

Analysis of Factors Affecting Palm Oil (*Elaeis Guineensis Jacq*) Production in Central Kalimantan Region

Vikram Edo Ramadan^{1*}, Maulidyah Indira Hasmarini²

^{1,2}Faculty of Economics and Business, Universitas Muhammadiyah Surakarta, Jawa Tengah, Indonesia.

*Corresponding Author: b300190268@student.ums.ac.id

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Abstract: Oil palm is an industrial plantation crop that produces palm oil which can add value to the production of oil palm companies. The palm oil commodity is a commodity that can add to the country's foreign exchange because the value of palm oil has a high value. Palm oil production in Indonesia continues to grow every year. This study aims to find out about what factors affect the palm oil production variable in the Central Kalimantan region. This study uses panel data regression tools with data obtained from the Central Statistics Agency (BPS) and the Central Kalimantan Plantation Office. The results of the analysis of this study explain the factors of land area and labor have a positive and significant effect on oil palm production.

Abstrak: Kelapa sawit adalah tanaman industri perkebunan yang menghasilkan minyak sawit yang dapat menambah nilai produksi perusahaan kelapa sawit. Komoditas kelapa sawit merupakan komoditas yang bisa menambah devisa negara karena nilai kelapa sawit memiliki nilai yang tinggi. Produksi kelapa sawit di Indonesia terus berkembang tiap tahunnya. Dalam penelitian ini ditujukan untuk mengetahui tentang faktor apa saja yang mempengaruhi variabel produksi kelapa sawit di wilayah Kalimantan Tengah. Penelitian ini menggunakan alat regresi data panel dengan data yang diperoleh dari Badan Pusat Statistika (BPS) dan Dinas Perkebunan Kalimantan Tengah. Hasil analisis dari penelitian ini memaparkan faktor luas lahan dan tenaga kerja berpengaruh positif dan signifikan terhadap produksi kelapa sawit.



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INTRODUCTION

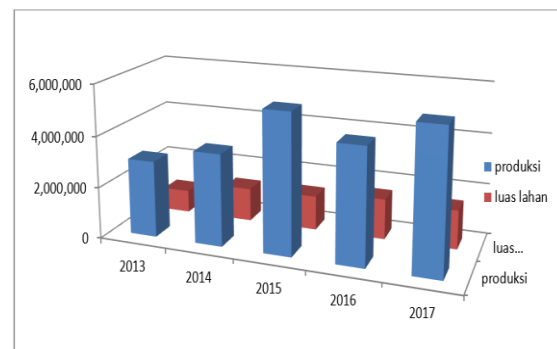
Oil palm (*Eleasis Guineensis jacq*) is an industrial crop that can produce a lot of vegetable oil and is also the highest oil producer per hectare, compared to other oil-producing crops. Indonesia is one of the growing palm oil producing countries. The palm oil commodity is the most profitable commodity and in the future because it can be a substitute for fuel oil (Suryantoro & Sudradjat, 2017). The development of oil palm in 2013 according to the Central Bureau of Statistics shows that the Kalimantan region is one of the provinces with the most production and land area. According to data from the Palm Oil Research Center (2020), Indonesia currently has more than 1700 palm oil companies, both state-owned and community-owned companies. The palm oil commodity has an important role in the Indonesian economy. to get this goal the company makes efforts to achieve existing success and reduce shortcomings with sustainability with the positive and negative sides contained in the company and carry out policies properly and appropriately (Zulkarnaen et al., 2018).

Palm oil is a commodity of excellence in increasing the country's income, therefore it is necessary to consider the sustainability of its production (Alfayanti & Efendi, 2013). Central Kalimantan Province produces a total of 3,127 tons of oil palm production, this number is the most among oil palm production in other regions in Indonesia, and continues to grow until now. To be able to produce oil palm requires neat management and a qualified workforce. In addition, there are several factors that can make the growth and production of oil palm more effective, including the area of oil palm plantation land, the price of FFB (Fresh Fruit Tendrant), and labor.

The amount of production is inseparable from the amount of production

that is influenced by several factors such as labor capacity. Labor that has more ability can help produce oil palm production. The amount of labor must be equivalent to the area of oil palm plants that will be worked on if it is inadequate between the amount of labor and land area it will hamper the harvest of oil palm. Land is one of the main supporting factors in the oil palm business because the land is where oil palm plants grow (Edward Panjaitan et al., 2020).

In addition to labor and land area factors, the factor that affects oil palm production is the price of oil palm. The price of oil palm is unpredictable and unpredictable every year. All these factors are inseparable from the work of oil palm farmers. Oil palm farmers are usually contracted by private or state companies. PIR farmers are farmers who start cultivation with management under supervision, and secondly they take over the management of oil palm independently (Ariyanto et al., 2017).



Source: Central Kalimantan Provincial Statistics Agency

Figure 1. Production Data & Land Area Of Oil Palm Plantations In Central Kalimantan From 2013-2017.

According to the graph above, it can be seen from 2013 that oil palm production in Kalimantan is expanding and production is increasing from year to year, this can be utilized by the surrounding community to get jobs. In Kalimantan alone there are

already 87 oil palm companies (Ministry of Industry of the Republic of Indonesia). In the Central Kalimantan plantation subsector, which has 12 districts that have the potential for oil palm production, but the East Kotawaringin district area has the most oil palm production in 2018 at 1,843,178 tons and followed by the Seruyan District area at 955,743 tons, which is likely to continue to grow every year.

Although it has the potential for oil palm development, in fact there are several problems that occur in the oil palm plantation itself, for example, the amount of oil palm production is basically unstable and tends to be lower than the potential productivity of the land. This study aims to determine the influence between production factors, land area, prices, and oil palm labor in the Central Kalimantan region.

The variables that will be examined in this study are variables that affect oil palm productivity are labor, land area, and oil palm prices. The title of this research is "analysis of factors affecting the production of oil palm plantations in the Central Kalimantan region".

Theoretical Background And Hypothesis Development

Production

Production is an activity carried out to provide added value to goods or make new goods that are more useful to meet needs. Production itself must also have added value, so it must pay attention to production factors so that this process can be efficient and the results of the production itself are optimal (Wulansari et al., 2016). In general, the purpose of production is to get maximum profit to develop the company. If palm oil production is effective and efficient, it can increase the yield of palm oil itself.

Workforce

Labor is someone who does work or services to produce goods or services. According to article 13 of the 2013 Law, labor is everyone who can do work to produce goods or services, both to meet the needs of themselves and the wider community. Labor is needed in a job to achieve a goal. It can be said to be labor when the age has reached 15 years and above without a maximum limit. Everyone has the right to get a job opportunity but not everyone can work. Employment opportunities can be seen by the working age population, but in reality it is quite difficult to obtain because employment opportunities in the area are still limited (Biamrillah & Nurhayati, 2018).

Land Area

Land area is one of the main production factors in the process of oil palm agricultural production, because the area of laham is a place of development or a place of oil palm agricultural production. Agricultural land is one of the influencing factors of production itself. The more land that is planted, the greater the production that will be produced (Mustari, Yonariza, Khairati, 2020). The size of agricultural land can be expressed in hectares (ha).

Price

Price is a unit of exchange that can be equated with money or other goods for the benefits obtained from a good or service. The term price is used to attach a financial value to a good or service. The income of oil palm farmers is quite low due to the low level of income of farmers which is influenced by the number of deductions that are unclear or there is no transparency from the authorities and the high total production incurred by farmers (Arsyad & Maryam, 2017). Rules on prices, for example the price of Fresh Fruit Bunches (FFB) of oil palm, this is the authority of the government formed in

a system of policies and decisions of the authorities and has been stipulated in the Minister of Agriculture Regulation No. 14/PERMENTAN/OT.140/2013 regarding government policies regarding pricing regulations.

RESEARCH METHODS

This type of research uses quantitative descriptive analysis using panel data regression techniques to determine the relationship between variables. This research was conducted in the Central Kalimantan Regency. The variables used in this study are labor, land area, and oil palm price (FFB), while oil palm production is a related variable. The data used in this study are secondary data obtained from the Central Kalimantan Plantation Office and the Central Kalimantan Statistics Agency (BPS), especially in 2013-2017. The data used in this study are labor data, land area, and palm oil prices in each district in Central Kalimantan for the period 2013-2017. This research is related to the factors that affect palm oil production in Central Kalimantan.

$$P_{it} = \beta_0 + \beta_1 LH_{it} + \beta_2 TK_{it} + \beta_3 H_{it} + e_{it}$$

Description

P : Production

LH : Land Area

TK : Labor

H : Price

$\beta_1, \beta_2, \beta_3$: Regression coefficient

i : Districts

t : year t

e : Error term

RESULTS AND DISCUSSION

The estimation results of this econometric model using the Pooled Least Square (PLS)/(ECM) approach, Fixed Effect Model (FEM) and Random Effect Model

(REM) along with the model selection test results are summarized in Table 1.

Table 1. Chow Test Results

Variable	Regression Coefficient					
	CEM	Prob	FEM	Prob	REM	Prob
C	-117307.1	0.8120	386252.1	0.5767	-117307.1	0.8125
TK	2.613030	0.0000	4.983788	0.8847	2.180443	0.0000
LH	2.180443	0.0692	-0.171029	0.2639	2.613030	0.0699
H	-23.95125	0.9486	-339.0902	0.4647	-23.95125	0.9488
R^2	0.577534		0.673774		0.577534	
Adjusted R^2	0.554902		0.552387		0.554902	
Statistic F	25.51838		5.550642		25.51838	
Prob. Statistic F	0.000000		0.000003		0.000000	

Table 1. Shows That The Chow Test has a probability value of $0.4895 > 0.05$, so H_0 is accepted, and the hausman test shows a probability value of $0.0226 < 0.05$, so H_0 is rejected. So it can be concluded from the chow and hausman tests that have been carried out that the best model in this study is to use the Random Effect Model (REM).

Table 2. Random Effect Model (REM)

Estimation	
$P_{it} = -117307.1 + 2.180443TK_{it} + 2.613030LH_{it} + (-23.95125)H_{it}$	
(0,0669)***	(0,0000)*
(0,9488)	
$R^2 = 0.577534$; $DW\text{-Stat} = 2.959659$; $F\text{-Stat} = 25.51838$; $Prob. F\text{-Stat} = 0,000$	

Source : Analyze data with Eviews 10
Description : * Significant at = 0,01; ** Significant at = 0,05; *** Significant at = 0,10

Table 2. shows that the probability value of F-stat is $0.0000 < 0.05$; so H_0 is rejected and also shows the coefficient of determination R^2 is 0.577534, thus indicating that 57.75% of the variation in the production variable is correlated by variations in the variables of Labor (TK), Land Area (LH), and Price (H). while the remaining 42.25% is correlated by variations in variables or factors not included in this study.

According to the validity test, the influence of the variable Labor (TK) and Land Area (LH) has a positive and significant

effect on the production variable, while the price variable has a negative and insignificant effect on the palm oil production variable in the Central Kalimantan region.

Effect of labor on production

Based on the results of the regression analysis above shows that district / city labor has a significant effect on palm oil production in Central Kalimantan with a coefficient level of 2.180443, and the t-statistic value of the probability is $0.067 < 0.10$. It can be interpreted that district / city labor in Central Kalimantan has a positive effect on palm oil production in Central Kalimantan. This shows that every 1 district / city labor will increase production by 0.067 tons. This result is in accordance with previous research tested by (Pranata and Suratni. 2020) which identifies that variations in labor variables are very influential on oil palm productivity, due to the important role of labor for oil palm harvesting.

Effect of Land Area on Oil Palm Production

Based on the results of the regression analysis above, it shows that land area has a significant effect on production on oil palm production in Central Kalimantan with a coefficient level of 2.613030 and a t-statistic value of $0.0000 > 0.01$, which means that this land area variable also has a positive and significant impact on oil palm production in the district / city of Central Kalimantan. The existence of a positive effect of land area on palm oil production factors shows that if the land area is getting bigger, the amount of palm oil production produced will increase. The results of this study are like research conducted by (Rafidah et al., 2022), which concluded that if the land area increases, the production of oil palm will also increase.

Price Effect on Oil Palm Production

Based on the results of the analysis, it shows that price has no significant effect on oil palm production in Central Kalimantan with a coefficient of (-23.95125) and an f-statistic value of 0.9488. With these results, price is an insignificant variable in this study, because the average price of palm oil each year is unstable, because prices are determined and regulated by the authorized government. In addition, high commodity prices will make it difficult to export or sell palm oil outside the city or abroad.

CONCLUSION

Based on the regression data analysis above, the labor variable has a positive influence on the production factor variable, besides that the land area variable also has a positive influence on the palm oil production variable in the Central Kalimantan region. Meanwhile, the price variable has a negative effect on production factors due to the instability of palm oil prices each year. The results of my research show that the labor and land area variables have a positive impact on the development of oil palm production, while the price variable has a negative effect on production.

The author suggests that the government should reduce export levies so that when palm oil prices fall, palm oil entrepreneurs do not lose too much. In addition, by improving the quality of labor both effectively and efficiently. With an educated workforce, the quality of production will increase.

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