Factors Affecting Income Salt Farmers on the Island Madura

Budi Sasongko
STIEKN Jaya Negara Malang, Indonesia.

Alpon Satrianto*
Universitas Negeri Padang, Indonesia.
E-mail: alponsatrianto@fe.unp.ac.id

Received October 30, 2020; Accepted December 18, 2020
ISSN: 1735-188X
DOI: 10.14704/WEB/V18SI03/WEB18033

Abstract

This study aimed to analyze the effect of land use, education, experience, capital, technology, and training on income salt farmers in Madura Island. The study concluded that the land size, experience, capital, technology, and training a significant effect on earnings while education does not significantly influence revenue salt farmers on the island of Madura. The policy implication of this research is that the government and relevant parties can always work together to improve the quality of training and technology so that farmers' production and income can be improved.

Keywords

Revenue, Farmers Salts, Cosmetics.

Introduction

Salt is one of Indonesia's agricultural sector commodities. The salt used by the public for consumption and for production. Salt consumption by households utilized together in foods and beverages. Meanwhile, in particular for industrial salt production are used as raw materials and auxiliary materials for other industries. Industrial salt used for the needs of the pharmaceutical, cosmetics, textiles and so on.

Madura Island is the largest regional producer of salt in Indonesia so called Salt Island. In 2019 a land area of salt on the island of Madura reached approximately 15,000 hectares with a total production of 454-500 tonnes, The amount of salt farmers on the island as much as 9,217 people. With this situation many residents of the island of Madura sack his life into salt farmers.

But the lives of salt farmers in Madura Island is still far from the expected. According to a survey conducted in 2019, revenue from this business salt farmers ranges between IDR 300,000 - IDR 4,000,000 a month even say uncertain. While the number of family members of salt farmers range from 2-7 people. Coupled with the prevailing price of salt is very cheap ie IDR 200 per kilogram or IDR 200 thousand per ton. Even from research Saso (2019) concluded that the production and the benefits of this effort has not been optimal. In such circumstances it is alleged to have an impact on the quality of life of the farmers themselves.

From previous studies, it is known a lot of factors that determine the income of farmers. Esiobu (2014) states that the land area affect the income of pineapple farmers in Nigeria. Pariyanto (2018) found that education affects the income of rubber farmers. Besides education and land use, experience and capital also affect farmers' income as that of Sam (2019), Handayani (2010), Mafimisebi (2008), and R Saidhar (2017). According to the results the increase in land use, education, experience and capital will be able to increase the income of farmers. Conversely, inadequate land area, low education, experience is lacking, as well as inadequate capital will have an impact on farmers' income decrease.

But from these studies include variables no training and technology. Though farmers are trained to be able to add their knowledge and skills in producing salt. In addition, appropriate technology will be able to increase the production capacity of salt. Thus, if both of these things there then of course will increase production so that in the future will have an impact on increased revenue salt farmers. Under the circumstances, this research develops previous research by analyzing the determinants of income salt farmers on the island of Madura.

Research Method

The population in this study is the salt farmers in four districts in Madura Island. Total population of these farmers by 2019 as many as 9217 people. Samples numbered 384 persons (drawn by the method Slovin). The sampling technique is done by proportional random sampling in 4 districts.

Data analysis techniques to determine the effect of land use, education, training, experience, technology and capital to revenue salt farmers used multiple regression method. The shape of the multiple regression equation in this study are:

$$Y = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_3 X_4 + \beta_3 X_5 + \beta_3 X_6 + U \quad (1)$$

Where:

Y = Revenue (Income from venture into salt farmers (IDR/Month))
X1 = Land (Land under cultivation (Ha))
X2 = Education (formal education successfully attained)
X3 = Experiences (Lama into salt farmers)
X4 = Capital (Costs incurred for producing (IDR/Month))
X5 = Training (1 = Training, 0 = No)
X6 = Technology (1 = Geoisolator and Screw Filter, 0 = Water Flow)
U = Distrubance term

To ensure that the regression above meet the assumption of Best Linear Unbiased Estimator (BLUE), then performed classical assumption. The classical assumption in this research include Multicollinearity Test and Test Heteroscedasticity.

Results and Discussion

1. Classical Assumption Test

a) Test Multicollinearity

Multicollinearity test is a test that is used to see if there is strong correlation among independent variables (Nachrowi, 2006). If there is no strong correlation between the independent variables then there are the regression model multicollinearity problems. The method used to see whether or not a strong correlation among the independent variables in this study were Variance Inflation Factors (VIF). If the value of VIF Centered each independent variable> 10, it can be said there is a problem multicollinearity. Conversely, if the value of the VIF Centered among independent variables <10 it can be said that there was no trouble multicollinearity (Suliyanto, 2011).

In the early stages performed classical assumption without transforming the model. However, the transformation model without having problems classical assumptions. Thus, to overcome the problem of the classical assumption of the model in this study is transformed into a model log.

Table 1 Results of Test Methods Multicollinearity with VIF

Variable	Coefficient variance	Uncentered VIF	Centered VIF
C	2.062340	361.5475	NA
LOG (X1)	0.010408	1.402867	1.097724
X2	0.047295	7.102463	1.018368
LOG (X3)	0.012046	17.15116	1.164438
LOG (X4)	0.006738	321.2631	1.112562
X5	0.034424	1.530896	1.142544
X6	0.030916	1.354976	1.016232

The test results multicollinearity in this study are presented in Table 1. Based on these test results shows that the value of*Centered* VIF all independent variables <10. Therefore, it can be concluded that this model there is no multicollinearity problems. In other words, there is a strong correlation among the independent variables.

b) Test Heteroscedasticity

Heteroscedasticity test was conducted to test whether a regression model occurred inequality variant of the residual one observation to another observation. If the value of the fixed variant called homoscedasticity, whereas if different variants are called heteroscedasticity. A good regression model is not the problem heteroscedasticity (Nachrowi, 2006).

Heteroscedasticity testing in this study using Glejser Test. If the value of independent variables affect the probability of residual absolute <0.05 then there is a problem heteroscedasticity. However, if the value of independent variables affect the probability of residual absolute> 0.05, there was no trouble heteroscedasticity.

Glejser test results in Table 2 it can be seen that the probability F (0.3324)> 0.05. This indicates that the regression model is not there a problem heteroskedastitas.

Table 2 Test Results Test Heteroscedasticity with Glejser

F-statistic	**1.104919**	**Prob. F (6.265)**	**0.3324**
Obs * R-squared	2.214754	Prob. Chi-Square (6)	0.3304
Scaled explained SS	2.241306	Prob. Chi-Square (6)	0.3261

2. Multiple Regression Analysis

From the classic assumption test shows that the regression model is already free from the problem of multicollinearity and heteroscedasticity. Therefore, the next step is the estimation of regression between the independent variables on the dependent variable.

The result of the influence of each of the independent variables of the salt farmers income is shown in Table 5. Table 5 panel regression equation can be obtained as follows:

$$\text{Log Y} = 9.993331 + 0.217119 \text{ Log X}_1 + 0.089562 \text{ X}_2 + 0.249768 \text{ Log X}_3 + 0.47730 \text{ Log X}_4 + 0.672609 \text{ X}_5 + 0.511878 \text{ Log X}_6 \quad (2)$$

R-squared value of the income equation salt farmers in Madura amounted seen by 0.249835. This shows the variable contribution of land, education, training, experience, technology and capital to salt farmers income amounted to 24.98 per cent while the

remaining 75.02 percent is influenced by other variables that are not included in the income equation salt farmers.

Regression coefficient value of land to salt farmers income amounted to 0.217119. This figure means that if the land area increased by one-unit revenue salt farmers in Madura Island will rise by 0.217119 single-unit. Land area of significant and positive impact on the income of salt farmers in Madura Island. This condition is seen from a probability value of land to salt farmers income amounted to 0.0342> 0.05. The significant influence of land to salt farmers income in Madura Island because the land is the place to produce salt. The more of these lands, the higher the ability of farmers to increase production capacity. Thus the farmer salt production will be increased.

Table 3 Estimation Results of Multiple Regression

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	9.993331	1.436085	6.958732	0.0000
LOG (X1)	0.217119	0.102019	2.128221	0.0342
X2	0.089562	0.185537	0.482720	0.6297
LOG (X3)	0.249768	0.109753	2.275737	0.0237
LOG (X4)	0.477300	0.082086	5.814639	0.0000
X5	0.672609	0.175830	3.825334	0.0002
X6	0.511878	0.217475	2.353739	0.0193
R-squared	0.249835	Mean dependent var		17.00502
Adjusted R-squared	0.232850	SD dependent var		1.422138
SE of regression	1.245610	Akaike information criterion		3.302525
Sum squared resid	411.1589	Schwarz criterion		3.395322
Log likelihood	-442.1434	Hannan-Quinn criter.		3.339780
F-statistic	14.70928	Durbin-Watson stat		0.903850
Prob (F-statistic)	0.000000			

The results of this study are supported by the findings of previous studies Safa (2005), Mafimisebi (2008), Adebayo (2012), Esiobu (2014), Tanko (2016), R Saidhar (2017), and Siregar (2018) concluded that the land area could increase farmers' income. However, Anríquez (2006) concluded that the land does not give effect to the farmers' income.

Regression coefficient value of education to salt farmers income amounted to 0.089562. This figure means that if the education of farmers increased by one-unit revenue salt farmers in Madura Island will rise by 0.089562 single-unit. However, education does not significantly influence revenue salt farmers on the island of Madura. This condition is seen from the probability value education as much as 0.6297> 0.05. This is because the techniques and methods of producing salt is not taught in school. This condition is also

supported by the fact that the majority of respondents only graduated from elementary school and High School.

The results of this study are in accordance with the findings of Pariyanto (2018) which states that education has no effect on farmers' incomes. However, the results of this study are not in accordance with research Safa (2005), Anríquez (2006), Adebayo (2012), Teshome (2013), Esiobu (2014), R Saidhar (2017) and Anang (2019) who find that education affects income the farmer.

The value of the regression coefficient of experience on salt farmer income is 0.249768. This figure means that if the experience of fish farmers increases by one unit, the income of salt farmers in Madura Island will also increase by 0.249768 one-unit. The experience has proven to have a significant effect on the income of salt farmers on Madura Island. This condition can be seen from the experience probability value of 0.0237 <0.05. Experience is the best teacher. The phrase was proven by the influence of experience on salt farmer's income on Madura Island. From the experience of many farmers get lessons and the best ways to produce salt. Increasing knowledge from year to year reduces errors that occur earlier. Thus experience creates efficiency so that it will ultimately increase acceptance.

The results of this study are supported by the findings of Sam (2019) which states that the experience can increase farmers' income. However, research Siregar (2018) states that experience does not determine the income of farmers.

Regression coefficient value of capital to salt farmers income amounted to 0.477300. This figure means that if more capital increases by one-unit revenue salt farmers in Madura Island will increase by 0.477300 single-unit. Capital is also shown to significantly influence revenue salt farmers on the island of Madura. This condition is seen from a capital of 0.0000 probability value of <0.05. With adequate capital will be increased production of fish farmers. Farmers will be able to do things like add equipment, increased quality of the technology, repairing damaged equipment so the ability to produce it will be increased. This increased production will have an impact later on increased revenue.

The results of the study in accordance with the findings Mafimisebi (2008), Handayani (2010) and R Saidhar (2017) which concluded that the effect of capital to fluctuations in farmers' income.

Regression coefficient value of training for salt farmers income amounted to 0.672609. This figure means that when the training is increased by one-unit revenue salt farmers in Madura Island will increase by 0.672609 single-unit. The training proved significant effect on revenue salt farmers on the island of Madura. This condition is seen from the training probability value of 0.0002> 0.05. Farmer training activities given some knowledge and skills associated with the techniques, methods, and the use of equipment to support farmers to increase production. As a result, farmers become more informed about the salt production should be.

The value of the technology regression coefficient on salt farmer income is 0.511878. This figure means that if technology is increasingly used by farmers, it will increase the income of salt farmers in Madura Island by 0.511878 one-unit. Technology is proven to have a significant effect on salt farmer's income on Madura Island. This condition is seen from the technological probability value of 0.0193 <0.05. Technology can simplify the production process of salt farmers. With better technology, farmers can streamline time and money. For example, by using geoisolator/ geomembrane technology, the crystallization process of sea water becomes more rapid, so the harvest can be done faster. This is because the geomembrane has a black color which is known to be very easy to absorb heat. The use of technology will certainly have an impact on increasing production so that in the future it will increase revenue.

Conclusions

Based on the results in the previous section, the study concluded:

1. The land area signifkan and positive effect on the income of salt farmers in Madura Island. This indicates that increasing the land area, the production will increase, so will have implications for increased revenue Folk salt farmers on the island of Madura.
2. Education is no significant effect on revenue salt farmers in Madura Island. This means that the farmers either high or low educated not determine the rise and fall of income of farmers.
3. Modal significant and positive impact on the income of salt farmers in Madura Island. The capital increase will increase production so that will have an impact on increased revenue.
4. Experience significant and positive impact on revenue Folk salt farmers on the island of Madura. Farmers experience the ever increasing production capability would be better so that revenues will increase.

5. Training significant and positive impact on the income of salt farmers in Madura Island. These conditions mean that increased training will have an impact on production methods so that farmers increase production. This increase will encourage increased revenue.
6. Technology significant and positive impact on the income of salt farmers in Madura Island. Increasingly sophisticated technology can increase the production capacity that will increase revenue.

From the conclusions of this study it is suggested to the government and the parties concerned to be able to work together in improving revenue Folk salt farmers on the island of Madura. Things need to be a concern is how to improve training to farmers so that farmers have a lot of knowledge of the production capacity capable of being upgraded. This training may also be associated with the introduction of the latest technologies related to the salt production process. Increasing production is expected will be able to increase the income of farmers salt.

References

Adebayo, C.O., Akogwu, G.O., & Yisa, E.S. (2012). Determinants of income diversification among farm households in Kaduna State: Application of Tobit regression model. *Pat*, *8*(2), 1-10.

Anang, B.T. (2019). Determinants of Off-Farm Income among Smallholder Rice Farmers in Northern Ghana: Application of a Double-Hurdle Model. *Advances in Agriculture*, 1-7.

Anríquez, G., & Valdé, A. (2006). Determinants of Farm Revenue in Pakistan. *The Pakistan Development Review*, *45*(2), 281-301.

Esiobu, N.S., & Onubuogu, G.C. (2014). Determinant of Income from Pineapple Production in Imo State, Nigeria an Econometric Model Approach. *Journal of Economics and Sustainable Development*, *5*(22), 122-132.

Handayani, M., Mukson, M., & Yulianingsih, R. (2010). Revenue Analysis of Cattle Farmer in Sub District Patebon Kendal Regency. *Mediagro*, *6*(2), 1-8.

Mafimisebi, T.E. (2008). Determinants and Uses of Farm Income from the Cassava Enterprise in Ondo State, Nigeria. *Journal of Human Ecology*, *24*(2), 125-130.

Pariyanto, P., & Busyra, R.G. (2018). Factors Affecting the Acceptance of Rubber Farmers (Hevea Brasiliensis) in Desa Baru Kecamatan Mestong, Muaro Jambi District. *Journal of MeA (Agribusiness Media)*, *3*(1), 1-11.

Saidhar, R., Umadevi, K., Rao, D.V.S., Srinivasarao, V. (2017). Determinants of Farm Income among Small Holders in Guntur District of Andhra Pradesh. *Bulletin of Environment, Pharmacology and Life Sciences*, *6*(3), 572-575.

Safa, M.S. (2005). Socio-Economic Factors Affecting the Income of Small-scale Agroforestry Farms in Hill Country Areas in Yemen: A Comparison of OLS and WLS Determinants. *Small-scale Forest Economics, Management and Policy*, *4*(1), 117-134.

Sasongko, B., Elfindri, E., Husni, T., & Satrianto, A. (2019). Production Optimalization Analysis and Maximization Profit of Salt Farmers on the Madura Island. *Proceedings of the 5th Annual International Conference on Accounting Research (AICAR)*, 134-138.

Siregar, S., & Supriana, T. (2018). Socio-Economic Characteristics that Affect the Income of Corn Farmers in Simalungun District. *"JASc" Journal Agribusiness Sciences*, *1*(2), 82-89.

Średzińska, J. (2018). Determinants of Farm Revenues in the EU-15 Countries. *Rural Areas and Development*, *15*, 81-91.

Sallawu, H., Tanko, L., Nmadu, J.N., & Ndanitsa, A.M. (2016). Determinants of income diversification among farm households in niger State, Nigeria. *Russian Journal of Agricultural and Socio-Economic Sciences*, *50*(2), 55-65.

Teshome, B., & Edriss, A.K. (2013). Determinants and Patterns of Income Diversification among Smallholder Farmers in Akaki District, Ethiopia. *Journal of Research in Economics and International Finance*, *2*(4), 68-78.