Analysis of Factors Affecting the Income of Rice Paddy Farmers in Rural Farming Communities

Original Article

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Abstract

This research examines how various factors including farm size, years of agricultural experience, and expenses for seeds, fertilizers, pesticides, and labor impact the earnings of rice cultivators in Nambaru Village, located in South Parigi District, Parigi Moutong Regency. The study employs a quantitative descriptive methodology and was carried out between February and March 2025, gathering data from 60 participants in Nambaru Village. The investigation utilized both primary and secondary data sources. Primary information was collected through direct observation and interviews using questionnaires, while secondary data came from governmental agencies and academic sources, including the Central Statistics Agency (BPS), Department of Food Crops, and Agricultural Extension Services. The analytical approach employed multiple linear regression techniques. Findings reveal that rice farmers in Nambaru Village earn an average of Rp 24,661,676 per hectare during a standard growing season, achieving an efficiency ratio of 3.03 based on Revenue-to-Cost (R/C) analysis. The study demonstrates that when considered together, all six factors namely farm size (X1), agricultural experience (X2), seed expenses (X3), fertilizer costs (X4), pesticide expenditures (X5), and labor costs (X6) collectively show a positive and statistically significant relationship with farmers' income (Y). When examining individual factors, farm size (X1) demonstrates both positive and significant influence on income. Agricultural experience (X2), fertilizer expenses (X4), and pesticide costs (X5) show positive correlations but lack statistical significance. Conversely, seed costs (X3) exhibit a negative and significant relationship with income, while labor expenses (X6) show a negative but insignificant effect on rice farmers' earnings in the study area.

Keywords: Rice Farmers, Agricultural Income, Farm Size, Production Costs, Rural Economics.

1. Introduction

Rice is a primary agricultural product in Indonesia, serving as the main source of sustenance for the majority of the local population. Almost all Indonesians rely on rice as their main dietary staple (Simanjuntak et al., 2021). Based on data from Central Bureau of Statistics (2024), the average rice consumption per capita in Indonesia per year 2023 was 74.784 kg/year. This figure means that every person in Indonesia consumes an average of 0.204 kg of rice per day. Indonesia's extensive rice consumption per person places it among the world's top consumers of rice, necessitating the country to continue importing rice from other nations.

Rice import policies can provide positive impacts in the short term, such as maintaining price stability and supply availability. However, this step also has the potential to reduce local farmers' motivation to increase their production yields. Therefore, careful consideration is

needed to achieve a balance between meeting food needs and sustainable agricultural development in the long term (Rizki, 2025).

Food self-sufficiency is important as an effort to meet the community's food needs in the form of rice, without depending on imports from other countries. Several factors that influence Indonesia's rice imports include declining rice production so that rice reserves are not met, rice consumption that exceeds available rice reserves, and many rice fields being converted into residential areas, causing the rice harvest area to decrease (Hasanah, 2022). In addition, continuous population growth causes high rice consumption, so if domestic rice production is insufficient for community rice needs, the government will increase imports (Mutiasari & Indrajaya, 2019). These factors drive rice imports in Indonesia to other countries.

Rice is a major commodity that supports national food security. Central Sulawesi is one of the rice-producing regions that contributes to national food security. In the last five years (2019-2023), rice production in Central Sulawesi has continued to fluctuate. This is caused by several factors such as differences in harvest area, pest attacks, and climate change that directly impact production volume. The typical amount of rice produced in Central Sulawesi Province is 817,560 tons of Milled Dry Grain (GKG) across a farming area of 180,322 hectares (Central Sulawesi Statistics Agency, 2024). The table below displays the growth of rice plants in Central Sulawesi, including the expansion of harvest areas, increase in production, and improvements in productivity.

Table 1. Development Data of Harvest Area, Production, and Productivity of Rice Plants in Central Sulawesi Province 2019-2023

Year	Harvest Area (Ha)	Total Production (Ton GKG)	Productivity (Ton/Ha)
2019	186.100	844.904	4,54
2020	180.510	810.110	4,49
2021	185.000	867.012	4,68
2022	173.000	744.408	4,46
2023	177.000	821.367	4,59
Average	180.322	817.560	4,55

Source: Central Sulawesi Province Statistics Agency, 2024

Parigi Moutong Regency stands out as the top contributor to rice production among 13 other regencies in Central Sulawesi Province. With an average rice production of 249,487 hectares, this region accounts for 30.5% of the total rice production in the province (BPS Parigi Moutong Regency, 2025). The high rice production in Parigi Moutong Regency is because most of the people in Parigi Moutong Regency work as farmers, making Parigi Moutong Regency known as the rice barn in Central Sulawesi (Awal et al., 2023) .

South Parigi District is located in the Parigi Moutong Regency area, with rice farming being the most developed commodity. South Parigi District is also one of the districts with the highest rice production in Parigi Moutong Regency. The population of South Parigi District in 2023 was 23,142 people, with the majority of residents having rice farming as their livelihood (BPS Parigi Moutong Regency, 2025). Based on information from the Agricultural Extension Center of South Parigi District, in 2023 rice production in South Parigi District was 20,893.96 tons with a harvest area of 3,508.8 Ha.

Nambaru Village is a village located in the South Parigi District area with a population of 3,690 people as of 2023 (BPS Parigi Moutong Regency, 2025). Nambaru Village is the village that produces the most rice compared to other villages in South Parigi District. Extensive agricultural land is a driving factor for high rice productivity in Nambaru Village and makes rice farming the main livelihood. Recorded in 2023, rice production was 5,402.48

tons and harvest area were 890.5 Ha, with productivity of 6.06 tons of rice per hectare. This figure means that Nambaru Village contributes about 1.82 percent of the total rice production in Parigi Moutong Regency (Agricultural Extension Center of South Parigi District, 2025).

As described above, the researcher wants to delve deeper into research to investigate the various elements that impact the earnings of rice farming in Nambaru Village. The problems discussed in this research are finding out the relationship between land area, farming experience, seeds, fertilizers, pesticides, and labor on rice farmers' income. This research is conducted through comprehensive analysis with the hope of obtaining a clear picture of the influence of land area, farming experience, seeds, fertilizers, pesticides, and labor on farmers' income.

2. Literature Review

Rice farming income is one of the important indicators in assessing the sustainability and welfare of farmers (Lestari et al., 2025). Various studies in Indonesia show that rice farmers' income varies depending on location, irrigation system, land ownership status, and other factors (Ekawati et al., 2024). The utilization of production facilities such as land area, capital (seeds, fertilizers, pesticides), and labor is very important to increase income and efficiency of rice farming (Rifki et al., 2021).

2.1. Effect of Land Area on Rice Farming Income in Nambaru Village, South Parigi District, Parigi Moutong Regency

Land area is an important factor in determining rice production volume. Based on research by Tamamala (2021), there is a positive and significant relationship between the land area cultivated and rice production levels in Barugae Village, Maros Regency. This means that increasing land area tends to be followed by increased production yields, so land expansion can be considered as a strategy in optimizing agricultural output (Oktalia et al., 2022). In addition, land area not only impacts on increasing production volume, but is also closely related to increasing farmers' overall income.

H1: Land area has a positive and significant effect on rice farming income in Nambaru Village, South Parigi District, Parigi Moutong Regency.

2.2. Effect of Farming Experience on Rice Farming Income in Nambaru Village, South Parigi District, Parigi Moutong Regency

Farming experience can influence farmers' skills and knowledge in managing rice farming. Based on study by Maramba (2018), farming experience has a positive effect on farming income. This may be due to the adoption of new technologies that require additional knowledge and increasing needs for the utilization of modern agricultural technology, which often requires new cognitive capacity and technical skills beyond what is gained through conventional experience.

H2: Farming experience has a positive and significant effect on rice farming income in Nambaru Village, South Parigi District, Parigi Moutong Regency.

2.3. Effect of Seed Costs on Rice Farming Income in Nambaru Village, South Parigi District, Parigi Moutong Regency

The use of high-quality seeds has been proven to significantly increase rice plant productivity. Farmers who use certified superior seeds consistently achieve higher yields compared to farmers who use uncertified seeds (Akbar et al., 2023). In addition, according to Sirait & Noviani (2022), seed costs have a significant effect on farmers' income. Nevertheless,

the high price of superior seeds is still the main obstacle for farmers with limited income, so access to quality seeds requires policy support that favors small farmers so that the adoption of more efficient agricultural technology can be realized equitably.

H3: Seed costs have a positive and significant effect on rice farming income in Nambaru Village, South Parigi District, Parigi Moutong Regency.

2.4. Effect of Fertilizer Costs on Rice Farming Income in Nambaru Village, South Parigi District, Parigi Moutong Regency

Proper fertilizer use can increase rice productivity. The costs incurred for fertilizer use are important to analyze, in addition, efficient and appropriate fertilizer application contributes significantly to increasing rice farmers' income, along with increased harvest yields (Imran et al., 2023). Fertilizer use must be adjusted to plant needs to avoid waste and negative impacts on the environment. This needs-based approach not only supports farm business sustainability, but is also in line with environmentally friendly agricultural principles.

H4: Fertilizer costs have a positive and significant effect on rice farming income in Nambaru Village, South Parigi District, Parigi Moutong Regency.

2.5. Effect of Pesticide Costs on Rice Farming Income in Nambaru Village, South Parigi District, Parigi Moutong Regency

Pest and disease attacks are factors that cause the importance of pesticide use. However, safe pesticide use is still a problem among farmers, because excessive pesticide use can cause pest resistance and negative impacts on human health and the environment (Mariyono et al., 2018). Efficient and optimal pesticide use can increase farming productivity. Increased pesticide costs are important to pay attention to because pesticide prices over time have serious implications for production cost efficiency in the agricultural sector, which ultimately affects farmers' income.

H5: Pesticide costs have a positive and significant effect on rice farming income in Nambaru Village, South Parigi District, Parigi Moutong Regency.

2.6. Effect of Labor Costs on Rice Farming Income in Nambaru Village, South Parigi District, Parigi Moutong Regency

The availability and quality of labor have a crucial role in ensuring the smooth and efficient rice production process. Study by Wiharnata et al. (2021), shows that labor costs have a significant effect on rice farmers' income. In addition, labor costs are directly proportional to production volume (Febrilia & Sari, 2024). Labor shortages can be a major obstacle in implementing rice farming activities. This phenomenon is inseparable from the declining interest of the younger generation to be involved in the agricultural sector. The lack of farmer regeneration is one of the factors that worsens the situation, so the agricultural sector increasingly experiences difficulties in obtaining adequate and competent human resources.

H6: Labor costs have a positive and significant effect on rice farming income in Nambaru Village, South Parigi District, Parigi Moutong Regency.

2.7. Effect of Land Area, Farming Experience, Seed Costs, Fertilizer Costs, Pesticide Costs, and Labor Costs on Rice Farming Income in Nambaru Village, South Parigi District, Parigi Moutong Regency

Farmers' income is very important to pay attention to, considering that rice commodities are the main source of income for the community in Nambaru Village. Rice farmers' income in general is greatly influenced by the level of production produced (Wahyuni et al., 2022). Other factors such as land area and farming experience are two important aspects that are positively correlated with increasing farmers' income (Tunas et al., 2023). In addition, the

selection of seed types, fertilizers, pesticides, and labor utilization also influence the efficiency of the production process. The right input selection can optimize harvest yields while reducing operational costs, thus directly impacting on income increase (Awal et al., 2023).

H7: Land area, farming experience, seed costs, fertilizer costs, pesticide costs, and labor costs have a positive and significant effect on rice farming income in Nambaru Village, South Parigi District, Parigi Moutong Regency.

3. Methods

This research employs quantitative and descriptive analysis methods. Quantitative descriptive research is a method that seeks to systematically analyze data in order to describe the attributes of a phenomenon or the connections between variables. This approach is used to explain and measure the extent to which independent variables (independent variables) influence dependent variables (dependent variables). This research was conducted in February-March 2025 in Nambaru Village, South Parigi District, Parigi Moutong Regency. The selection of research locations was done purposively with the consideration that Nambaru Village is the village with the most farmers and the largest rice production in South Parigi District.

3.1. Population and Sample

In this research, the sampling method utilized involves the use of probability sampling techniques specifically utilizing a simple random sampling approach. This technique ensures that every individual in the population has an equal probability of being chosen for the study without any consideration for specific strata (Sahir, 2022). Based on data from the Agricultural Extension Center of South Parigi District, the number of rice farmers in Nambaru Village is 598 people. According to Arikunto (2012), if there are over 100 individuals in the population, the sample size can range from 10-15 percent, 20-25 percent, or even higher, depending on the requirements of the study. For this particular research, a sample size representing 10 percent of the entire population was chosen, resulting in a sample of 60 rice farmers being included in the study.

3.2. Data Collection Method

Data collection in the study was conducted through observation and interviews. The data used are primary and secondary data. Primary data was obtained from direct interviews with respondents using a questionnaire. Secondary data was obtained from several reference sources and institutions relevant to this research. These reference sources are the Central Statistics Agency (BPS), Food Crops Department, and Agricultural Extension Center.

3.3. Data Analysis Method

Income analysis is utilized to assess the earnings of rice farmers by comparing the total revenue (TR) with the total cost (TC) (Soekartawi, 2006). In order to calculate earnings, the subsequent equation is utilized:

$$\pi = TR - TC$$

Where:
π   = Net income (Rp)
TR   = Total Revenue (Rp)
TC   = Total Cost (Rp)

To determine farming efficiency, the Revenue Cost Ratio or (R/C) Ratio formula is used:

$$\text{R/C Ratio} = \frac{\text{Total Revenue (TR)}}{\text{Total Cost (TC)}}$$

With the provisions:
a.   If R/C < 1, then farming is not efficient or does not make a profit (loss).
b.   If R/C > 1, then farming is efficient or makes a profit.
c.   If R/C = 1, then farming is neither profitable nor loss-making (break-even).

To examine the connection between the outcome variable and explanatory variables, this study employs multiple linear regression analysis. This statistical method is utilized to assess the effect of land area (X_1), farming experience (X_2), seed costs (X_3), fertilizer costs (X_4), pesticide costs (X_5), and labor costs (X_6) on rice farmers' income in Nambaru Village. The multiple linear regression formula is as follows:

$$Y = \alpha + b_1X_1 + b_2X_2 + \ldots + b_nX_n + e$$

Where:
Y   = Dependent variable
α   = Constant
$b_1, b_2, \ldots b_n$ = Regression coefficients
X_1 = Land Area
X_2 = Farming Experience
X_3 = Seed Costs
X_4 = Fertilizer Costs
X_5 = Pesticide Costs
X_6 = Labor Costs
e   = Error or residual

In this research, traditional assumption tests are employed to assess the viability of the data and to verify that it adheres to a normal distribution. The classical assumption tests consist of tests for normality, multicollinearity, and heteroscedasticity. In addition, hypothesis testing is conducted to provide answers to the problem formulation in this study, so that it can be known whether there is a relationship or influence between the variables studied. In addition, descriptive analysis is also conducted to provide an initial description of data characteristics before further analysis.
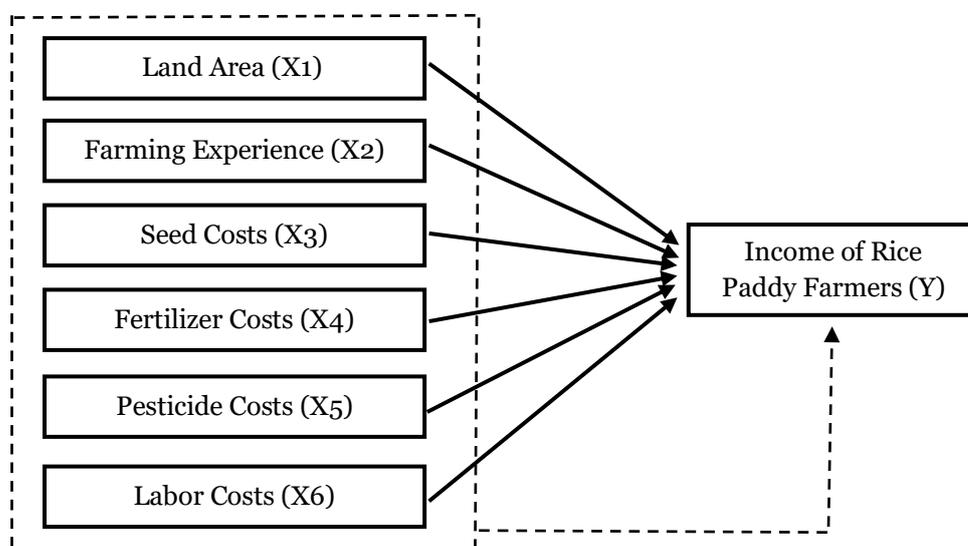

Figure 1. Research Framework

Based on the research framework, it is clear that the purpose of this study is to analyze the relationship between the independent variables consisting of land area (X1), farming experience (X2), seed costs (X3), fertilizer costs (X4), pesticide costs (X5), and labor costs (X6), both simultaneously and partially, to farmer income as the dependent variable (Y). The subjects in this study were rice paddy farmers.

3.4. Operational Definition of Variables

a. Rice Farming Income: Rice farming income is defined as the net profit obtained by farmers from rice farming activities during one planting season. The earnings are determined by comparing the total income from the harvest with all the expenses accrued during production. The currency unit in use is Rupiah.

b. Land Area: Land area is a measure of the area of land used by farmers to plant rice in one planting season. This variable reflects the scale of farming operations. Land area is measured in hectares (Ha).

c. Farming Experience: Farming experience shows the length of time (in years) farmers have been actively engaged in rice farming activities. This variable reflects the level of knowledge and skills of farmers in managing their farming business. The unit used is years.

d. Seed Costs: Seed costs are the total expenditure incurred by farmers for purchasing rice seeds used during one planting season. The amount of this cost reflects the intensity of production inputs used. Seed costs are expressed in Rupiah (Rp).

e. Fertilizer Costs: Fertilizer costs include all farmer expenditures for purchasing fertilizers, both organic and inorganic, during one planting season. The calculation is based on the type and frequency of fertilizer use. This cost is also expressed in Rupiah (Rp).

f. Pesticide Costs: Pesticide costs are the total amount of expenditure incurred by farmers to buy pesticides during one planting season. Pesticides are used to control plant pests and diseases. The unit used is Rupiah (Rp).

g. Labor Costs: Labor costs reflect the total costs incurred by farmers to pay labor, both from family members and outside the family, during the rice production process. The calculation is done by multiplying the number of working days by the wage per working day. This cost is also measured in Rupiah (Rp).

4. Results and Discussion

4.1. Respondent Characteristics

Table 2. Characteristics of Respondent Farmers in Nambaru Village

No	Respondent Farmer Characteristics	Number	Percentage (%)
	Age		
	26-30	4	6,66
	31-35	7	11,66
1	36-40	13	21,66
	41-45	18	30,00
	46-50	10	16,66
	>50	8	13,33
	Total	60	100
	Education		
2	Elementary School	15	25,00
	Junior High School	18	30,00

No	Respondent Farmer Characteristics	Number	Percentage (%)
	High School	25	41,66
	Higher Education	2	3,33
	Total	60	100
3	**Land Area**		
	0,5-0,99	9	15,00
	1-1,99	31	51,66
	2-3	19	31,66
	>3	1	1,66
	Total	60	100
4	**Farming Experience**		
	6-10 years	8	13,33
	11-15 years	12	20,00
	16-20 years	17	28,33
	21-25 years	18	30,00
	>25 years	5	8,33
	Total	60	100

Source: Primary Data, 2025

The data in the table 2 shows that most farmers surveyed fall within the age range of 36 to 50, which is considered the peak age for productivity among respondents. The table also shows that most respondent farmers have a secondary education background, with higher education levels still relatively low. Most farmers have land area in the range of 1-1.99 Ha. Respondent farmers have quite long farming experience of 11-25 years.

Table 3. Average Production Costs of Respondent Farmers Per Ha in One Planting Season in Nambaru Village

Description	Planting Season/Ha (Rp)
Variable Costs	
Seeds	914.917
Fertilizer:	
Urea	460.000
Phonska	480.000
Pesticides:	
Herbicide	1.003.288
Insecticide	2.599.612
Fungicide	458.994
Labor:	
Labor Costs	1.340.557
Plowing Costs	1.608.986
Planting Costs	223.373
Other Costs	630.000
Total Variable Costs	9.719.728
Fixed Costs	
Land Tax	19.500
Equipment Depreciation	1.125.633
Total Fixed Costs	1.145.133
Total Costs (TC)	10.864.859

Source: Primary Data, 2025

According to the information shown in the table 3, the typical Variable Cost for farmers surveyed comes to Rp 9,719,728 per hectare during a single planting season. At the same time,

the Fixed Cost amounts to Rp 1,145,133 per hectare in one planting season. Consequently, the total expenditure adds up to Rp 10,864,859 per hectare for one planting season.

Table 4. Average Revenue and Income of Respondent Farmers Per Ha in One Planting Season in Nambaru Village

Description	Planting Season/Ha (Rp)
Total Revenue	
Production Volume (Kg)	3.036,46
Rice Selling Price (Rp)	11.700
Total Revenue Amount	35.526.582
Total Income	
Total Cost (TC)	10.864.861
Total Revenue (TR)	35.526.537
Total Income Amount	**24.661.676**

Source: Primary Data, 2025

Based on the table 4 above, the average revenue of respondent farmers is Rp 35,526,582/Ha in one planting season. Thus, the income of respondent farmers in Nambaru Village is Rp 24,661,676/Ha in one planting season, assuming normal rice conditions. Meanwhile, the efficiency value of rice farming in Nambaru Village analyzed using Revenue Cost Ratio (R/C) is 3.27, which shows R/C > 1, so rice farming in Nambaru Village is considered feasible/efficient. This result means that every Rp 1 of costs incurred by farmers will earn Rp 3.27-.

4.2. Classical Assumption Tests

4.2.1. Normality Test

Table 5. Normality Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		60
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	858869,10167962
Most Extreme Differences	Absolute	,113
	Positive	,088
	Negative	-,113
Test Statistic		,113
Asymp. Sig. (2-tailed)		,056[c]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

Source: Processed Data, 2025

Based on the normality test (Kolmogorov-Smirnov test), a sig (2-tailed) value of 0.056 was obtained, which is greater than the significance level of 0.05. Therefore, it is concluded that the data for each variable is normally distributed.

4.2.2. Heteroscedasticity Test

Table 6. Heteroscedasticity Test Results

	Correlation	
Spearman`s rho	Variable	Sig
	Land Area (Ha)	,831
	Farming Experience (Year)	,314
	Seed Cost (Rp)	,909
	Fertilizer Cost (Rp)	,905
	Pesticide Cost (Rp)	,596
	Labor Cost (Rp)	,639

Source: Processed Data, 2025

According to the findings of the analysis, the significant values for X1(0.831), X2(0.314), X3(0.909), X4(0.905), X5(0.596), and X6(0.639) exceed the threshold of 0.05, leading to the determination that there is no issue of heteroscedasticity.

4.2.3. Multicollinearity Test

Table 7. Multicollinearity Test Results

Variable	Collinearity Statistic		Description
	Tolerance	VIF	
Land Area (X1)	,817	1,223	
Farming Experience (X2)	,899	1,113	
Seed Cost (X3)	,768	1,302	No multicollinearity
Fertilizer Cost (X4)	,921	1,085	
Pesticide Cost (X5)	,984	1,016	
Labor Cost (X6)	,842	1,187	

Source: Processed Data, 2025

According to the test for multicollinearity, it appears that the independent variables are not correlated. The tolerance values for X1(0.817), X2(0.899), X3(0.768), X4(0.921), X5(0.984), X6(0.842) exceed 0.100, and the VIF values for X1(1.223), X2(1.113), X3(1.302), X4(1.085), X5(1.016), X6(1.187) are below 10.00. As a result, it can be inferred that there is no indication of multicollinearity among the independent variables.

4.2.4. Multiple Linear Regression Analysis

Table 8. Multiple Linear Regression Analysis Results

	Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1 (Constant)	26643412,668	3097332,992		8,602	,000	
Land Area	1521235,138	193090,225	,605	7,878	,000	
Farming Experience	19948,126	18575,831	,079	1,074	,288	
Seed Cost	-6,443	1,269	-,403	-5,078	,000	
Fertilizer Cost	,134	1,489	,007	,090	,929	
Pesticide Cost	,401	,534	,053	,751	,456	
Labor Cost	-,089	,228	-,030	-,392	,697	
a. Dependent Variable: Income (Rp)						

Source: Processed Data, 2025

The subsequent regression equation is derived from the results of the analysis using multiple linear regression:

Rice Farmers Income = 26643412,658 + 1521235,138(Farm Size) + 19948,126(Agricultural Experience) − 6,443(Seed Expenses) + 0,134(Fertilizer Expenses) + 0,401(Pesticide Expenses) -0,089(Labor Expenses)

a. The intercept value of 26,643,412.658 represents the baseline income level when all predictor variables—Farm Size (X1), Agricultural Experience (X2), Seed Expenses (X3), Fertilizer Expenses (X4), Pesticide Expenses (X5), and Labor Expenses (X6)—are set to zero, with all other variables remaining unchanged.

b. The Land Area variable (X1) demonstrates a positive relationship with Income (Y), showing a coefficient of b=1,521,235.138. This indicates that each unit increase in farm size corresponds to an income boost of 1,521,235.138, with other variables remaining constant.

c. Farming Experience (X2) exhibits a positive correlation with Income (Y), with a coefficient of b = 19,948.126. This suggests that each additional unit of farming experience leads to an income increase of 19,948.126, holding other factors constant.

d. Seed Cost (X3) show an inverse relationship with Income (Y), displaying a coefficient of b = -6.443. This means that each unit increase in seed costs results in an income reduction of 6.443, with other variables held constant.

e. Fertilizer Cost (X4) demonstrate a positive association with Income (Y), with a coefficient of b = 0.134. This indicates that each unit increase in fertilizer costs leads to an income rise of 0.134, assuming other factors remain unchanged.

f. Pesticide Cost (X5) exhibit a positive correlation with Income (Y), showing a coefficient of b = 0.401. This means that each unit increase in pesticide costs corresponds to an income increase of 0.401, with other variables held constant.

g. Labor Cost (X6) display a negative relationship with Income (Y), with a coefficient of b = -0.089. This suggests that each unit increase in labor costs results in an income decrease of 0.089, assuming other factors remain constant.

4.2.5. Coefficient of Determination Test (R²)

Table 9. Coefficient of Determination Test Results

Model Summary			
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	,863ᵃ	,744	,715	906181,20450

a. Predictors: (Constant), Land size (Ha), Farming experience (Years), Seed cost (Rp), Fertilizer cost (Rp), Pesticide cost (Rp), Labor cost (Rp)

Source: Processed Data, 2025

Based on the Coefficient of Determination Test (R²) analysis results, the percentage of Income (Y) variable variation that can be explained by Land Area (X1), Farming Experience (X2), Seed Costs (X3), Fertilizer Costs (X4), Pesticide Costs (X5), and Labor Costs (X6) variables is 74.4 percent, while other factors outside of the research model account for 25.6 percent of the remaining percentage.

4.2.6. Simultaneous Test (F Test)

Table 10. Simultaneous Test (F Test) Results

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	126548173935718,220	6	21091362322619,703	25,685	,000ᵇ
	Residual	43521711895376,750	53	821164375384,467		
	Total	170069885831094,970	59			

a. Dependent Variable: Income (Rp)
b. Predictors: (Constant), Land size (Ha), Farming experience (Years), Seed cost (Rp), Fertilizer cost (Rp), Pesticide cost (Rp), Labor cost (Rp)

Source: Processed Data, 2025

Based on the simultaneous test (F test) analysis results, the F value (25.685) > F table (2.389) and sig value 0.000 is less than the significance level of 0.05. Therefore, it is concluded that there is a positive and significant effect of Land Area (X1), Farming Experience (X2), Seed Costs (X3), Fertilizer Costs (X4), Pesticide Costs (X5), and Labor Costs (X6) variables simultaneously on Income (Y). Thus, H7 is accepted and H0 is rejected.

4.2.7. Partial Test (t Test)

Table 11. Partial Test (t Test) Results

Variable	t value	t table	Sig
Land Area	7,878		,000
Farming Experience	1,074		,288
Seed Cost	-5,078	2,00665	,000
Fertilizer Cost	,090		,929
Pesticide Cost	,751		,456
Labor Cost	-,392		,697

Source: Processed Data, 2025

4.3. Discussion

4.3.1. Effect of Land Area on Rice Farming Income in Nambaru Village

The research findings show a strong link between the land area and income of farmers and the income of rice farmers in Nambaru Village, South Parigi District, Parigi Moutong Regency. This is evidenced by the land area regression coefficient value of 1,521,235.138. In addition, the t value (7.878) is greater than the t table (2.22665) with a sig value (0.000) less than the significance level (α=0.05). Therefore, H1 is accepted and H0 is rejected.

4.3.2. Effect of Farming Experience on Rice Farming Income in Nambaru Village

Based on the research results, farming experience has a positive but not significant relationship with rice farmers' income in Nambaru Village, South Parigi District, Parigi Moutong Regency. This can be evidenced by the farming experience regression coefficient value of 19,948.126. In addition, the t value (1.074) is greater than the t table (2.22665) with a sig value (0.288) greater than the significance level (α=0.05). Therefore, H1 is rejected and H0 is accepted.

4.3.3. Effect of Seed Costs on Rice Farming Income in Nambaru Village

The research results explain that seed costs and farmers' income are negatively and significantly correlated with rice farmers' income in Nambaru Village, South Parigi District, Parigi Moutong Regency. This is evidenced by the seed cost regression coefficient value of -

6.443. In addition, the t value (-5.078) is less than the t table value (2.22665), with a sig value (0.000) less than the significance level (α=0.05). Therefore, H1 is rejected and H0 is accepted.

4.3.4. Effect of Fertilizer Costs on Rice Farming Income in Nambaru Village

This study's results suggest that there is a small positive correlation between the cost of fertilizer and the income of rice farmers in Nambaru Village, located in South Parigi District, Parigi Moutong Regency. This can be evidenced by the fertilizer cost regression coefficient value of 0.134. In addition, it shows that the t value (0.090) is greater than the t table value (2.22665), with a sig value (0.929) greater than the significance level (α=0.05). Therefore, H1 is rejected and H0 is accepted.

4.3.5. Effect of Pesticide Costs on Rice Farming Income in Nambaru Village

The results of the study indicate that there is a slight positive correlation between pesticide costs and the income of rice farmers in Nambaru Village, South Parigi District, Parigi Moutong Regency. This is supported by the regression coefficient for pesticide costs being 0.401. Furthermore, the t value (0.751) is lower than the t table value (2.22665), and the significance value (0.456) is higher than the significance level (α=0.05). As a result, the hypothesis H1 is rejected, and H0 is accepted.

4.3.6. Effect of Labor Costs on Rice Farming Income in Nambaru Village

The research results explain that labor costs and farmers' income are negatively and also not significantly correlated with rice farmers' income in Nambaru Village, South Parigi District, Parigi Moutong Regency. This is evidenced by the seed cost regression coefficient value of -0.089. In addition, the t value (-0.392) is less than the t table value (2.22665), with a sig value (0.697) greater than the significance level (α=0.05). Therefore, H1 is rejected and H0 is accepted.

5. Conclusion

Based on the research results, it can be known that the average income of rice farmers in Nambaru Village, South Parigi District, Parigi Moutong Regency is Rp 24,661,676/Ha in one normal planting season. Rice farming in Nambaru Village, when viewed from the analysis results using R/C ratio greater than 1, which is 3.03, means that rice farming in Nambaru Village is profitable and therefore feasible to develop.

The results of this research indicate that various factors such as land size, experience in farming, expenses for seeds, fertilizers, pesticides, and labor costs all have a notable impact on the income of rice farmers in Nambaru Village. Specifically, the size of the land has a significant positive influence on farmers' earnings, while factors like farming experience, fertilizer costs, and pesticide expenses also have positive effects on income, although not significant. On the other hand, the cost of seeds has a negative and significant impact on rice farmers' income, and labor costs have a negative effect, although not significant, in Nambaru Village within the South Parigi District.

6. References

Akbar, K., Indra, & Rahmaddiansyah. (2023). Dampak Penggunaan Benih Unggul Inpari-32 Bersertifikat Terhadap Produktivitas dan Pendapatan Petani Padi di Kecamatan Meureudu, Kabupaten Pidie Jaya. *Jurnal Ilmiah Mahasiswa Pertanian*, *8*, 165–180.

Arikunto, S. (2012). *Prosedur Penelitian Suatu Teknik Pendekatan*. Rineka Cipta.

Awal, M., Christoporus, C., & Sulmi, S. (2023). Faktor-Faktor Yang Memengaruhi Pendapatan Usahatani Padi Sawah Di Desa Dolago Kecamatan Parigi Selatan Kabupaten Parigi Moutong. *Agrotekbis : E-Jurnal Ilmu Pertanian*, *11*(5), 1332–1342. https://doi.org/10.22487/agrotekbis.v11i5.1882

Badan Pusat Statistik. (2024). *Rata-Rata Konsumsi per Kapita Seminggu Beberapa Macam Bahan Makanan Penting, 2007-2024*. Bps.Go.Id.

Badan Pusat Statistik Sulawesi Tengah. (2024). *Produksi Padi Menurut Kabupaten/Kota (Ton-GKG), 2023*. Sulteng.Bps.Go.Id.

Balai Penyuluhan Pertanian Kecamatan Parigi Selatan. (2025). *Data Produksi Padi Kecamatan Parigi Selatan 2023*.

BPS Kabupaten Parigi Moutong. (2025a). *Data Jumlah Penduduk Desa Nambaru Tahun 2023 (Jiwa)*. Badan Pusat Statistik.

BPS Kabupaten Parigi Moutong. (2025b). *Data Jumlah Penduduk Kabupaten Parigi Moutong Menurut Kecamatan Tahun 2019-2023 (Jiwa)*. Badan Pusat Statistik.

BPS Kabupaten Parigi Moutong. (2025c). *Data Produksi Padi Kabupaten Parigi Moutong Tahun 2019-2023 (Ton-GKG)*. Badan Pusat Statistik.

Ekawati, A. A., Rizieq, R., & Bancin, H. D. (2024). Perbandingan Pendapatan Usahatani Padi Sawah Berdasarkan Jenis Pengairan di Kecamatan Sengah Temila. *Jurnal Ekonomi STIEP (JES)*, *9*(1).

Febrilia, B. R. A., & Sari, N. M. W. (2024). Determinan Nilai Produksi Petani Cabai Rawit Di Kecamatan Kediri Kabupaten Lombok Barat. *Agrimansion*, *25*(1), 81–88.

Hasanah, L. (2022). Analisis Faktor-Faktor Pengaruh Terjadinya Impor Beras di Indonesia Setelah Swasembada Pangan Lutfianasari Hasanah Fakultas Ekonomi Universitas Tidar , Magelang Produksi Beras , Luas Lahan Panen , dan PDB . Analysis Of Factors Causing Rice Imports After F. *Growth: Jurnal Ilmiah Ekonomi Pembangunan*, *1*(2), 57–72.

Imran, S., Salim, S. V., & Adam, E. (2023). Optimization The Use Of Production Factors And Rice Farming Income. *Agribusiness Department Agriculture Faculty State University of Gorontalo*, *4*(2), 48–58. https://doi.org/10.37046/jaj.v4i2.15437

Lestari, R., Chuzaimah, & Aisyah, A. (2025). Analisis Komparatif Pendapatan Usahatani Padi Antara Petani Pemilik, Petani Penyewa Dan Petani Penyakap Di Kecamatan Pemulutan Kabupaten Ogan Ilir. *Jurnal AGRIBIS*, *18*(1), 2485–2500.

Maramba, U. (2018). Pengaruh Karakteristik Terhadap Pendapatan Petani Jagung Di Kabupaten Sumba Timur (Studi Kasus: Desa Kiritana, Kecamatan Kambera, Kabupaten Sumba Timur). *Jurnal Ekonomi Pertanian Dan Agribisnis (JEPA)*, *2*, 94–101.

Mariyono, J., Kuantariningsih, A., & Kompas, T. (2018). Penggunaan Pestisida Daam Pertanian Sayuran di Indonesia dan Faktor-Faktor Penentunya. *Jurnal Internasional*, 305–323.

Mutiasari, N. K., & Indrajaya, I. G. B. (2019). Analisis Faktor-Faktor Yang Mempengaruhi Impor Beras Di Indonesia. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, *11*(05), 1699–1721.

Oktalia, A., Agriffina, J., Ella, M., Cuandra, F., & Laulita, N. B. (2022). Analisis rantai pasok serta sistem ERP dalam kinerja operasional PT Nestle Indonesia. *Transekonomika: Akuntansi, Bisnis Dan Keuangan*, *2*(3), 127–144.

Rifki, M., Khoiriyah, N., & Sudjoni, M. N. (2021). "Pendapatan Dan Efisiensi Usahatani Padi Di Desa Pendem, Kecamatan Junrejo, Kota Batu." *Jurnal Sosial Ekonomi Pertanian Dan*

Agribisnis, *9*(2), 1–7.

Rizki, A. (2025). *Analisis pengaruh kebijakan impor beras terhadap permintaan dalam negeri.* *3*(2), 73–83.

Sahir, S. H. (2022). *Metodologi Penelitian*. KBM Indonesia.

Simanjuntak, R., Purba, H. T., & Sitorus, M. C. (2021). Analisis Faktor-Faktor Yang Mempengaruhi Pendapatan Usahatani Padi Sawah (Studi Kasus di Kelurahan Tong Marimbun, Kecamatan Siantar Marimbun, Kota Pematang Siantar). *Jurnal Agrilink*, *3*(1), 44–52. https://doi.org/10.36985/jak.v3i1.210

Sirait, R. F., & Noviani, N. (2022). Analisis Biaya Produksi Usahatani Padi Sawah (Oryza Sativa) Dan Pemasaran Terhadap Pendapatan Petani (Studi Kasus : Petani Padi Sawah Desa Ujung Labuhan Kecamatan Namorambe Kabupaten Deli Serdang). *Jurnal Pendidikan Dan Pengabdian Masyarakat*, *2*(2), 117–131.

Soekartawi. (2006). *Analisis Usahatani*. Penerbit Universitas Indonesia.

Tamamala, M. (2021). Factors Affecting Business Rice Farmers Production In Newgae Village Mallawa District , Maro S Regency. *Income Journal Of Economics And Depelopment*, *1*(2), 76–89.

Tunas, O. O., Ngangi, C. R., & Timban, J. F. junita. (2023). Pengaruh Luas Lahan Dan Pengalaman Berusahatani Terhadap Pendapatan Petani Padi Di Desa Taraitak I Kecamatan Langowan Utara Kabupaten Minahasa. *Agri-SosioEkonomi Unsrat*, *19*, 441–448.

Wahyuni, M., Supatminingsih, T., Nurdiana, & Ratnah. (2022). Analisis Faktor-Faktor Yang Memengaruhi Pendapatan Petani Pemilik Penggarap Pada Usahatani Padi Sawah di Kelurahan Pajalesang Kecamatan Lilirilau Kabupaten Soppeng. *Intelektiva*, *4*(3), 47–66.

Wiharnata, A. I., Sumardi, & Saparto. (2021). Pengaruh biaya sarana produksi dan tenaga kerja terhadap pendapatan usahatani Padi Inpari. *Jurnal Pertanian Agros*, *23*(1), 121–133.