual models.
2. Quantitative research has a clear beginning and end.
3. Quantitative research should be as objective as possible about the research that needs to be done in order to try to maximize objectivity.
4. Quantitative research based on a rigorous methodological approach can determine whether the researcher has operated accurately.
5. In this case, the type of numerical data research used.
6. Systematic analysis of data is carried out by statistical methods supported by computer programs (e.g. SPSS, EVIEWS, etc.).
7. Interpreting quantitative research results generally occurs on the basis of the researcher's interpretation
8. Translation of research results in applications that are likely to occur.

The greatest strength of quantitative research is that data are more reliable, and are generally intended to be generalized to larger populations (Suryani & Hendryadi, 2015). According to Santosa (2018), associative means a relationship, the relationship in question is the correlation between one phenomenon or variable with other phenomena or variables contained in a sample taken in a population. Thus the events of the sample will be generalized to a population in which the sample was taken.

The unit of analysis of this study is aimed at individuals, namely people with the age group of 30-39 years in the Jakarta area who know about cocoa bean exports in Indonesia. Time horizon is a cross sectional study. Cross sectional method is This study uses descriptive methods and analysis within the framework of quantitative research. The approach taken is cross sectional, which involves surveying, observing, and collecting data directly at one particular point in time (Farida, A., 2023).

Table 1. Research Design

Research Objectives	Types of Research	Research Methods	Unit Analysis	Time Horizon
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T-1	Associative	Kuantitative: Questionnaire	Individual	<i>Cross- Sectional</i>
T-2	Associative	Kuantitative: Questionnaire	Individual	<i>Cross- Sectional</i>
T-3	Associative	Kuantitative: Questionnaire	Individual	<i>Cross- Sectional</i>
T-4	Associative	Kuantitative: Questionnaire	Individual	<i>Cross- Sectional</i>

Source: Researcher, 2023

Information:

T-1: To determine the effect of Production on Cocoa Bean Export Volume in Indonesia.

T-2: To determine the effect of Price on Cocoa Bean Export Volume in Indonesia.

T-3: To determine the effect of Exchange Rate on Export Volume of Cocoa Beans in Indonesia.

T-4: To determine the effect of Production, Price, Exchange Rate on Cocoa Bean Export Volume in Indonesia

Individual: People with the age group of 30-39 years in the Jakarta area who know about Cocoa Bean Export in Indonesia

The population used by the researchers was residents of the Jakarta area aged 30-40 years. Based on data on the number of residents in the Jakarta area in 2022 sourced from the Central Statistics Agency, the number of residents in the Jakarta area, both women and men, can be projected as follows:

Table 2 Total Population aged 30-40 years in Jakarta

Age Group	Population
30-34	856.147
35-40	865.357
Total	1.721.504

Source: www.bps.go.id (2023)

From the data, it can be concluded that the number of male and female populations in the Jakarta area from the age group of 30 to 40 is 1,721,504 people. Referring to the scope of research written in chapter 1 that the object of this study is the age group of people 30-40 years in the Jakarta area who know about cocoa bean exports in Indonesia, therefore the number of aged population 30-40 years with a total of 1,721,504 people who actually did not originally know about cocoa bean exports in Indonesia. Therefore, the population of this study is not known for sure (Undefined).

The sampling method used in this study was random sampling. According to Sugiyono, the random sampling method is used because samples are taken from members of the population randomly, without considering the stratification that exists in the population (Mamik, 2014).

RESULTS AND DISCUSSION

Respondent Profile

The profile of respondents in this study was divided based on several criteria, including: Age, Gender, Domicile, Product Knowledge of Indonesian cocoa beans. Researchers conducted offline surveys to several home chocolate producers and some consumers of beans and consumers of chocolate or cocoa, the majority of respondents can be considered to function

as *Material Experts* (ME) who have an understanding as experts related to the production, price and export of cocoa beans. The sample technique used in this study used random sampling of 100 respondents used in this study. The criteria for respondents are people with the age group of 30-40 years in the West Jakarta area, Palmerah sub-district, Kemanggisan sub-district with various segments from the lower middle class to the upper middle class who have knowledge about cocoa beans in Indonesia. Thus, researchers used 100 respondents who were in accordance with the sample criteria to be analyzed in this study.

Profile of Respondents by Age

Based on data processing through questionnaires that have been distributed offline to all people in the West Jakarta area, Palmerah district, Kemanggisan sub-district. So, you can see the profiles of respondents categorized by age through the following picture:

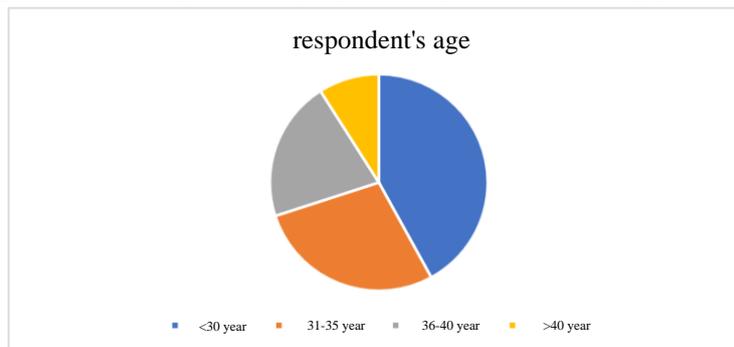


Figure 1 Profile of Respondents by Age
Source: Results of Questionnaire Data Processing, 2023

Figure 1 shows that the distribution of questionnaires was dominated by respondents under 30 years old with a total of 42 respondents or 42%. Furthermore, respondents aged 31-35 years with a total of 28 respondents or 28%, respondents aged 36-40 years with a total of 21 respondents or 21% and finally respondents aged over 40 years with a total of 9 respondents or 9% of the total respondents. That is, most respondents are dominated by vulnerable people under the age of 30 years.

Respondent Profile by Gender

Based on data processing through questionnaires in the community in the West Jakarta area, Palmerah district, Kemanggisan sub-district, it can be seen the profile of each respondent who is categorized by gender through the following figure:

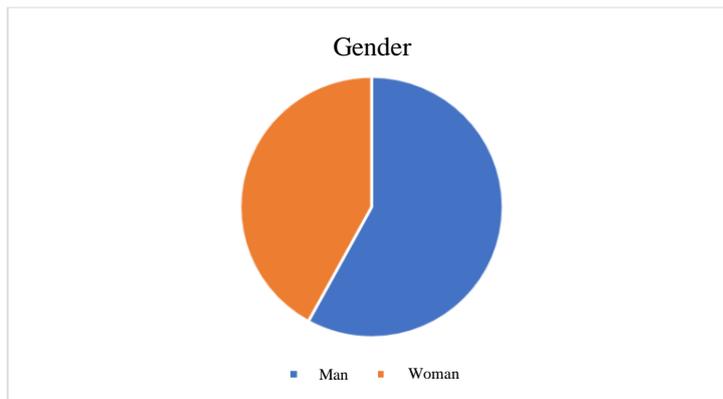


Figure 2. Responen Profile by Gender

Source: Questionnaire Data Processing Results, 2023

Figure 2 shows that the distribution of questionnaires was dominated by male respondents with 58 respondents or 58%, while female respondents were only 42 respondents or 42%. That is, most respondents are dominated by male community relatives.

Respondent Profile Based on Product Knowledge from Indonesian Cocoa Beans

Based on data processing through questionnaires that have been distributed offline to the community in the West Jakarta area, Palmerah district, Kemanggisan sub-district, it can be seen the profile of each respondent who is categorized by gender through the following picture:

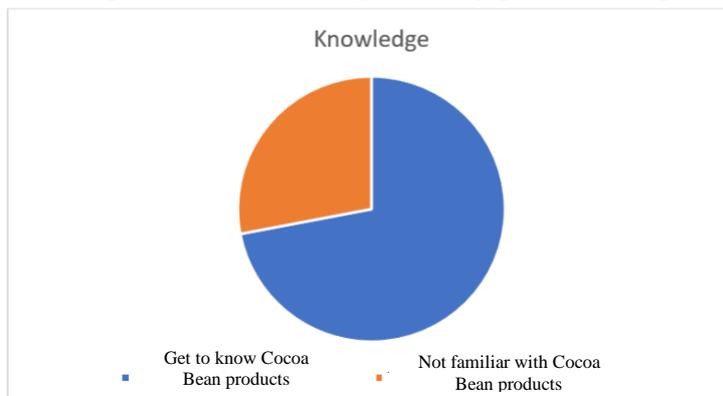


Figure 3. Responen Profile Based on Product Knowledge from Indonesian Cocoa Beans

Source: Questionnaire Data Processing Results, 2023

Figure 3 shows that the distribution of questionnaires is dominated by respondents who already know the products of Indonesian cocoa beans with a total of 72 respondents or 72%, while a total of 28 respondents or 28% do not know the products of Indonesian cocoa beans. That is, most respondents are dominated by public respondents who already know the products of Indonesian cocoa beans.

Descriptive Statistical Analysis

Descriptive statistics provide an overview or description of a data seen from the average value (mean), standard deviation, maximum, minimum, Descriptive statistical results can be seen in the table below:

Variable	Minimum	Maximum	Mean	Std. Deviation
Production	38	75	57,26	10,921

Price	35	75	53,02	13,129
Tulkar Value	45	75	65,50	6,881
Export Volume	30	75	55,34	13,763

Source: Results of Questionnaire Data Processing, 2023

Based on the table above, it can be seen that the average value of Production is 57.26. Price is 53.02. Tulkar's score is 65.50. Average value of Export Volume is 55.34.

Validity Test and Reliability Test

Validity Test

What was done before showing that initially the statement indicator was worthy of being a research instrument was to conduct a large sample test of 100 respondents. The significance level is 5% if $r_{\text{calculate}} > r_{\text{table}}$ then the statement is valid. Meanwhile, if $r_{\text{calculate}} < r_{\text{table}}$ then the statement is invalid. This is the result of ulji validity:

Table 4. Validity Test Results of Research Variable Items

Variable	Item	R _{Count}	R _{Table}	Information
Production	X1.1	0,860	0,194	Valid
	X1.2	0,839	0,194	Valid
	X1.3	0,868	0,194	Valid
	X1.4	0,865	0,194	Valid
	X1.5	0,861	0,194	Valid
	X1.6	0,889	0,194	Valid
	X1.7	0,857	0,194	Valid
	X1.8	0,887	0,194	Valid
	X1.9	0,894	0,194	Valid
	X1.10	0,876	0,194	Valid
	X1.11	0,878	0,194	Valid
	X1.12	0,894	0,194	Valid
	X1.13	0,912	0,194	Valid
	X1.14	0,882	0,194	Valid
	X1.15	0,885	0,194	Valid
Price	X2.1	0,907	0,194	Valid
	X2.2	0,932	0,194	Valid
	X2.3	0,937	0,194	Valid
	X2.4	0,934	0,194	Valid
	X2.5	0,939	0,194	Valid
	X2.6	0,935	0,194	Valid
	X2.7	0,940	0,194	Valid
	X2.8	0,903	0,194	Valid
	X2.9	0,909	0,194	Valid
	X2.10	0,893	0,194	Valid
	X2.11	0,905	0,194	Valid
	X2.12	0,908	0,194	Valid
	X2.13	0,919	0,194	Valid
	X2.14	0,896	0,194	Valid

	X2.15	0,880	0,194	Valid
	X3.1	0,729	0,194	Valid
	X3.2	0,784	0,194	Valid
	X3.3	0,760	0,194	Valid
	X3.4	0,796	0,194	Valid
	X3.5	0,842	0,194	Valid
	X3.6	0,821	0,194	Valid
	X3.7	0,829	0,194	Valid
Exchange rate	X3.8	0,823	0,194	Valid
	X3.9	0,801	0,194	Valid
	X3.10	0,906	0,194	Valid
	X3.11	0,808	0,194	Valid
	X3.12	0,868	0,194	Valid
	X3.13	0,811	0,194	Valid
	X3.14	0,847	0,194	Valid
	X3.15	0,668	0,194	Valid
	Y1	0,922	0,194	Valid
	Y2	0,925	0,194	Valid
	Y3	0,937	0,194	Valid
	Y4	0,934	0,194	Valid
	Y5	0,947	0,194	Valid
	Y6	0,958	0,194	Valid
	Y7	0,960	0,194	Valid
Export Volume	Y8	0,961	0,194	Valid
	Y9	0,958	0,194	Valid
	Y10	0,934	0,194	Valid
	Y11	0,947	0,194	Valid
	Y12	0,924	0,194	Valid
	Y13	0,915	0,194	Valid
	Y14	0,928	0,194	Valid
	Y15	0,880	0,194	Valid

Source: Results of Questionnaire Data Processing, 2023

Based on the results of the validity test, it can be seen that all variable statements submitted to respondents are valid because judging from the calculated value $> r_{table}$ (0.194) so that it can be concluded that all statements in the questionnaire can be said to be feasible as instruments to measure research data.

Reliability Test

This is done after showing that originally the statement variable was worthy of being a research instrument. The statement can be said to be reliable if Cronbach's Alpha value > 0.6 . The following are the results of the reliable test:

Table 5. Reliability Test Results of Research Variable Items

Variable	Cronbach's Alpha	Information
Production	0.978	Reliable

Price	0.986	Reliable
Exchange rate	0.960	Reliable
Export Volume	0.989	Reliable

Source: Results of Questionnaire Data Processing, 2023

Based on table 5 of reliability test results, it can be seen that initially the variables in the statement were declared reliable because they met the required value, namely with a Cronbach Alpha value of > 0.6 .

Classical Assumption Analysis

Normality Test

This test is to test whether the observations are normally distributed or not, this test uses Kolmogorov-Smirnov. The results of the Normality test can be seen in the table below.

Table 6. Normality Test

Variable	Sig	Border	Information
Unstandard Residual	0.680	$> 0,05$	Normal

Source: Results of Questionnaire Data Processing, 2023

Based on the table above, it can be known that the value of *asympt.sig* is $0.680 > 0.05$ so that it can be concluded that the data is normally distributed.

Heteroscedasticity Test

An important assumption of the classical linear regression model is that the disturbance that appears in regression is homoskedasticity, that is, originally the disturbance had the same variant. The results of Heteroscedasticity uji can be seen in the following table:

Table 7. Heteroscedasticity Test

Variable	sig	border	Information
Production	0.157	$>0,05$	No heterokedacity occurs
Price	0.881	$>0,05$	No heterokedacity occurs
Exchange rate	0.505	$>0,05$	No heterokedacity occurs

Source: Results of Questionnaire Data Processing, 2023

Based on table 7 it can be seen that the probability value is greater than 0.05, thus the variables proposed in the study do not occur heteroscedasticity

Multicollinearity Test

The multicollinearity test aims to determine whether in the regression model there is a correlation between independent variables. A good regression model should not have correlations between independent variables. To determine the presence or absence of multicollinearity, it can be seen from the value of Inflation Factor Variance (VIF) and tolerance (α).

Table 8 Multicollinearity Test

Variable	Tolerance	VIF	Information
Production	0,235	4,257	Multicollinearity does not occur
Price	0,213	4,689	Multicollinearity does not occur
Exchange rate	0,731	1,368	Multicollinearity does not occur

Source: Results of Questionnaire Data Processing, 2023

Based on table 8, it can be seen that the tolerance value > 0.10 or VIF value < 10, so multicollinearity does not occur.

Pearson in the Philippines.

This test is to test or measure the strength of the relationship between the two variables or whether the observations are related or not, this test uses person product moment. The results of the Pearson Correlation test can be seen in the table below.

Table 9 Pearson Correlation Test

Variable	Sig	border	Information
Production	0.000	< 0,05	Related
Price	0.000	< 0,05	Related
Exchange rate	0.000	< 0,05	Related

Source: Results of Questionnaire Data Processing, 2023

Based on the table above, it can be known that the value of asymp.sig in Production, Price, Exchange Rate is 0.000 < 0.05 so that it can be concluded that Production, Price, Exchange Rate are related to Export Volume.

Research Results (Hypothesis Test)

In the multiple linear regression analysis model will be tested simultaneously (F test) or partially (t test). The provisions of the significance test of the F test and the t test are as follows:

Receiving H1: if the probability (p) ≤ 0.05 means that the independent variable simultaneously or partially has a significant influence on the dependent variable.

The summary of the results of multiple linear regression analysis that has been carried out is as follows:

Table 10. Multiple Linear Regression Test Results and t Test Results

Variable	B	t _{count}	Sig t	Information
(Constant)	9.696			
Production	0,453	2.555	0.012	Significant
Price	0,325	2.100	0.038	Significant
Exchange rate	0,334	2.096	0.039	Significant
F _{count}	39.786			
Sig F	0,000			
Adjusted R Square	0,540			

Source: Results of Questionnaire Data Processing, 2023

Based on table 10 above, multiple linear regression calculations using the SPSS program version 22.0 for windows obtained the following results:

$$Y = 9.696 + 0.453 X_1 + 0.325 X_2 + 0.334 X_3 + e$$

1. Constant = 9.696

This means that if there are production, price, and exchange rate variables that affect export volume, then the export volume is 9,696 units.

2. b₁ = 0.453

This means that if the production variable increases by one unit, the export volume will increase by 0.453 assuming that another independent variable remains.

3. b₂ = 0.325

This means that if the price variable increases by one unit, the export volume will increase by 0.325 assuming that another independent variable remains.

4. $b_3 = 0.334$

This means that if the exchange rate variable increases by one unit, the export volume will increase by 0.334 assuming that another independent variable remains.

Partial Hypothesis Testing (t-Test)

The partial t test is performed to determine the partial influence between the independent variable and the dependent variable.

Based on table 10 above, it can be seen that the results of significance testing show that there is a probability value of $0.012 \leq 0.05$. The value can prove that "production has an effect on export volume".

Based on table 10 above, it can be seen that the results of the significance test show that there is a probability value of $0.038 \leq 0.05$. The value can prove that "price affects the volume of export".

Based on table 10 above, it can be seen that the results of the significance test show that there is a probability value of $0.039 \leq 0.05$. The value can prove that "exchange rates have an effect on export volume".

Simultaneous Testing (F)

From the results of the F test in table 4.8, $F_{\text{calculate}}$ is 39,786 and the probability is 0.000. Since the sig $0.000 < 0.05$, it can be concluded that the variables of production, price, and exchange rate together affect the volume of exports.

Coefficient of Determination (Adjusted R²)

Based on table 10 shows the magnitude of the coefficient of determination (Adjusted R²) = 0.540, meaning that the variables of production, price, and exchange rate together affect the variable export volume by 54.0%, the remaining 45.0% is influenced by other variables that are not included in this research model.

Discussion

Based on table 10 above, it can be seen that the results of the significance test show that there is a probability value of $0.012 \leq 0.05$. This value can prove that "production affects export volume". Based on table 4.8 above, it can be seen that the results of the significance test show that there is a probability value of $0.038 \leq 0.05$. This value can confirm that "price affects export volume".

Based on table 10 above, it can be seen that the results of the significance test show that there is a probability value of $0.039 \leq 0.05$. The value can prove that "the exchange rate has an effect on the volume of exports". From the results of the F test in table 10 obtained a $F_{\text{calculate}}$ of 39,786 and a probability of 0.000. Since sig $0.000 < 0.05$, it can be concluded that the variables of production, price, and exchange rate together affect the volume of exports.

CONCLUSION

Based on table 10 above, it can be seen that the results of the significance test show that there is a probability value of $0.012 \leq 0.05$. The value can prove that "production affects export volume". Cocoa is one of the plantation sub-sector commodities that plays an important role in the international food market. The cocoa industry, which creates jobs for farmers in Indonesia, has an unstoppable contribution to poverty alleviation. Judging from the contribution to the national economic sector, cocoa is one of the plantation commodities that has an important role for national economic growth, this is because cocoa is one of the important plantation sector commodities for Indonesian exports which acts as a foreign exchange earner in other countries besides oil and gas (Aziziah & Setiawina, 2021). Production has a positive effect on cocoa bean exports in Indonesia. The production of cocoa beans in Indonesia is not only for the consumption needs of the domestic community but some of it is also allocated to meet the consumption needs of people from abroad through export activities. In meeting these needs, cocoa bean production will play a very important role in the export volume of cocoa beans. If cocoa bean production increases, the availability of cocoa beans as an export commodity will overflow so that this will cause the volume of cocoa exports to increase (Izzah & Damayanti, 2023). This result is in line with Izzah & Damayanti (2023) which in their research concluded that production has a positive effect on the export volume of cocoa beans.

Based on table 8 above, it can be seen that the results of the significance test show that there is a probability value of $0.038 \leq 0.05$. The value can prove that "price has an effect on export volume. Cocoa is a plantation product that is very important in supporting Indonesia's economic growth. This is because Indonesia is one of the largest cocoa supplier countries in the world (Septyana & Taufiq, 2022). Therefore, cocoa is one of the plantation commodities that has the potential to have a role in maintaining the stability of exports of products from Indonesia. One factor that can affect the volume of cocoa bean exports in Indonesia is the price of cocoa beans itself. Thus, fluctuations in cocoa bean prices are thought to have a influence on the export volume of cocoa beans. Price has a positive effect on the export volume of cocoa beans in Indonesia. As is normal in an international trade law, if commodity prices on the world market are higher than domestic prices, then entrepreneurs will multiply exports to get a high price difference. This can be interpreted that the price has a positive effect on the export volume of cocoa beans in Indonesia. The higher the price offered by the international market will further increase the volume of cocoa bean exports in Indonesia, and vice versa if the price of cocoa beans in the international market is lower than domestic, it will reduce the volume of cocoa bean exports.

This result is in line with Izzah & Damayanti (2023) who in their research concluded that prices are positive for the export volume of cocoa beans. Based on table 10 above, it can be seen that the results of the significance test show that there is a probability value of $0.039 \leq 0.05$. The value can prove that "the exchange rate has an effect on the volume of exports". In international trade, of course, requires a currency that is overthrown as a reference for payment. The US dollar is the currency most often used to make payments in transactions between countries. In this case, cocoa bean exports can be affected by the rupiah exchange rate against the dollar. Fluctuations in the exchange rate will affect the rise and fall of cocoa bean export volume in Indonesia. The exchange rate is an important factor in determining whether

goods in other countries tend to be more expensive or cheaper than domestic goods (Aziziah & Setiawina, 2021). So that the exchange rate is one of the factors that can affect the export volume of cocoa beans. The exchange rate has a positive effect on the export volume of cocoa beans in Indonesia. An important role holder in international trade is the exchange rate (Septyana & Taufiq, 2022). This is because the currency exchange rate is a reference that can be used in comparing the prices of goods and services in the international market. Therefore, the exchange rate has a positive influence on the volume of cocoa bean exports in Indonesia. An increase in the exchange rate will also increase the export volume of cocoa beans, and vice versa if the exchange rate decreases, the export volume of cocoa beans will also decrease.

In contrast to research conducted by Septyana & Taufiq (2022) which concluded that the exchange rate has a positive and significant effect on the export volume of processed cocoa. From the results of the F review in table 10 obtained a $F_{calculate}$ of 39,786 and a probability of 0.000. Since the sig $0.000 < 0.05$, it can be concluded that the variables of production, price, and exchange rate together affect the volume of exports. As one of the agricultural and plantation products that has a fairly good role in helping economic growth in Indonesia is cocoa beans. The stretching of Indonesia's nature from Sabang to Merauke allows Indonesia to have a large area of cocoa plantations (Aziziah & Setiawina, 2021). With the availability of such a large plantation area, it is one of the supporting factors for production in the availability of large quantities of cocoa to meet domestic and international market needs. Simultaneously, production, prices and exchange rates affect the export volume of cocoa beans in Indonesia. In the world of international trade, the export volume of an item will be influenced by international prices and the rupiah exchange rate against foreign currencies used as a means of payment. In addition, it is also influenced by the amount of production to meet these export needs. The factors that cause the ups and downs of cocoa bean exports are production levels and exchange rate movements that fluctuate, causing significant price differences each period (Septyana & Taufiq, 2022). Because in determining commodity prices, you will look at exchange rate conditions. This result is in line with Aziziah & Setiawina (2021) which in their research concluded simultaneously that production, prices and exchange rates have a positive and significant effect on the export volume of cocoa beans.

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