

Analysis Of The Effect Of Land Area, Labor And Capital On The Income Of Porang Farmers In Klino Village, Sekar Sub-District, Bojonegoro District

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ABSTRACT

*This study aims to analyze the effect of land area, labor, and capital on the income of porang farmers in Klino Village, Sekar District, Bojonegoro Regency. Porang (*Amorphophallus muelleri* Blume) is an agricultural commodity that is increasingly in demand because of its potential as a source of raw materials for the food and pharmaceutical industries. This research method uses a quantitative approach by collecting primary data through a direct survey of porang farmers in Klino Village. Secondary data is also used to complete the necessary information. The research sample was taken at simple random from a population of porang farmers who were actively producing as many as 300 respondents. The results of the regression analysis show that land area, labor, and capital have a significant effect on the income of porang farmers. The resulting coefficient of determination (R-square) indicates that the variables included in the model can explain the variation in the income of porang farmers by 58.8%. In addition, hypothesis testing was also carried out to determine the significance of the effect of each variable.*

Keywords: Land Area, Labor, Capital, Income of Porang Farmers

INTRODUCTION

Indonesia is one of the main producers of food and is known as an agrarian country as the majority of the population works as farmers. With its tropical climate and fertile land, the agricultural sector contributes greatly to economic development, including increasing exports and people's income (Naviyanti et al., 2017). However, the government's attention to this sector is still lacking, focusing more on import-based industries, so agricultural infrastructure in rural areas is still inadequate (Baizhurah, 2014).

Klino Village, Sekar Subdistrict, Bojonegoro Regency, is the center of porang cultivation. Most of the area is production forest that is used by residents to grow crops due to limited agricultural land. Currently, about 600 hectares of forest land is used for porang cultivation, with a potential yield of up to 12 tons of wet tubers per hectare (Donny Iqbal, 2021).

Table 1
Dry Land Area and Its Use (Ha)

No	Village	For Buildings	Tegal Ladang	Other	Village Size	State Forest
1	Klino	179,9	117,5	0	2.030	1.606

Data source: BPS Bojonegoro processed, 2022

The porang plant (*Amorphophallus oncophyllus* Prain), which was once considered wild, now has high economic value. Besides being low in calories and suitable for healthy food, porang contains konjac glucomannan (KGM) which is beneficial for health and industry, such as adhesives, fabric gloss, and medicines (Sari and Suhartati; Muhammad Irfan Al-Amin, 2021).

Although porang cultivation provides good economic opportunities, the Klino Village community still faces challenges in the form of a lack of knowledge of cultivation techniques.

Therefore, assistance and training are needed to optimize yields. This study aims to analyze the effect of land area, labor, and capital on the income of porang farmers in Klino Village, while exploring its potential to improve farmers' welfare and support the local economy.

RESEARCH METHOD

This research is descriptive quantitative. The quantitative approach is used to measure variables with numbers and analyze data using statistics, as explained by Sugiyono (2012). Data were obtained through random sample collection using questionnaires, statistical data analysis to test predetermined hypotheses. Data used Primary data obtained directly from porang farmers in Klino Village through questionnaires and Secondary data taken from publications such as village profiles, social media, journals, or relevant books. The indicators used in this study are land area (X1), labor (X2), capital (X3) and income (Y). The research was conducted in Klino Village, Sekar District, Bojonegoro Regency. The study population was 350 porang farmers in Klino Village. A sample of 70 farmers (20% of the population) was taken from three hamlets: Kedaton, Krajan, and Tugurejo. Data collection methods consisted of:

- Literature Study : Data collection through books and relevant literature.
- Field Research : Direct interview with porang farmers.
- Questionnaire : Using open and closed questionnaires to obtain data such as income, land area, labor, and capital.

Data analysis techniques using multiple linear regression analysis with data processing techniques Classical Assumption Test (Normality Test, Multicollinearity Test, Heteroscedasticity Test) and Hypothesis Test (T Test, F Test, Coefficient of Determination (R^2)).

ANALYSIS AND DISCUSSION

Deskripsi Responden

Table 2
 Characteristics of Respondents Based on Age Level of Farmers

Age	Frequency	Percentage
21-35 Years	3	6%
36-50 Years	29	55%
51-65 Years	17	32%
66 Years and Above	4	8%
Total	70	100%

Source: Primary data processed year, 2023

Table 2 shows the characteristics of respondents based on the age level of the most farmers aged 36-50 years as many as 29 people with a percentage of 55%. This shows that in this study, farmers who become respondents are mostly productive age, and the least is farmers aged 21-35 years as many as 3 people with a percentage of 6%.

Table 3
 Respondent Characteristics Based on Gender Group

Gender	Frequency	Presentase
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Male	67	98%
Female	3	2%
Total	70	100%

Source: Primary Data Processed Year, 2023

From table 3, it can be seen that the number of male respondents is 52 people with a percentage of 98%. While respondents who are female as much as 1 person with a percentage of 2%. The information shows that the number of farmers with male gender is greater than that of female farmers. This may be because men's energy is greater than women, moreover men are the head of the household as well as the backbone of the family.

Table 4
 Characteristics of Respondents Based on Education Group

Education	Frequency (n)	Presentase
Not in School	6	8.5%
Elementary school graduate	61	87%
Junior or senior high school graduate	3	4.5%
D1 / S1	0	0%
Total	70	100%

Source: Primary Data Processed Year, 2023

From Table 4, it can be seen information about the number of respondents whose education level was not in school as many as 6 people with a percentage of 8.5%, 61 people graduated from elementary school with a percentage of 87%. While respondents whose education level graduated from junior high school / high school as many as 3 people with a percentage of 4.5% and the level of education graduated D1 / S1 no one. The information shows that there are still many farmers who graduated from elementary school. This is due to the lack of equalization of education in Klino Village. In addition, there is a lack of interest in equalizing the community to pursue education or constraints on costs.

Table 5
 Characteristics of Respondents Based on the Number of Family Members Covered

Number of family members covered	Frequency (n)	Percentage
1-2 people	11	16 %
3-4 people	2	3 %
5-6 people	51	73 %
More than 6	6	8 %
Total	70	100 %

Source: Primary Data Processed Year, 2023

From table 5, it can be seen that the number of families borne by the respondents who were the most were 5-6 people as many as 51 people with a percentage of 73%. and the least number of family members borne by respondents with 3-4 people as many as 2 people with a percentage of 3%.

Table 6
 Characteristics of Respondents Based on Years of Farming

Length of time farming	Frequency (n)	Percentage
Less than 2 Years	2	3 %
2-5 Years	18	26 %
6-10 Years	28	40 %
10 Years and above	22	31 %
Total	70	100%

Source: Primary Data Processed Year, 2023

From table 6, it can be seen that the largest number of respondents in the criteria for length of farming is between 6-10 years as many as 28 people with a percentage of 40%. and the least respondents in the length of farming are less than 2 years as many as 2 people with a percentage of 3%.

Description of Research Variables

Table 7
 Respondent Characteristics Based on Land Area

Land Area (Are)	Frequency(n)	Percentage
1-50 are	14	20%
51-100 are	34	48%
101-150 are	16	23%
More than 150 are	6	9%
Total	70	100%

Source: Primary Data Processed Year, 2023

Based on table 7, the characteristics of respondents based on land area show the highest number of land area 51-100 are as many as 34 people with a percentage of 48%. This shows that on average porang cultivation farmers use land that is not so extensive and can be classified as farmers who use medium land in porang cultivation.

Table 8
 Characteristics of Respondents Based on Number of Workers

Labor	Frequency (n)	Percentage
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0-2 people	20	28%
3-6 people	41	59%
7-10 people	9	13%
More than 10 people	0	0%
Total	70	100%

Source: Primary Data Processed, 2023

Based on table 8, the characteristics of respondents based on the number of workers who show the highest number, namely 3-6 people as many as 41 people with a percentage of 59%. As for the lowest number, namely more than 10 people as many as 0 people with a percentage of 0%. Usually farmers use labor who have large areas of land. Farmers who have less extensive land and are being worked on by the farmer himself or assisted by family.

Table 9

Characteristics of Respondents Based on Capital (Per Harvest)

Capital	Frequency(n)	Percentage
<1.500.000	8	11.5%
1.500.001 - 3.000.000	15	21.5%
3.000.001- 4.500.000	25	36 %
4.500.001 - 6.000.000	9	13 %
> 6.000.000	13	18 %
Total	70	100%

Source: Primary Data Processed Year, 2023

Based on table 9, it shows that the characteristics of respondents based on the capital that has been spent by farmers in one harvest period with the highest number of Rp.3,000,001 - Rp.4,500,000 as many as 25 people with a percentage of 36%. While for the lowest is less than Rp.1,500,000 as many as 5 people with a percentage of 11.5%.

Table 10

Respondent Characteristics Based on Farmer Income (Per Harvest)

Revenue (Rp)	Frequency (n)	Percentage
1.000.000-15.000.000	1	1 %
15.000.001-30.000.000	12	17%
30.000.001-45.000.000	33	48%
45.000.001-65.000.000	19	27 %
>65.000.000	5	7%

Total	70	100%
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Source: Primary Data Processed Year, 2023

Based on table 10, it shows that the characteristics of respondents based on the income of porang cultivation farmers in one harvest, farmers with the highest amount of income are income of Rp.30,000,000-Rp.45,000,000 as many as 33 people with a percentage of 48%. While with the lowest income of < Rp.15,000,000 as many as 1 person with a percentage of 1%.

Data Processing Results

One-Sample Kolmogorov-Smirnov Test

		Pendapatan
N		70
Normal Parameters ^{a, b}	Mean	40737714.29
	Std. Deviation	12843960.423
Most Extreme Differences	Absolute	.111
	Positive	.111
	Negative	-.069
Test Statistic		.111
Asymp. Sig. (2-tailed) ^c		.033
Monte Carlo Sig. (2-tailed) ^d	Sig.	.029
	99% Confidence Interval	Lower Bound
		Upper Bound

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

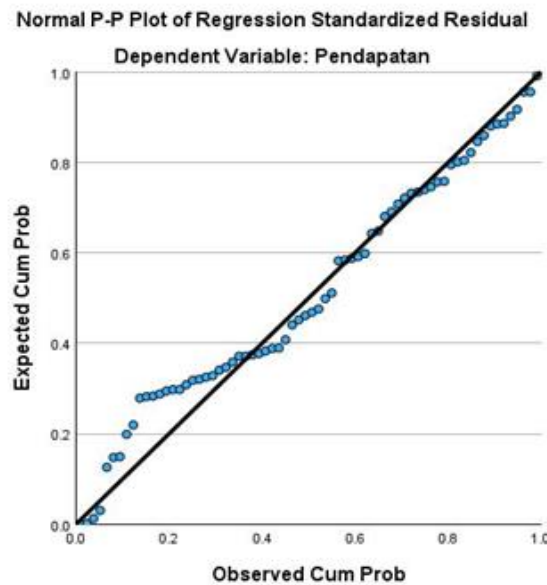
d. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

Figure 1

Data Normality Testing Results

Based on the test results above, the significance value is 0.33 which is greater than 0.05. this indicates that the residual distribution is normal. The normality test can also be seen in the Normal P-PPlot image below:

Figure 2



Based on the picture above, the normality test using the P-PPlot method obtained data results around the diagonal line. This will show that the data spreads according to the normal distribution and the regression method is feasible to use because it fulfills the assumption of normality.

Coefficients^a

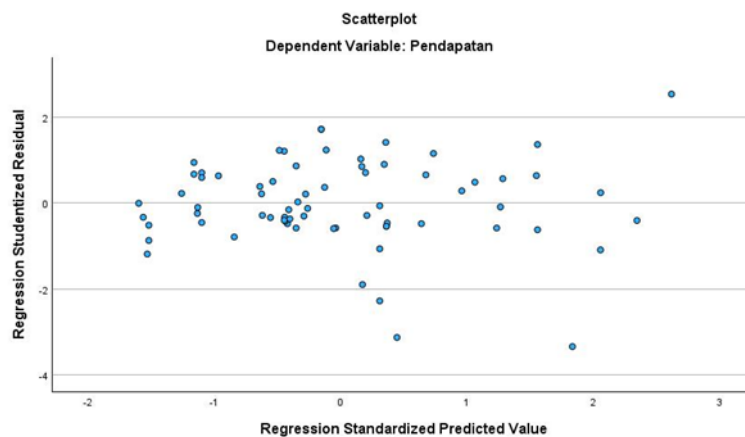
Model		Collinearity Statistics	
		Tolerance	VIF
1	Luas Lahan	.142	7.053
	Tenaga Kerja	.148	6.747
	Modal	.296	3.377

a. Dependent Variable: Pendapatan

Figure 3
Multicollinearity Test

Based on Figure 3, it can be seen that the regression model is free of multicollinearity because the tolerance value of all variables > 0.10, namely the tolerance value of the land area variable amounting to: 0.142, the tolerance value of the labor variable is: 0.148 and the tolerance value of the capital variable is: 0,296. The VIF value is < 10, namely the VIF value of the land area variable amounting to: 7.053, VIF value of labor variable amounting to: 6.747 and the VIF value of the capital variable is 3.377 so that the regression model can be stated that there are no multicollinearity symptoms.

Figure 4



Heteroxedasticity Test

Figure 4 of the scatterplot pattern above, it can be seen that there is no heteroscedasticity in the regression model, so this regression model is suitable for predicting how the variable influences based on the input of the variable independent.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	19506849.466	2371780.410		8.225	<.001
	Luas Lahan	125130.167	57832.140	.444	2.164	.034
	Tenaga Kerja	-352754.460	1298464.123	-.055	-.272	.787
	Modal	2.676	.899	.422	2.975	.004

a. Dependent Variable: Pendapatan

Figure 5

Multiple Linear Regression Test Results

Based on Figure 5, the following regression equation is obtained:

$$\ln Y = \ln \alpha + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + \mu$$

$$Y = 14,68 + 0,359 + 0,045 + 0,097 + \mu$$

It is found that when land area (X1), labor (X2), and capital (X3) are constant, the income of porang farmers is worth 14,368 rupiah. A 1 rupiah increase in land area (X1), labor (X2), and capital (X3) increases porang farmers' income by 0.359 rupiah, 0.045 rupiah, and 0.097 rupiah, respectively, indicating a positive influence of these variables on income.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.899E+15	3	2.300E+15	33.852	<.001 ^b
	Residual	4.484E+15	66	6.793E+13		
	Total	1.138E+16	69			

a. Dependent Variable: Pendapatan

b. Predictors: (Constant), Modal, Tenaga Kerja, Luas Lahan

Figure 6

F Test Results

1. A = 0.05 Df numerator = 3 and Df denominator = 66
2. Fcount = 33.852 and Ftable = 2.79

Because $F_{hitung} > F_{tabel}$ then simultaneously variable land area (X1), labor (X2) and capital (X3) significantly affect the dependent variable income of porang farmers in Klino Village, Sekar District, Bojonegoro Regency. So that the hypothesis in this study states that land area (X1), labor (X2) and capital (X3) simultaneously have a significant effect on the income of porang farmers in Klino Village, Sekar District, Bojonegoro Regency is statistically proven. This is indicated by $F_{count} > F_{tabel}$ which is $33.852 > 2.79$.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	19506849.466	2371780.410		8.225	<.001
	Luas Lahan	125130.167	57832.140	.444	2.164	.034
	Tenaga Kerja	-352754.460	1298464.123	-.055	-.272	.787
	Modal	2.676	.899	.422	2.975	.004

a. Dependent Variable: Pendapatan

Figure 7
T Test Results

The T test results show that the variables of land area (X1) and capital (X3) partially have a significant effect on the income of porang farmers in Klino Village, Sekar Subdistrict, Bojonegoro Regency because the value of $T_{hitung} > T_{tabel}$ (respectively 2.164 and 2.975 > 2.009), while the variable labor (X2) has no significant effect because $T_{hitung} < T_{tabel}$ ($-0.272 < 2.009$)

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Akaike Information Criterion	Selection Criteria		
						Amemiya Prediction Criterion	Malloves' Prediction Criterion	Schwarz Bayesian Criterion
1	.779 ^a	.606	.588	8242196.586	2233.350	.442	4.000	2242.344

a. Predictors: (Constant), Modal, Tenaga Kerja, Luas Lahan
b. Dependent Variable: Pendapatan

Figure 8
Determination Coefficient Test

The coefficient of determination R^2 adjusted calculation results amounted to: 0.588 which means that the variable land area (X1), labor (X2) and capital (X3) can explain the dependent variable Porang farmer income (Y) by 58.8%, so it can be said to be included in the strong category for the test model.

Discussion

The results of the analysis show that the variables of land area (X1), labor (X2), and capital (X3) simultaneously have a significant effect on the income of porang farmers (Y) with the value of $F_{count} > F_{tabel}$ ($33.852 > 2.79$). Partially, land area (X1) and capital (X3) have a significant effect with $T_{hitung} > T_{tabel}$ (2.164 and 2.975 > 2.009 respectively), while labor (X2) has no significant effect ($T_{hitung} < T_{tabel}$, $0.272 < 2.009$). The effect of independent variables on the income of porang farmers is 58.8% based on the coefficient of determination (R^2 adjusted).

CONCLUSION

This study concluded that the variables of land area (X1) and capital (X3) partially have a significant effect on the income of porang farmers (Y), while the variable of labor (X2) has no

significant effect. Simultaneously, the variables of land area, labor, and capital have a significant effect on the income of porang farmers, with the value of $F_{hitung} > F_{tabel}$ ($33.852 > 2.79$). The influence of independent variables on the income of porang farmers is also relatively strong, as evidenced by the adjusted R^2 value of 58.8%.

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