

# *Analysis of Factors That Influence Robusta Coffee Production in Lampung Province*

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**Abstract** – This research analyzes the impact of variability in planting area, labor wages, fertilizer prices and coffee prices on robusta coffee production in Lampung Province. Using quantitative methods and secondary data from the Badan Pusat Statistik of Lampung Province for the last 20 years, this research applies a multiple linear regression model using the Cobb-Douglas equation. The results show that the variables planting area, labor wages, fertilizer prices significantly influence coffee production, while the coffee price variable does not have a significant impact. Research recommendations include strategies to increase the intensity of planting areas, labor wages, fluctuations in fertilizer prices by the government, and increasing farmer skills through agricultural extension. This research contributes to the understanding of robusta coffee production factors in Lampung Province and provides a basis for further research in coffee production.

**Keywords** – Robusta Coffee, Production, Production Factors, Cobb-Douglas Production Function, Lampung.

## I. INTRODUCTION

Coffee is a type of plantation crop that has been cultivated for a long time in Indonesia. There are four types of coffee, namely robusta coffee (*Coffea canephora*), arabica coffee (*Coffea arabica*), liberica coffee (*Coffea liberica*), and excelsa coffee (*Coffea excelsa*). (Rahardjo, 2017) states that there are two types of coffee plants grown in Indonesia, namely Robusta coffee and Arabica coffee, because Robusta and Arabica coffee are more economical and commercial, while Liberica coffee and Excelsa coffee are less economical and less commercial.

Robusta coffee can grow in lowlands with an altitude of 400-800 meters above sea level or tropical rainy lowlands. High temperatures and dry air will have a negative impact on growth, with an average annual temperature between 22-26°C, the development of robusta coffee plants can be said to be good according to (History et al., 2017).

Indonesia is one of the largest coffee producers and exporters in the world, ranking fourth after Brazil, Vietnam and Colombia. In 2022, Indonesia will succeed in producing a total of 794.8 thousand tons, coffee production will increase by 1.1% from the previous year. According to the Association of Southeast Asian Nations (ASEAN), Indonesia is known as the second largest coffee exporter after Vietnam according to data from the United States Department of Agriculture (USDA) in 2022. This is supported by the tropical climate, geographical conditions and temperatures which are very supportive for cultivation. In 2022, the International Coffee Organization (ICO) noted that coffee consumption will continue to increase, production in Indonesia has great potential to export coffee to major countries such as the European Union with total exports of 85,000 tons or 25% and the United States with 55.75 thousand tonnes or 12.84% of Indonesia's total coffee exports in 2022. Apart from that, Indonesia is one of the distributors of robusta and arabica coffee, Indonesia is also ranked first in the world as an exporter of robusta coffee at 94%, while arabica coffee is only 6% of total Indonesian coffee exports.

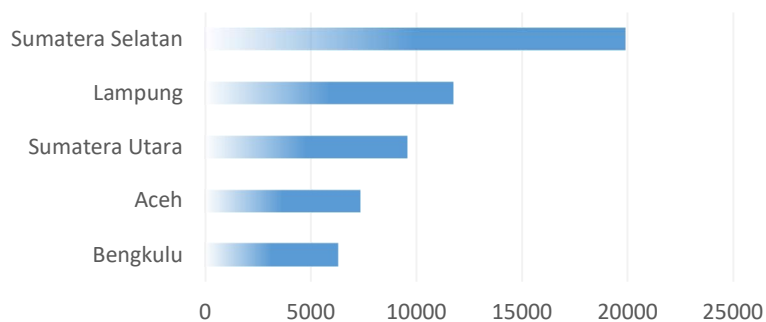


Fig. 1. Graph of Indonesian coffee production

Resource: BPS Indonesia (2016-2020)

Based on data from the Indonesian Badan Pusat Statistik (BPS) in 2020 in Figure 1. There are five largest coffee producing provinces in Indonesia, namely South Sumatra with 198.94 thousand tons/year or 26.8%, Lampung with 117.32 thousand tons/year. or 15.4%, North Sumatra as much as 95.47 thousand tons/year or 12.5%, Aceh as much as 73.4 thousand tons/year or 9.57%, and Bengkulu as much as 62.61 thousand tons/year or 8, 21%. From this data, Lampung Province holds the second position as the largest coffee producing province in Indonesia. This province has around 142.51 coffee farmers. Robusta coffee is one of the leading plantation commodities in Lampung, making a significant economic contribution compared to other plantation crops. Apart from that, robusta coffee is also an important source of income for 1.5 million coffee farmers throughout Indonesia.

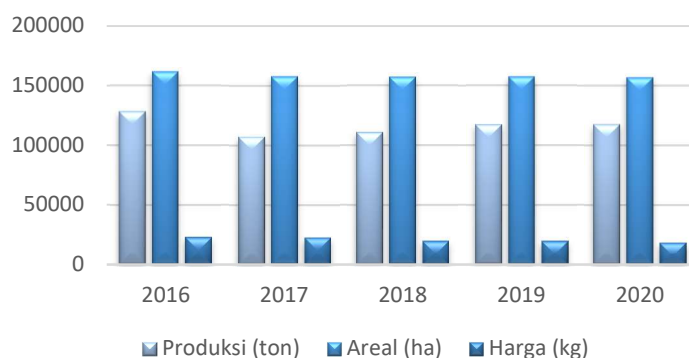


Fig. 2. Graph of coffee production for Lampung Province

Resource: BPS Lampung Province (2016-2020)

Based on data from the Lampung Province Badan Pusat Statistik (BPS) from 2016-2020 in Figure 2. It shows that production results in Lampung Province experienced a significant decline from 2016 to 2020, where in 2016 Lampung Province produced 128 thousand tons of robusta coffee. / year, whereas in 2017 Lampung Province experienced a significant decline in production of 20.9 thousand tons because it only produced 107.1 tons / year, in 2018 robusta coffee production was 110.7 thousand tons / year, in 2019 it was 117 thousand tons/year, and in 2020 Lampung Province produced 117.3 thousand tons/year of robusta coffee. As for the area of robusta coffee plantations in Lampung Province during the period 2016 to 2020, there was a gradual decrease in the area from 161.32 hectares in 2016 to 156.45 hectares in 2020. In addition, there was a decrease in the price of coffee from the same period, starting from 23,000 in 2016 then decreasing to 18,500 in 2020. Lampung coffee plantations are located in West Lampung, Central Lampung, Tanggamus and other areas. The West Lampung area is an example of the best coffee plantation in Lampung Province in terms of increasing coffee production and quality. Apart from that, this area has become a pilot coffee plantation location for Lampung Province and even at the national level. The West Lampung area has the largest coffee production in Lampung.

### 1.1 Formulation of the problem

Based on the description above, is there an influence of area, labor wages, fertilizer prices, and coffee prices on robusta coffee production in Lampung Province?

### 1.2 Research purposes

The aim of this research is to analyze how much influence factors such as area, labor wages, fertilizer prices and coffee prices influence robusta coffee production in Lampung Province.

### 1.3 Benefits of research

It is hoped that the results of this research will provide information and benefits to add to the literature for other parties who wish to further explore the production factors of robusta coffee. Apart from that, this research is also expected to provide input and information for the Lampung Provincial government and related parties to determine policies and help coffee farmers increase coffee production.

## II. THEORETICAL BASIS

### 2.1. Robusta Coffee

According to (Rahardjo, 2017) Indonesia's robusta coffee production centers are in several regions where each region has a certain harvest pattern. The harvest pattern consists of two categories, namely areas south of the equator (Lampung Province and East Java Province) which have peak harvests in July/August, while areas north of the equator (Aceh Province and North Sumatra Province) have peak harvests in January/ February. Based on this harvest pattern, it can be concluded that robusta coffee can grow throughout the year with a harvest twice a year.

### 2.2. Production Management

According to (Eddy, in Hanifah, et al, 2019) production management is basically a process of changing or converting resources owned as input into products. Products that change into goods or services are usually referred to as output. Production management is an activity related to the creation of goods and services through changing production factors into production results, which activities require planning, organizing, directing, coordinating and supervising so that goals can be achieved efficiently and effectively. In its implementation, various human resources, materials, capital, machines, management or methods, energy and information are integrated to produce goods or services.

### 2.3. Production Theory

According to (Thamrin et al., 2018) there are two groups of production factors: (1). Biological factors, such as agricultural land with its type and level of fertility, seeds, fertilizer and weeds, (2). Socioeconomic factors, such as production costs, prices, labor, education level, income level, risk and uncertainty, institutions, and credit. (Pasaribu et al., 2019) explains that general production factors that often occur in agriculture include area, price, fertilizer, labor, seeds, and others.

According to (Nurhapsa et.al., 2019) states that there is an economic theory in the production process which is a process of combining and coordinating materials in the manufacture of goods and services. In microeconomic theory, it is called a production function which shows the relationship between production factors (input) and the level of production produced (output). The production process of a commodity can be influenced by external and internal factors, including robusta coffee production. External factors that cannot be influenced by humans can be climate, namely rainfall which will affect plant growth and harvest. Meanwhile, internal factors that can be influenced by humans include the use of production inputs such as land area, sales prices, farming costs and labor use.

According to (Rahardjo, 2017) the production function is a function that shows the relationship between physical results (output) and production factors (input). In linear regression form the production function can be written as follows:

$$Y = f(X_1, X_2, \dots, X_n)$$

Where:

$$Y = \text{production results (output)}$$

X = production factors (inputs)

This linear regressive function will be transformed into the Cobb-Douglas production function.

The Cobb-Douglas production function explains production in a long-term context. Therefore, the Cobb-Douglas production function considers the determining factors of production (Rasul, in Yulanda, 2019). The results of the estimation obtained through the use of the Cobb-Douglas production function are in the form of regression coefficients, so that the values of B1 and B2 are measures (Return to Scale). There are three possible situations in the rate of return to production scale, namely:

- a) Decreasing returns to scale, if  $(B1 + B2) < 1$ . Shows the case when an increase in all inputs by the same amount causes a less than proportional increase in total output.
- b) Constant returns to scale, if  $(B1 + B2) = 1$ . Shows the case when changes in all inputs cause output by the same amount.
- c) Increasing returns to scale, if  $(B1 + B2) > 1$ . Shows the case when an increase in all inputs will result in a greater increase in output.

#### **2.4. Production Factors**

a) Areal

Land is the most important production factor in agriculture because land is a place where farming can be carried out and where production results are released because the land is where plants grow, the area of agricultural land control is something that is very important in the production process or farming and agricultural businesses. In farming, for example, ownership or control of narrow land is definitely less efficient than larger land, the area of ownership or control is related to the efficiency of farming, the use of inputs will be more efficient if the area of land controlled is larger (Mubyarto, in Kartikasari, 2011). (Sriani, 2017) Also added that agricultural land is the most important thing in farming, where the larger the land area, the greater the amount of production that will be produced by farmers. Research results from (Alamsyah & Purnomo, 2021) reveal that land area has a significant effect on coffee production. Several researchers also argue that land area greatly influences production (Ayu et al., 2021) and (Widyawan & Wenagama, 2021)

b) Wages

Wages are all expenditures of money or goods paid to workers as compensation for work or services that have been or are performed for the industry. Measured in rupiah units. In reality, wages are never flexible and tend to continually fall because they are more frequently and more influenced by various institutional forces such as pressure from trade unions or labor unions. Wages in each country have different attitudes towards the gap between wages for skilled and unskilled labor, and therefore, have different constraints. (Solow in Nurfiat & Rustariyuni, 2018). As for the research results (Adie & i made, 2017) which states that wages have a significant effect on production and on research (Cahyadinata & Darsana, 2018) which states that the wage level has a significant effect on the amount of production.

c) Fertilizer Prices

Fertilizer prices refer to the value or costs that must be paid by farmers or consumers to obtain agricultural fertilizer. According to (Sulyanah, 2022) fertilizer is a material that contains one or more nutrients, both organic and inorganic, which is added to the planting medium or plants so that the necessary nutrients are sufficient for their needs, so that the plants are able to produce well. Fertilizer is used to provide additional nutrition to plants so they can grow and develop optimally. Fertilizer prices can vary depending on several factors, including fertilizer type, nutrient composition, brand, and external factors such as government policy, market conditions, and raw material supply. Fertilizer prices can be an important factor in production results, and these price fluctuations can influence farmers' decisions regarding fertilizer use. Therefore, understanding fertilizer prices is crucial for agricultural actors to plan and manage their agricultural activities efficiently. According to (Hidaya, et al, 2018) In the economic context and field situation, when there is an increase in fertilizer prices, the tendency of farmers is to reduce the amount of fertilizer purchased to avoid increasing production costs and resulting in less than optimal production with increasing fertilizer prices. The research results also show that fertilizer prices have a significant effect on production results.

d) Coffee Prices

Coffee price is an important factor influencing coffee production. Coffee price determination is influenced by several factors, such as production costs, economic conditions, elasticity of demand, supply and demand, competition, quality, etc. (Saragih, 2015). Low prices can increase consumer demand, because consumers may prefer cheaper products. However, prices that are too high can hinder consumers' willingness to buy the product. Therefore, product prices need to be in accordance with consumer capabilities and the quality of the product provided (Neti, 2013). Coffee pricing can have a direct impact on production, with several possible mechanisms driving increased production outlined above. A research shows that international coffee prices have a significant and positive effect on coffee production in Indonesia because when coffee prices rise the demand for coffee exports increases (RA Siregar, 2022). This shows that coffee prices play an important role in shaping coffee production in this country.

2.5. Framework

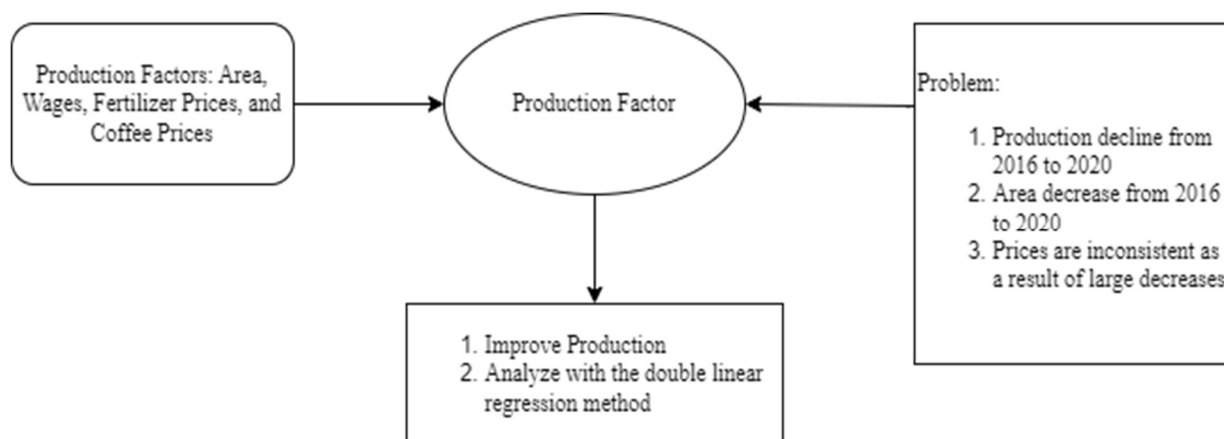


Fig. 3. Framework for thinking

III. RESEARCH METHODOLOGY

The method used in the research is a quantitative method, the population used is all robusta coffee plantations in Lampung Province. Data collection methods are one of the important factors in determining the type and source of research data in determining and selecting research decisions.

3.1. Data Types and Sources

The data used in this research is secondary data, the secondary data collection method is data that refers to information collected from existing sources, secondary data sources include records, government publications, industry analysis by the media, web, internet, sites, etc. -other. The data used is 20 years of Time Series data, starting from 2002 to 2022. Time series data can be developed into models easily to predict, interpret and hypothesize economic data (Rachman, 2019), obtained from the Badan Pusat Statistik (BPS) of Lampung Province, and other sources such as journals and research results, were carried out to obtain data and information related to factors that influence robusta coffee production in Lampung Province.

3.2. Data Analysis Model

After the data is collected and tabulated, it will then be analyzed according to the hypothesis used. The analytical method used in this research is multiple linear regression analysis which is transformed into natural logarithmic form and uses the help of the Statistical Program for Social Science (SPSS) version 21 software.

$$\ln Y = \ln a + B_1 \ln X_1 + B_2 \ln X_2 + B_3 \ln X_3 + B_4 \ln X_4 + e$$

Where:

$\ln Y$  = Coffee Production

$\ln a$  = Constant

$B_1 \ln X_1$	= Area
$B_2 \ln X_2$	= Labor Wages
$B_3 \ln X_3$	= Fertilizer Price
$B_4 \ln X_4$	= Coffee Price
e	= Error

### 3.3. Hypothesis testing was completed using multiple linier regression

#### 1) T Test (Parsial)

This was done to see the influence of each independent variable on the dependent by looking at the results of the significance value  $>$  or  $<$  0.05 and comparing the  $T_{table}$  and  $T_{count}$  values, where  $T_{table}$  was obtained at the significance level ( $\alpha = 0.05$ ),  $df = (n) - (k)$ .

- a) If  $T_{count} > T_{table}$  accept  $H_0$ , reject  $H_1$  at the 95% confidence level.
- b) If  $T_{count} < T_{table}$  accept  $H_1$ , reject  $H_0$  at the 95% confidence level

#### 2) F Test (Simultaneous)

This is done to find out how much the independent variables together influence the dependent variable by looking at the significance value whether it is  $>$  or  $<$  0.05 and comparing  $F_{table}$  with  $F_{count}$ , where  $F_{table}$  is obtained at the significance level ( $\alpha = 0.05$ ),  $df = (n) - (k-1)$ .

- a) If  $F_{count} > F_{table}$  accept  $H_0$ , reject  $H_1$  at the 95% confidence level.
- b) If  $F_{count} < F_{table}$  accept  $H_1$ , reject  $H_0$  at the 95% confidence level

#### 3) Coefficient of Determination Test.

*R square* This is done to measure how far the independent variable model is able to explain variations in the dependent variable.

Before carrying out a multiple linear regression test, according to (Ghozali 2018) the conditions that must be met in multiple linear regression are the classic assumption test which consists of normality, multicollinearity, heteroscedasticity and autocorrelation to see the quality of the data and ensure that all data is normal so as to provide certainty that the equation the regression obtained has consistency in the appropriate data estimates.

- a) The normality test aims to test whether in the regression model, confounding or residual variables have a normal distribution, the Kolmogorov Smirnov Z test is carried out to see whether the significance value of the variable is  $>$  0.05 or  $<$  0.05 to find out whether the data is normally distributed or not.
- b) The multicollinearity test aims to test whether in the regression model a correlation is found between independent independent variables, by looking at the Tolerance value and Variance Inflation Factor (VIF) value, if the Tolerance value is  $<$  0.1 and the VIF value is  $>$  10 then the data has symptoms of multicollinearity, if the value Tolerance  $>$  0.1 and VIF value  $<$  10 means there is no multicollinearity in the data.
- c) The heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another, by looking at the scatterplot graph.
- d) The autocorrelation test is usually used by research that uses time series data (secondary data), therefore researchers use or apply the autocorrelation test. If the autocorrelation result is  $dw < dl$  or  $dw > 4-dl$  then autocorrelation occurs. If the value  $du < dw < 4-du$  then there is no autocorrelation. And if the value  $dl < dw < du$  or  $4-du < dw < 4-dl$  then no conclusions can be drawn. The values of  $dl$ ,  $du$ ,  $4-dl$ , and  $4-du$  are obtained from the Durbin-watson table  $\alpha = 0.05\%$  by determining the number of samples ( $n$ ) and the number of independent variables ( $k$ )

IV. RESULTS AND DISCUSSION

4.1. Classic assumption test

a) Normality Test

Kolmogorov Smirnov Z test to determine whether the data is normally distributed or not by looking at the significance value in the Kolmogorov Smirnov Z test.

Table I. One – Sample Kolmogorov Smirnov Test results

		Unstandardized Predicted Value
Normal Parameters, b	Mean	7.1935376
	Std. Deviation	.09006814
Most Extreme Differences	Absolute	,221
	Positive	,186
	Negative	-.221
Kolmogorov-Smirnov Z		1,012
Asymp. Sig. (2-tailed)		,257

b) Multicollinearity Test

Table II. Multicollinearity Test Results

Model	Niali Tolerance	VIF	Results
LnX1	,270	3,709	Does not experience multiconierity
LnX2	,158	6,330	Does not experience multiconierity
LnX3	,331	3,024	Does not experience multiconierity
LnX4	.134	7,470	Does not experience multiconierity

Based on the results of the multicollinearity test in table II, it shows that between the independent variables in the robusta coffee production model in Lampung Province, area, wages, fertilizer prices and coffee prices do not experience multicollinearity, this is because the Tolerance value is  $> 0.1$  and the VIF value is  $< 10$ .

c) Heteroscedasticity Test

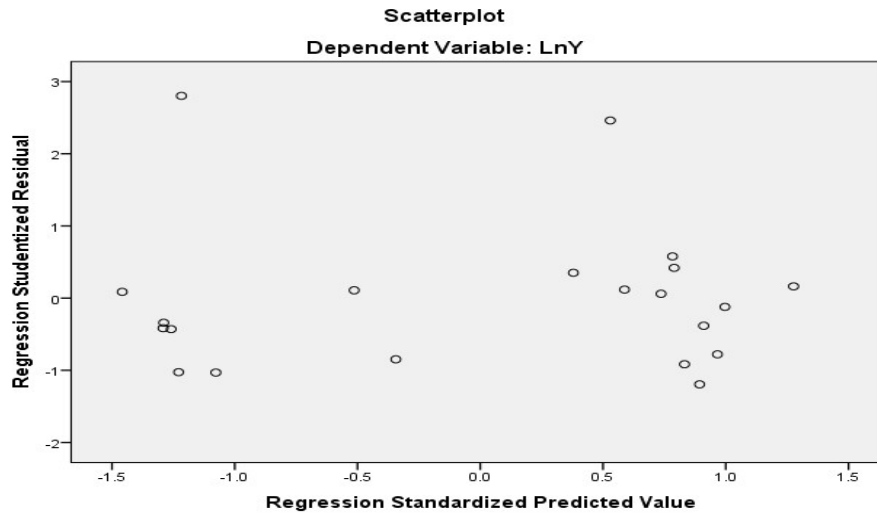


Fig. 4. Scatterplot Graphics

Resource: SPSS V.21.

Based on the scatterplot graph in graph 4, it shows that the grains spread above and below the number 0, so there is no heteroscedasticity, this shows that the regression model is good so it can be concluded that there are no symptoms of heteroscedasticity or the equation meets the assumptions.

d) Autocorrelation Test

Based on the results of the linear regression analysis, the Durbin-Watson value is 1.977, seen in the Durbin-Watson table at a significance of 0.05,  $K$  ;  $4-dL$  is 3.106 and the value of  $4-dU$  is 2.172.

The explanation of the Durbin-Watson autocorrelation test is as follows:

Table III. Conclusion Drawing

Mark	Conclusion
$dW < dL$ or $dw > 4-dL$	Data autocorrelation occurs
$du < dw < 4-dU$	There is no autocorrelation in the data
$dL < dW < dU$ or $4-dU < dW < 4-dL$	There is no conclusion

Based on the conclusion drawing table in table 3, it can be seen that the value of  $dU < dW < 4-dU$  or  $1,828 < 1,977 < 2,172$  based on the results of the Durbin-Watson test can be concluded that the data does not experience autocorrelation.

4.2. Hypothesis

a) T Test (Parsial)

The T test was carried out to determine the influence of each (partial) production factor (X) on robusta coffee production (Y).



Table IV. T Test Results

Model	T <sub>table</sub>	T <sub>count</sub>	Sig	Information
LnX1	1.7458	3,249	,006	Significant
LnX2	1.7458	4,199	,001	Significant
LnX3	1.7458	-2,216	.041	Significant
LnX4	1.7458	,334	,849	Not significant

Based on the results of the T test above, it can be concluded that area, wages and fertilizer prices have a real and significant effect on robusta coffee production because  $T_{count} > T_{table}$  with a sig value  $< 0.05$  which means that  $H_0$  is rejected.  $H_1$  is accepted at the 95% confidence level. Meanwhile, coffee prices have no effect on robusta coffee production because  $T_{count} < T_{table}$  with a sig value  $> 0.05$  which means that  $H_1$  is rejected and  $H_0$  is accepted.

b) F Test (Simultaneous)

Table V. F Test Results

Model	F <sub>table</sub>	F <sub>count</sub>	Sig	Information
1	3,056	58,324	0,000	Significant

Based on the results of the anova test, the results obtained from  $F_{count}$  were 58,324 with a significance value of 0.000 and the results from  $F_{table}$  were 3.056, which means  $F_{count} > F_{table}$ , the conclusion is that the hypothesis  $H_0$  is rejected and  $H_1$  is accepted at a confidence level of 95%, meaning that they are simultaneously (simultaneous) variables. independent factors such as area, wages, fertilizer prices, and coffee prices influence the amount of robusta coffee production.

c) Coefficient of Determination

R Square used to determine the relationship between production factors and coffee production, or used to measure how much variation that occurs in the coffee production variable (Y) can be explained simultaneously by the variable factors that influence production (X).

Table VI. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.967a	.936	.920	.02637	1,977

Based on the results of the summary test, it can be seen that the R Square value is .936, which means that the R Square value has a result of 93.6%. Robusta coffee production is influenced by the factors studied, namely area, wages, fertilizer prices and coffee prices, while 6.4% of robusta coffee production is influenced by other factors not included in the research variables.

4.3. Coffee Production Model Results

Multiple linear regression analysis is used to determine the estimation results which will produce regression coefficient values, the results of the Cobb-Douglas coffee equation analysis are in the form of multiple linear regression:

Table VII. Linear regression results

Model 1	Unstandardized Coefficients		Standardized Coefficients
	B	Std. Error	Beta
(Constant)	-.285	2,857	
LnX1	,992	,305	,396
LnX2	,079	.019	,669
LnX3	-.080	,036	-.244
LnX4	,022	,065	,058

$$\text{LnY} = -0.285 + 0.992 \text{ LnX}_1 + 0.079 \text{ LnX}_2 + (-0.080) \text{ LnX}_3 + 0.022 \text{ LnX}_4$$

Discussion:

It can be seen that the coefficient value of coffee production or constant is -0.285, if factors such as area, wages, fertilizer prices and coffee prices are assumed to be (0), then coffee production is -0.285 or equal to 0 because the constant value is minus.

a) Area production factors

The regression coefficient value for the plantation land area variable is 0.9962, so it can be interpreted that if the land area increases by 1%, the amount of production will increase by 0.992%. This is due to the suitability of land conditions, namely soil classification (type), soil pH (wetness level), and richness in other elements that can support the production of robusta coffee in Lampung Province.

b) Factors of production wages

The regression coefficient value of the wage price variable is 0.079, so it can be interpreted that if the wage price experiences a price increase of 1%, the amount of production will increase by 0.079%. This is because the increase in coffee farmers' wages motivates them to make coffee farmers work more diligently and thoroughly, this can increase coffee production because farmers will be more focused and care about their coffee plantations. Additionally, higher wages also enable farmers to purchase better agricultural materials and contribute to increased production. This is supported by the results of research (Adie & i made, 2017) and (Cahyadinata & Darsana, 2018) which states that wages have a positive and significant effect on production.

c) Fertilizer price production factors

The regression coefficient value for the variable price of fertilizer/kg is -0.080, so it can be interpreted that if the price of fertilizer increases by 1%, the amount of production will decrease by 0.080%. This is caused by the farmer's desire to achieve high coffee crop production results, even though there are limitations in financial resources, farmers still try to fertilize optimally. Apart from that, the existence of fertilizer subsidies from the government also encourages farmers to use fertilizer regularly.

d) Production factors of coffee prices

The regression coefficient value for the coffee price variable is 0.022, so it can be interpreted that if the price of coffee increases by 1%, coffee production will increase by 0.022%. This is because if the price of coffee rises, it will provide additional motivation and enthusiasm for farmers to continue growing coffee, so that production increases. The increase in coffee prices provides positive encouragement to farmers, encouraging them to continue to be committed to planting coffee and increasing production yields.

#### 4.4. Cobb-Douglas Regression Equation Results

Based on the results of regression analysis, it shows that area elasticity is 0.996, wage elasticity is 0.079, fertilizer price elasticity is -0.084, and coffee price elasticity is 0.022. This shows that the elasticity for each input variable is smaller than one. So the variables area, wages, fertilizer prices and coffee prices are inelastic. To determine the condition of return to scale, it can be seen from the Cobb-Douglas function equation by adding up the magnitude of each rank coefficient for each independent variable  $B_1 = 0.992$ ,  $B_2 = 0.079$ ,  $B_3 = -0.080$ ,  $B_4 = 0.022$  to obtain a result of 1.013. By looking at these results it can be concluded that robusta coffee production is in a condition where the output scale is increasing (increasing return to scale), because  $B_1 + B_2 - B_3 + B_4 > 1$ . The conclusion from these results shows that the addition of input production factors such as area, labor wages, prices fertilizer, and coffee prices will result in greater additional output.

### V. CONCLUSIONS AND RECOMMENDATIONS

#### 5.1. Conclusion

Based on the results of the research and analysis that have been described, it can be concluded that variables such as area, wages, fertilizer prices and coffee prices simultaneously contribute as much as 93.6% of the variation in robusta coffee production in Lampung Province. Partially, the variables area, wages and fertilizer prices have a significant influence on coffee production. Even though the coffee price variable is not partially significant, it is important to note that other factors outside the research variables also influence robusta coffee production in Lampung Province.

Recommendations are given to related parties, including coffee farmers, government and entrepreneurs, to increase robusta coffee production based on the results of this research. Apart from that, this research can be a basis for further research in further exploration regarding robusta coffee production factors.

#### 5.2. Recommendations

To increase robusta coffee production in Lampung Province, it is recommended that farmers consider using land more intensively by expanding the coffee plantation area. Apart from that, the government's role in regulating and supervising coffee pricing in the region is crucial to supporting market stability. An emphasis on improving skills and knowledge through agricultural extension on coffee plantations run by the government is also considered important to help farmers adopt the best methods for cultivating coffee. Apart from that, the government needs to provide incentives or more significant production percentage results to encourage the motivation and welfare of coffee farmers in Lampung Province. It is hoped that interactions between farmers, the government and various related parties can increase the productivity and welfare of the coffee plantation sector in the Lampung Province region.

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