Journal of Economics, Finance and Management Studies

ISSN (print): 2644-0490, ISSN (online): 2644-050

Volume 07 Issue 05 May 2024

Article DOI: 10.47191/jefms/v7-i5-67, Impact Factor: 8.044

Page No: 2947-2953

Relationship of Rice Farming Income with Socio-Economic Characteristics of Farmers

Syamsu Qamar Badu[1], Mohamad Ikbal Bahua[2*], Sarson W. Pomalato[3], dan Evi Hulukati[4]

[1,3,4]Faculty of Mathematics and Natural Sciences, Universitas Negeri Gorontalo, Indonesia

[2]Faculty of Agriculture, Universitas Negeri Gorontalo, Indonesia

ABSTRACT: Characteristics are ways of thinking and behavior that characterize each individual to live and work together in a family environment and social community. The purpose of the study was to analyze the relationship between rice farming income and socio-economic characteristics of farmers. The research method used is the survey method. The Data used in this study is the primary data sourced from respondents obtained through interviews using questionnaires, which consists of data on social factors, namely; age of farmers, farmers ' education, farming experience, and the number of family dependents, as well as data on economic factors, namely: land area and farming capital. While the secondary data is research supporting data sourced from the Department of Agriculture and other stakeholders. Determination of the location of the study using purposive sampling method and for sampling of research respondents using simple random sampling method as many as 30 rice farmers. The data analysis used is Pearson Correlation analysis. The results showed that: age has a positive relationship that is not significant with income, level of Education has a positive relationship that is not significant with income, farming experience has a positive relationship that is significant with income, the number of family dependents has a positive relationship that is not significant with income, land area has a positive relationship that is very significant with income, and capital has a positive relationship that is very significant with the income of farmers in rice farming.

KEYWORDS: Characteristics, income, farmer, rice farming, socio-economic

I. INTRODUCTION

Rice is an important food commodity for the staple food for the population of Indonesia. More than 95% of Indonesia's population depends on rice. Government policies in the agricultural sector are always oriented to increasing rice production to maintain food availability, especially rice commodities. Agricultural development policies in the food crop sector continue to be improved to achieve food self-sufficiency in line with the increase in the population of Indonesia.

The government seeks to meet food needs and maintain food availability through increased productivity in the central areas of rice production. In addition, efforts have been made by the government, namely the improvement of cultivation and post-harvest technology packages, intensification quality improvement, increasing planting area, land rehabilitation and printing new agricultural paddy fields. The impact of land area printing affects the production and income of rice farmers. The increase in farmers 'land area has a significant effect on increasing rice production and farmers' income.

The relationship is evident both within the farmer, including his family and outside the farmer's area. If a farmer is aware of the purpose of farming, which is to maximize his income and this will be done in every decision that affects the amount, time and certainty of farm progress. This will also affect the selling price and amount of production and generate farm income for farmers.

Farm management is an effort to integrate the socio-economic character of farmers in the implementation of farming. According to Apichaya & Tapan (2024), farm management is the ability of farmers to determine, organize, and coordinate the socio-economic character they master well and are able to provide the expected production. Changming et al (2024) explained that farmers' knowledge and skills towards the socio-economic characters possessed and mastered will determine the success of farm management.

According to Kang (2024), knowledge and understanding of the main elements of farming are very important, especially regarding ownership and mastery of socio-economic characters used in agricultural activities. Differences in ownership status will

have an impact on the treatment in production, scale and distribution of production factors that affect the success of farming and will determine the distribution of income and standard of living of farmers.

Nicholas & Lars (2021) explained that, village farmers, who are generally subsistence farmers, are still unable to understand how much the relationship of the socio-economic character of farmers can affect the level of farm income. However, for farmers who can understand the socio-economic character of farming, they can make changes in farm management patterns and hope there will be changes in increasing income.

The area of rice land in Kabila District, Bone Bolango Regency, Gorontalo Province is 11,352 hectares, with a total production of 41,320 tons and productivity of 9.34 tons/hectare. Poowo Village is one of the villages with the largest amount of rice production compared to other villages in Kabila District, which is 6,748 tons with a land area of 422 hectares and productivity of 7.15 tons/hectare.

The large rice production in Poowo Village is not accompanied by a high level of farmer income, this is because most farmers in Poowo Village do not know what factors affect the amount of their income from rice farming. Based on the preliminary survey results that most farmers do not know the factors that affect the income from rice farming, they only grow rice in the traditional way and only rely on farming experience and the harvest is mostly used for daily food needs or is still patterned subsistence.

Another problem faced by rice farmers in Poowo Village is that high productivity is not accompanied by high income, this can be seen from the economic condition of rice farmers who are still classified as middle to lower economy who are generally as sharecroppers. In addition, farmers in doing rice farming are only for daily consumption and if there is residual production, it will be sold. The constraints of increasing farm income for farmers are usually influenced by the ability of farmers to make decisions to allocate the use of production factors.

This study aims to analyze the relationship between the characteristics of socioeconomic factors of farmers, such as; farmer age, farmer education, farming experience, number of family dependents, land area and capital with income in rice farming in Poowo Village, Kabila District, Bone Bolango Regency, Gorontalo Province.

II. RESEARCH METHODS

This research was conducted in Poowo Village, Kabila District, Bone Bolango Regency, Gorontalo Province. The selection of research sites was carried out purposively with the consideration that Poowo Village is the village with the largest rice productivity in Kabila District. The type of research used in this study is a survey method on rice farmers. The study was conducted from January to April 2024.

The determination of the sample of respondents was carried out by a simple random sample method, where every farmer who carried out rice farming had the same opportunity to be selected as a respondent. The size of the sample of respondent farmers refers to the theory of Gay and Diehl (1992) which assumes that the sample size depends on the type of research, where for research that is correlational or looking for a relationship between variables, the minimum sample is 30 people. Based on this theory, the researchers determined 30 respondents from 147 rice farmers living in Poowo Village, Kabila District, Bone Bolango Regency.

Types of data in this study are primary data and secondary data. Primary Data were obtained directly from rice farmers through interviews using questionnaires. Secondary Data obtained from the Department of Agriculture Bone Bolango, and Agricultural Extension Center. Data retrieval method is done by interview using questionnaires, and direct observation in the field.

The analysis was used to determine the relationship between the characteristics of social factors (farmer age, farmer education and work experience), and the characteristics of economic factors (land area, number of family members) of farmers with the level of rice farming income in Poowo Village, Kabila District, Bone Bolango Regency. To determine whether there is a relationship between the independent variable and the dependent variable is to use Pearson's correlation, through the formula:

$$\mathbf{r} = \frac{\mathbf{n}(\sum \mathbf{xy}) - (\sum \mathbf{x})(\sum \mathbf{y})}{\sqrt{[\mathbf{n}\sum \mathbf{x^2} - (\sum \mathbf{x})^2][\mathbf{n}\sum \mathbf{y^2} - (\sum \mathbf{y})^2]}}$$

Information:

r = Pearson Coefficient

n= number of pairs of the stock

∑xy = sum of products of the paired stocks

∑x = sum of the x scores

∑y = sum of the y scores

$\sum x2$ = sum of the squared x scores

$\sum y2$ = sum of the squared y scores

Based on Pearson's correlation formula, the rule of testing the research hypothesis, is:

1. Reject H_1 and accept H_0 if: sig value (2- tailed) > α = 0.05
2. Reject H_0 and accept H_1 if: sig value (2- tailed) < α = 0.05

H_1 = There is a significant relationship between the characteristics of social factors (farmer age, farmer education and work experience) and economic factors (arable land area, number of family members) with rice farm income.

H_0 =There is an insignificant relationship between the characteristics of social factors (farmer age, farmer education and work experience) and economic factors (arable land area, number of family members) and rice farm income.

III. RESULTS AND DISCUSSION

Revenue Analysis

The average cost of farmers per planting season for rice farming is Rp. 11,155,128/hectare, the average farmer revenue per planting season for rice farming is Rp. 29,483,627/hectare, where the average rice production is 5,123kg with a selling price of Rp. 4,850/kg and the average income of rice farmers is Rp. 18,428,599/hectare/planting season.

The Relationship of Socioeconomic Characteristics of Rice Farmers with Income

1. The Relationship between Farmer Age and Income

Age is information about the date, month and year of birth of a person. Age information contains a measure of the length of a person's life in years. Age can influence a person in making a decision. Age can also be one of the benchmarks of the success of farming activities. The relationship between farmer age and farm income is described in Table 1.

Table 1. The Relationship between Farmer Age and Rice Farm Income

Correlations

		Farmer Age	Income Rice Farming
Farmer Age	Pearson Correlation	1	.353
	Sig. (2-tailed)		.058
	N	30	30
Income Rice Farming	Pearson Correlation	.353	1
	Sig. (2-tailed)	.058	
	N	30	30

Table 1 shows that, the correlation coefficient (r) between the age of farmers and rice farm income is 0.353 which means that there is a positive relationship between the age of farmers and income from rice farming. According to Gourav et al (2024), that if the value of r = 0.353, then the relationship between farmer age and income is a weak relationship. The results of hypothesis testing at a confidence level of 95% (α = 0.05), the relationship between the age of farmers and farm income is not significant, it is seen from the value of *sig* (*2-tailed*) of 0.058 greater than the value of α = 0.05 (*sig* (*2-tailed*) > α).

The results of this study are in line with the results of research from Amandeep et al (2023), which explains that a person's age characteristics can help in planning a production business program, because as they get older, a person's maturity will be able to think holistically to carry out a job. However, increasing one's age in business planning does not always have a positive impact on planned business income (Ameet, et al, 2024).

2. The Relationship between Education Level and Income

Education is an activity to increase knowledge in a person. The level of education can be said to be the last formal education such as elementary, junior high, high school and college that a person has ever taken. The relationship between education level and farm income is described in Table 2. The relationship between education level and farm income is described in Table 2.

Relationship of Rice Farming Income with Socio-Economic Characteristics of Farmers

Table 2. The Relationship between Farmer Education Level and Rice Farm Income

Correlations

		Education Level	Income Rice Farming
Education Level	Pearson Correlation	1	.257
	Sig. (2-tailed)		.174
	N	30	30
Income Rice Farming	Pearson Correlation	.257	1
	Sig. (2-tailed)	.174	
	N	30	30

Table 2 explains that the correlation coefficient (r) between the education level of farmers and rice farm income is 0.257 which means that there is a positive relationship between education level and income. According to Gourav et al (2024), that value r = 0.257 includes a weak relationship. The results of hypothesis testing at a confidence level of 95% (α=0.05), the relationship between the level of farmer education and rice farm income is not significant, it can be seen from the value of *sig* (*2-tailed*) of 0.174 greater than the value of α=0.05 (*sig* (*2-tailed*) > α).

The results of this study are in line with the results of research from Auvikki et al (2024) explaining that, farmers with higher education levels generally have a more open mindset in accepting innovations and more quickly apply these technological innovations, so as to increase better agricultural production. Furthermore, the results of research from Debora et al (2023) concluded that, education will generally affect the mindset of farmers in accepting innovation, but the use of agricultural technology innovations adopted by farmers needs farm capital for its application, so as to increase farm income.

3. Relationship between Farming Experience and Income

Farming experience is the length of time used by farmers in pursuing their farming. Farmers who have worked in farming activities for a long time, usually have better knowledge and skills about agricultural cultivation compared to farmers who are not experienced in farming. The relationship between rice farming experience and income is explained in Table 3.

Table 3. The Relationship between Rice Farming Experience and Farm Income

Correlations

		Farming Experience	Income Rice Farming
Farming Experience	Pearson Correlation	1	.493**
	Sig. (2-tailed)		.006
	N	30	30
Income Rice Farming	Pearson Correlation	.493**	1
	Sig. (2-tailed)	.006	
	N	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 explains that, the correlation coefficient (r) between farming experience and income is 0.493 which means that there is a positive relationship between farming experience and rice farming income. According to Gourav et al (2024) that the value of r = 0.493 includes a moderate relationship. The results of hypothesis testing at a confidence level of 95% (α=0.05), there is a significant relationship between farming experience and rice farming income, this can be seen from the value of *sig* (*2-tailed*) of 0.006 smaller than the value of α=0.05 (*sig* (*2-tailed*) < α).

The results of this study are in line with the results of Ghislain & Arne (2024) which explain that farming experience will help farmers make decisions in doing farming, the longer the experience of farmers will tend to have high skills in improving the farming process, so that it will have an impact on increasing farm income. Furthermore, the results of research from Magdalena & Hans (2024) concluded that farming experience occurs due to the influence of time that has been experienced by farmers. Farmers who are experienced in dealing with obstacles to their farming will know how to overcome them.

Relationship of Rice Farming Income with Socio-Economic Characteristics of Farmers

4. The Relationship between the Number of Family Dependents and Income

The number of dependents of a farmer's family is all people who live in one household or outside the farmer's household who are dependents of the head of the family, so that it will affect the level of farm income. The relationship between the number of dependents of the family and farm income is explained in Table 4.

Table 4. The Relationship between the Number of Family Dependents and Rice Farm Income

Correlations

		Number of Family Dependents	Income Rice Farming
Number of Family Dependents	Pearson Correlation	1	.157
	Sig. (2-tailed)		.415
	N	30	30
Income Rice Farming	Pearson Correlation	.157	1
	Sig. (2-tailed)	.415	
	N	30	30

The results of the study in Table 4 explain that the correlation coefficient (r) between the number of family dependents and rice farm income is 0.157, meaning that there is a positive relationship between the number of family dependents and income. According to Gourav et al (2024) that the value of r = 0.157 includes a very weak relationship. The results of hypothesis testing at a confidence level of 95% (α=0.05), the relationship between the number of family dependents and rice farm income is not significant, it can be seen from the value of *sig* (*2-tailed)* of 0.415 greater than the value of α=0.05 (*sig* (*2-tailed*)> α).

The results of this study are in line with the results of research from Yiming et al (2022) which explains that the number of dependents of farmer families can reflect how much cost and income is used for family needs, directly the number of farmer family members describes the amount of costs incurred by farmers for family needs sourced from farm income. Meanwhile, the results of research from Heather & Tim (2023) concluded that, in farming families, the number of family members will affect income levels, the more family members and involved in farming or non-agricultural businesses, the more it will increase family income. The number of family dependents can reflect how much costs are used for family needs. The more the number of family dependents, the greater the amount of costs incurred so that family needs can be met.

5. The Relationship between Land Area and Income

Land area for farmers is one of the factors that affect the increase in farm income. Villagers whose main activities are farming depend heavily on the area of agricultural land (Bezabih et al, 2024). Thus, the area of land he owns is one of the factors in the amount of income received. If the land area increases, the income of farmers will increase and vice versa if the area of land used is small or narrow, then the income obtained by farmers will decrease, because the rice planted is small. The relationship between land area and farm income is described in Table 5.

Table 5. The Relationship between Land Area and Farm Income

Correlations

		Land Area of Rice	Income Rice Farming
Land Area of Rice	Pearson Correlation	1	.936**
	Sig. (2-tailed)		.000
	N	30	30
Income Rice Farming	Pearson Correlation	.936**	1
	Sig. (2-tailed)	.000	
	N	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

The results of the study in Table 5 show that the correlation coefficient (r) between land area and rice farm income is 0.936, meaning that there is a positive relationship between arable land area and income. According to Gourav et al (2024) that the value of r = 0.936 includes a very strong relationship. The results of hypothesis testing at a confidence level of 95% (α=0.05), the

relationship between land area and rice farming income is very significant, this is seen from the value of *sig* (*2-tailed*) of 0.000 smaller than the value of α=0.05 (*sig* (*2-tailed*) < α).

The results of this study are in line with the results of research from Julia et al (2023) which explains that, the area of agricultural land will affect the scale of the business which will ultimately affect the efficiency or failure of a farm. In terms of efficiency, the more land area cultivated, the higher the production and income per unit area of land. The results of the study of Lamin et al (2023) concluded that, the large or small amount of agricultural production will affect the income of farmers, because farmers who have a large land area will get a lot of production so that they get a lot of income, while farmers who have a small land area will also have little production and will earn little income.

6. The Relationship of Capital to Income

Capital is the most important aspect or wealth used by farmers to produce agricultural products. Capital in farming can be classified as a form of wealth in the form of money and goods used to produce something either directly or indirectly in a farming production process (Roberto et al, 2023). The relationship between capital and rice farm income is explained in Table 6.

Table 6. The Relationship between Capital and Rice Farm Income

Correlations

		Farm Capital	Income Rice Farming
Farm Capital	Pearson Correlation	1	.648**
	Sig. (2-tailed)		.000
	N	30	30
Income Rice Farming	Pearson Correlation	.648**	1
	Sig. (2-tailed)	.000	
	N	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

The results of the study in Table 6 show that the correlation coefficient (r) between the capital spent by farmers and income is 0.648, meaning that there is a positive relationship between farm capital and income. According to Gourav et al (2024) that the value of r = 0.648 includes a very strong relationship. The results of hypothesis testing at a confidence level of 95% (α=0.05), the relationship between the capital spent by farmers and income is very significant, this is seen from the value of *sig* (*2-tailed*) of 0.000 smaller than the value of α=0.05 (*sig* (*2-tailed*)< α).

The results of this study are in line with the results of research from Graeme (2024) which explains that capital is a factor that determines the amount of production and income. Lack of capital in farming will cause the use of production facilities to be very limited which in turn will affect production and income. The results of research from Diana et al (2023) concluded that, farm capital is a very important factor, lack of farm capital, farmers will not be able to increase productivity and quality of their production, because farmers do not have asset value so that little income is obtained.

IV. CONCLUSION

The relationship between age and income of farmers in Poowo Village, Kabila District, Bone Bolango Regency is positive. The results of hypothesis testing showed that the relationship was not significant. The relationship between education level and farmer income is positive. The results of hypothesis testing showed that the relationship was not significant. The relationship between farming experience and farmer income is positive. The results of hypothesis testing showed that the relationship was significant. The relationship between the number of family dependents and the farmer's income is positive. The results of hypothesis testing showed that the relationship was not significant. The relationship between land area and farmers' income is positive. The results of hypothesis testing show that the relationship is very significant. The relationship of capital to farmers' income is positive. The results of hypothesis testing show that the relationship is very significant.

REFERENCES

1) Amandeep, D., Sher, J.K., Nazrul, I., Peter, R., & Meenakshi, N. (2023). Drivers of sustainable business model innovations. An upper echelon theory perspective. *Journal Technological Forecasting and Social Change*. 191 (6). 122 - 137. https://doi.org/10.1016/j.techfore.2023.122409.

2) Ameet, K.B., Subhendu, K.M., & Ahmet,S. (2024). Career aspirations and financial planning of young people in family businesses. *Journal Research in International Business and Finance*. 70 (6). 102 - 116. https://doi.org/10.1016/j.ribaf.2024.102363.
3) Apichaya, L., & Tapan. B.P. (2024). Thai farmers' perceptions on climate change: Evidence on durian farms in Surat Thani province. *Journal Climate Services*. 34 (4). 100 - 112. https://doi.org/10.1016/j.cliser.2024.100475.
4) Auvikki, D.B., Camilla, S., & David, C.R. (2024). To adapt or not to adapt, that is the question. Examining farmers' perceived adaptive capacity and willingness to adapt to sustainability transitions. *Journal of Rural Studies*. 105 (1). 103 - 117. https://doi.org/10.1016/j.jrurstud.2023.103171.
5) Bezabih, F., Zekarias, Z., & Elias, B. (2024). Adoption of community-based land rehabilitation programs (CBLRP) and its effect on livelihoods in Offa district, south Ethiopia. Journal of Agriculture and Food Research. 16 (6). 101 - 117. https://doi.org/10.1016/j.jafr.2024.101104.
6) Changming, C., Qiang, G., Kexin, J., & Yuting, M. (2024). How digital skills affect farmers' agricultural entrepreneurship? An explanation from factor availability. *Journal of Innovation & Knowledge*. 9 (4-6). 10 - 24. https://doi.org/10.1016/j.jik.2024.100477.
7) Debora, M.M., Chad, M.B., Melf, H,E., Robert, F., & Stefanie,B. (2023). Exploring actors' perceptions of the precision agriculture innovation system – A Group Concept Mapping approach in Germany and Switzerland. *Journal Technological Forecasting and Social Change*. 189 (4). 270 - 285. https://doi.org/10.1016/j.techfore.2022.122270.
8) Diana, K., Robert, L., & Miranda, P.M.M. (2023). The role of social capital in adoption of risky versus less risky subsidized input supplies: An empirical study of cocoa farmers in Ghana. *Journal of Rural Studies*. 97 (1). 140 - 152. https://doi.org/10.1016/j.jrurstud.2022.10.027.
9) Gay, L.R. dan Diehl, P.L. (1992). *Research Methods for Business and Management*. MacMillan Publishing Company. New York.
10) Ghislain, B.D.A., & Arne, H. (2024). Does organic farming jeopardize food security of farm households in Benin?. *Journal Food Policy*. 124 (4). 262 - 274. https://doi.org/10.1016/j.foodpol.2024.102622.
11) Gourav, S., Saurabh, S., Nivedita, K., & Sumit, K. (2024). Diurnal variation of air pollutants and their relationship with land surface temperature in Bengaluru and Hyderabad cities of India. *Journal Remote Sensing Applications: Society and Environment*. 35 (8). 10 - 24. https://doi.org/10.1016/j.rsase.2024.101204.
12) Graeme, G. (2024). Farm debt and the over-exploitation of natural capital. *Journal Resource and Energy Economics.* 77 (4). 143 - 157. https://doi.org/10.1016/j.reseneeco.2024.101439.
13) Heather, D., & Tim, C. (2023). Constructions of gender in contemporary Australian family farming: A rural financial counsellor perspective. *Journal of Rural Studies*. 102 (8). 308 - 325. https://doi.org/10.1016/j.jrurstud.2023.103086.
14) Julia, B., Annemie, M., Wezi, M., & Hope, M. (2023). Paying for agricultural information in Malawi: The role of soil heterogeneity. *Journal of Development Economics*. 165 (10), 314 - 326. https://doi.org/10.1016/j.jdeveco.2023.103144.
15) Kang, C. (2024). Family farming in climate change: Strategies for resilient and sustainable food systems. *Journal Heliyon*. 10 (4). 28 - 43. https://doi.org/10.1016/j.heliyon.2024.e28599.
16) Magdalena, W.K., & Hans, K.W. (2024). Beyond the preservation of agricultural land – Identifying Austrian farmers' farming-related interests in local spatial planning. *Journal of Rural Studies*. 105 (1). 317 - 331. https://doi.org/10.1016/j.jrurstud.2023.103170.
17) Nicholas, P.N., & Lars, B. (2021). Promises and potentials do not grow trees and crops. A review of institutional and policy research in agroforestry for the Southern African region. *Journal Land Use Policy*. 103 (4). 105 - 118. https://doi.org/10.1016/j.landusepol.2021.105298.
18) Roberto, V., Terese, E.V., & Johannes, S. (2023). The ecosystem approach to agricultural value chain finance: A framework for rural credit. *Journal World Development*. 164 (4). 617 - 629. https://doi.org/10.1016/j.worlddev.2022.106177.
19) Yiming, S., Zhiwei, Z., Haojing, C., Fan, Z., Yuanlong, C., & Zhenghuan, Z. (2022). The potential of urban family vertical farming: A pilot study of Shanghai. *Journal Sustainable Production and Consumption*. 34 (11). 586 - 599. https://doi.org/10.1016/j.spc.2022.10.011.