



## The Influence of Land Area on Rice Farmers' Income in SP9, Jabamaru Village, Tanah Miring District, Merauke Regency

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### Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh luas lahan terhadap pendapatan petani padi di SP9 Kampung Jabamaru, Distrik Tanah Miring, Kabupaten Merauke. Penelitian ini dilatarbelakangi oleh pentingnya sektor pertanian dalam perekonomian Indonesia, khususnya di daerah yang sebagian besar penduduknya berprofesi sebagai petani. Salah satu faktor penting dalam keberhasilan usaha tani adalah luas lahan yang dimiliki, karena luas lahan memengaruhi kapasitas produksi dan secara langsung berdampak pada pendapatan petani. Penelitian ini menggunakan pendekatan kuantitatif dengan metode survei terhadap 53 petani padi sebagai sampel dari total populasi 214 petani. Teknik pengumpulan data dilakukan melalui observasi, wawancara, dan penyebaran kuesioner. Analisis data dilakukan menggunakan regresi linear sederhana melalui perangkat lunak IBM SPSS versi 25. Hasil penelitian menunjukkan bahwa luas lahan berpengaruh positif dan signifikan terhadap pendapatan petani. Nilai koefisien regresi sebesar 9.585.807,223 menunjukkan bahwa setiap peningkatan 1 hektar luas lahan akan meningkatkan pendapatan petani secara signifikan. Nilai signifikansi sebesar 0,000 ( $<0,05$ ) dan t-hitung sebesar 16,262 ( $>t$ -tabel 1,675) menguatkan hasil tersebut. Dengan demikian, hipotesis bahwa luas lahan berpengaruh terhadap pendapatan petani diterima. Penelitian ini merekomendasikan agar petani meningkatkan efisiensi pengelolaan lahan dan memaksimalkan pemanfaatannya untuk meningkatkan pendapatan.

### Abstract

*This study aims to determine the effect of land size on the income of rice farmers in SP9 Jabamaru Village, Tanah Miring District, Merauke Regency. The research is motivated by the significant role of agriculture in Indonesia's economy, especially in areas where most residents are farmers. Land size is one of the critical factors influencing the success of farming activities, as it affects production capacity and directly impacts farmers' income. This quantitative research uses a survey method involving 53 rice farmers as a sample from a total population of 214 farmers. Data collection techniques include observation, interviews, and questionnaires. The data were analyzed using simple linear regression with IBM SPSS version 25. The results show that land size has a positive*

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*and significant effect on farmers' income. The regression coefficient of 9,585,807.223 indicates that each additional hectare of land significantly increases income. A significance value of 0.000 ( $<0.05$ ) and a  $t$ -statistic of 16.262 ( $>t$ -table 1.675) support this result. Therefore, the hypothesis that land size affects farmers' income is accepted. The study recommends that farmers improve land management efficiency and optimize land use to enhance their income levels.*

## INTRODUCTION

Indonesia, as an archipelagic and agrarian country, possesses abundant natural resources that serve as a primary foundation for its economy. A significant portion of Indonesia's population relies on agriculture as their main source of livelihood, particularly in rural regions such as Papua. The agricultural sector continues to play a vital role in national development by contributing to food security, employment, and foreign exchange through exports (Ministry of Agriculture, 2021). Rice farming remains one of the main agricultural activities in Indonesia, both for subsistence and commercial purposes. Given Indonesia's tropical climate and fertile land, paddy cultivation has historically formed the backbone of rural economies. Nevertheless, disparities in productivity and income among farmers are still prevalent, often linked to the varying size of land ownership among households (Setiawina et al., 2020). Land size has long been recognized as a key determinant in agricultural productivity and farm income. Larger landholdings often allow for economies of scale, better access to credit, and more efficient use of inputs, ultimately increasing output and income levels (Pradnyawati et al., 2021). Conversely, small-scale farmers may struggle with limited production capacity, labor constraints, and low bargaining power, which can impede their ability to improve livelihoods (Andrias et al., 2017).

In SP9 Jabamaru Village of Tanah Miring District, Merauke, rice farming is the dominant occupation. Despite the availability of arable land, income disparities persist, prompting the need to examine the extent to which land size influences farmers' earnings. The local agricultural community comprises various landholding categories—from landless laborers to medium and large-scale landowners—making it a compelling case for empirical research. Previous studies in similar settings have demonstrated the positive impact of land size on farmers' income. For example, Daini (2022) showed that both land area and capital significantly influence coffee farmers' income in Bener Meriah. Similarly, research by Astari et al. (2020) concluded that land, labor, and training positively influence asparagus farmers'

earnings in Bali. These findings provide a solid theoretical foundation for further investigation in the context of rice farming in Merauke.

This study adopts a quantitative approach using simple linear regression to analyze the relationship between land size and income among rice farmers in SP9. By collecting data through surveys, interviews, and field observations, the research aims to provide empirical evidence to support policymaking and agricultural extension services targeting income enhancement for smallholders. Ultimately, the research contributes to a better understanding of how structural agricultural variables such as landholding size affect economic outcomes in remote rural regions. The results are expected to inform strategies that promote equitable land access, efficient farm management, and inclusive rural development in Papua and similar agrarian settings in Indonesia.

The issue of unequal land distribution has historically been a major constraint in improving the welfare of farmers across Indonesia. According to the World Bank (2020), fragmented and unequally distributed agricultural land results in low productivity and income disparities among farmers, especially in remote and underdeveloped areas like Papua. These structural issues not only limit economic opportunity but also hinder farmers' ability to adopt modern technology and farming practices due to scale inefficiencies. In areas like SP9 Jabamaru, where government-backed transmigration programs once aimed to equalize opportunities, landholding patterns may still vary considerably among farming households, affecting their livelihood outcomes. Moreover, improving farmer income through land-based strategies aligns with the Sustainable Development Goals (SDGs), particularly Goal 1 (No Poverty) and Goal 2 (Zero Hunger). Enhancing access to land and increasing agricultural productivity are seen as critical interventions in rural development policies (United Nations, 2015). Empirical studies emphasize that land access alone is not sufficient; proper land use, capacity building, and institutional support are also crucial to translating land resources into sustainable income (FAO, 2020). Thus, this study not only investigates the statistical relationship between land size and income but also contributes to the broader discourse on inclusive rural development and equitable resource distribution.

## **METHOD**

This study adopts a quantitative research approach with an associative method to examine the influence of land size on the income of rice farmers in SP9 Jabamaru Village, Tanah Miring

District, Merauke Regency. The quantitative approach allows for statistical analysis using numerical data collected from field surveys to test the proposed hypothesis (Sugiyono, 2016). The research was conducted in SP9 Jabamaru Village, located in Tanah Miring District, Merauke Regency, Papua Province, Indonesia. This area was selected due to its significant agricultural activity, particularly in rice cultivation. The fieldwork was carried out over a two-week period in May 2024. The study population consists of 214 rice farmers residing in SP9 Jabamaru Village. Using the simple random sampling technique, a total of 53 respondents were selected, representing approximately 25% of the population. According to Arikunto (2010), if the population is more than 100, a representative sample size of 10% to 25% is sufficient for research purposes.

Data were collected using three primary methods:

1. Observation, to understand the farming practices and land conditions.
2. Structured interviews, to gain insights into the socio-economic background and income of respondents.
3. Questionnaires, to systematically gather data on land size and income levels.

The questionnaire included both open and closed-ended questions and was pre-tested for clarity and reliability.

The data were analyzed using Simple Linear Regression Analysis with the help of IBM SPSS version 25. This statistical method was employed to determine the extent to which land size affects farmer income. The regression model used is:

$$Y = \alpha + bX$$

Where:

- a.  $Y$  = Income (Dependent Variable)
- b.  $\alpha$  = Constant
- c.  $b$  = Regression Coefficient
- d.  $X$  = Land Size (Independent Variable)

Additionally, a t-test was performed to test the significance of the regression coefficient at a 95% confidence level ( $\alpha = 0.05$ ). A significance value (p-value) less than 0.05 indicates a statistically significant relationship between land size and income.

## RESULT AND DISCUSSION

### Results

This study employed simple linear regression to examine the effect of land size on rice farmers' income in SP9 Jabamaru Village, Tanah Miring District. The regression analysis was performed using IBM SPSS version 25. The output of the regression test is presented below:

Regression Equation:

$$Y = 1,091,197.557 + 9,585,807.223X$$

Where:

- $Y$  = Farmer's income (in Indonesian Rupiah)
- $X$  = Land size (in hectares)
- The constant ( $\alpha$ ) = 1,091,197.557
- The regression coefficient ( $\beta$ ) = 9,585,807.223

The regression result indicates that for every additional hectare of land, farmers' income increases by approximately IDR 9,585,807. The significance level (Sig.) was found to be 0.000, which is less than 0.05, indicating that the relationship between land size and income is statistically significant. Additionally, the t-value obtained was 16.262, which is greater than the critical t-value of 1.675 ( $df = 51$ ,  $\alpha = 0.05$ ). This confirms that land size has a positive and significant effect on the income of rice farmers in the study area.

### Discussion

The results of this study confirm that land size significantly influences farmers' income in SP9 Jabamaru. Larger landholdings provide more area for cultivation, thereby increasing production capacity and allowing farmers to generate more income. These findings are consistent with those of Andrias et al. (2017), who demonstrated that land area is a strong determinant of farm output and revenue in rice cultivation. Furthermore, this result supports the argument made by Pradnyawati et al. (2021), who found that land area, along with capital and production volume, significantly affects the income of vegetable farmers in Bali. A larger land area allows better access to mechanization, more efficient labor distribution, and economies of scale all of which contribute to greater profitability (Daini, 2022). However, it is

essential to recognize that land size alone may not be sufficient to ensure high income. As highlighted by FAO (2020), land productivity is also influenced by factors such as soil fertility, irrigation, access to quality seeds and fertilizers, and farmers' skills. Thus, while increasing landholding size contributes positively to income, complementary support such as agricultural training, financial access, and extension services remains crucial.

In the specific context of SP9 Jabamaru, where many farmers still engage in traditional farming practices, efforts to improve land use efficiency and agricultural input quality will further enhance the benefits of larger land areas. Policymakers are therefore encouraged to implement programs that integrate land expansion with capacity-building measures. Lastly, the results also align with broader development goals. According to the United Nations (2015), enhancing agricultural productivity through improved land access and utilization contributes to poverty reduction and food security central elements of the Sustainable Development Goals (SDGs 1 and 2).

Moreover, the strong correlation found in this study between land size and farmer income supports the notion that land is not just a passive asset but a productive resource when managed efficiently. According to Boediono (2002), income is a direct result of the production factors owned and utilized by individuals or households. In this context, land size can be seen as both a physical and economic asset that directly influences the scale and efficiency of farming operations. Farmers with larger landholdings can allocate space for crop diversification, invest in modern inputs, and benefit from bulk production, leading to better market competitiveness and higher returns. However, while land size plays a critical role, non-land factors such as education level, farming experience, and access to extension services also affect income variation. The survey data showed that most respondents had only secondary education or less, which could limit their understanding of modern farming techniques or access to agricultural innovation. This aligns with the findings of Gilarso (2003), who emphasized that human capital—particularly knowledge and skills—has a multiplier effect on the productivity of physical resources like land and labor. Therefore, capacity building through farmer education and training should accompany any land development policies to optimize income growth.

In addition, structural issues such as land tenure security, land fragmentation, and unequal land distribution may undermine the positive effect of land size. The World Bank (2020) noted that insecure land rights can discourage long-term investment in land



improvement, reducing productivity despite adequate land area. In the context of SP9 Jabamaru, where transmigration programs historically shaped land allocation, evaluating the legal status and equity of land distribution is essential for sustained agricultural development. Hence, future policy should not only promote land access but also address regulatory and institutional reforms to ensure land is productive, equitably distributed, and legally protected.

## CONCLUSION

This study aimed to examine the effect of land size on the income of rice farmers in SP9 Jabamaru Village, Tanah Miring District, Merauke Regency. Based on the results of the simple linear regression analysis, it can be concluded that land size has a positive and statistically significant impact on farmers' income. The regression coefficient of IDR 9,585,807.223 indicates that an increase in land area directly contributes to higher income levels. Moreover, the significance value ( $0.000 < 0.05$ ) and the t-value ( $16.262 > 1.675$ ) reinforce that the relationship is both strong and meaningful. These findings suggest that land ownership and access remain critical factors in improving the economic well-being of rural farmers. Larger plots provide farmers with greater production potential, better opportunities for investment in agricultural inputs, and a stronger capacity to sustain their livelihoods. However, optimizing land productivity through improved agricultural practices, education, and access to capital should accompany land expansion to maximize income gains. In conclusion, enhancing farmer income in SP9 and similar agrarian regions requires not only increasing land access but also strengthening agricultural infrastructure, extension services, and policy support. Future programs should focus on integrated approaches that combine land development with technological, financial, and institutional support to achieve sustainable and inclusive rural economic growth.

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