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THE RELATIONSHIP BETWEEN THE SHARECROPPING SYSTEM, INFORMAL CREDIT, AND PRODUCTIVITY: THE EMPIRICAL EVIDENCE FROM THE MADURESE TRADITIONAL SOLAR SALT BUSINESS

HUBUNGAN ANTARA SISTEM BAGI HASIL, KREDIT INFORMAL DAN PRODUKTIVITAS: BUKTI EMPIRIS USAHA GARAM SURYA TRADISIONAL MADURA

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ABSTRACT

The ease in obtaining a loan is often regarded as a key advantage of the sharecropping system in the traditional solar salt business of Pamekasan Regency. The challenges faced by tenant farmers in accessing formal financial institutions have led to the continued prevalence of the sharecropping system in rural areas. This research aims to find the relationship between the sharecropping system, informal credit, and salt land productivity. The first analysis employs a multiple linier regression model on 93 tenant farmers in Pamekasan Regency to analyze the factors that influenced the amount of informal credit. Next, a quantitative descriptive analysis was carried out regarding the relationship between the sharecropping system, the amount of informal credit, and the productivity of solar salt fields area. Findings indicate that the significant factors affecting the credit amounts requested by tenant farmers include the cost of funds, loan duration, profits garnered by tenant farmers, the availability of collaterals, and the presence of other credit sources. The second conclusion of this research findings is that the extent of solar salt land area has a positive correlation with the informal credit amount, as does the productivity of the land. It should be an expected necessity for the government to play a larger role in supplying formal credit to small-scale farmers. This includes measures like credit rationing to diminish the influence of landowners.

Keywords: sharecropping system, informal credit, productivity, Madurese solar salt business.

ABSTRAK

Ketersediaan pinjaman dapat dikatakan sebagai salah satu keunggulan dari sistem bagi hasil dalam usaha garam rakyat di Kabupaten Pamekasan. Kesulitan petambak penggarap dalam mengakses lembaga keuangan formal menjadikan sistem bagi hasil tetap dapat berkembang di daerah pedesaan. Penelitian ini bertujuan untuk mencari keterkaitan antara sistem bagi hasil, kredit informal, dan produktivitas lahan garam. Analisis yang pertama adalah dengan menggunakan model regresi berganda pada 93 orang petambak garam di Kabupaten Pamekasan dalam menentukan faktor yang mempengaruhi besarnya kredit informal. Selanjutnya, dilakukan analisis secara dekriptif kuantitatif mengenai hubungan antara sistem bagi hasil, besarnya kredit informal, dan produktivitas lahan garam. Hasil analisis menunjukkan bahwa faktor yang memengaruhi besarnya pinjaman oleh petambak penggarap dalam sistem bagi hasil usaha garam rakyat di Kabupaten Pamekasan secara nyata adalah besarnya pinjaman yang diminta oleh petambak penggarap adalah biaya atas pinjaman, durasi pinjaman, keuntungan yang diterima oleh petambak penggarap, ketersediaan jaminan, dan ada tidaknya sumber pinjaman lainnya. Kesimpulan kedua adalah bahwa ada hubungan yang positif antara system bagi hasil, besarnya kredit informal, dan produktivitas lahan garam. Pemerintah diharapkan dapat terlibat lebih jauh dalam hal pemberian kredit formal kepada petambak penggarap, termasuk dalam hal *credit rationing* untuk mengurangi dominasi pemilik lahan.

Kata kunci: sistem bagi hasil, kredit informal, produkitivtas, usaha garam surya Madura.

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INTRODUCTION

A study conducted by Prihantini (2016a), which draws on Marshall (1920) findings, explains that the sharecropping system is a disincentive agricultural model. Baah & Kidido (2020), Prihantini et al. (2017a) and Kehinde & Ogundeji (2022) indicates that one of the benchmarks is the difference in profits received by each actor, namely the landowner and the tenant farmer. One notable advantage of the sharecropping system over other agricultural models is the accessibility of loans or credit. This is highlighted in the research conducted by (Prihantini et al., 2017b). However, this advantage is only considered as a temporary solution to the underlying problem in the traditional solar salt business, which is financing (Sukesi, 2011; Suresh, 2023). The financing system in traditional solar salt businesses can be categorized as informal financing or credit. In addition to this, there is no formal written contract done whatsoever. Despite this fact, it cannot be denied that the sharecropping system is an agricultural institution deeply rooted in rural communities (Lole, 1995). This is the primary reason why eliminating the sharecropping system among rural communities has proven to be challenging.

One of the primary challenges faced by solar salt farmers is the issue of financing (Sukesi, 2011). Studies and research on traditional solar salt businesses explain that financing is a key determinant of the success of solar salt businesses. Financing plays a supportive role in the implementation of agricultural activities, having a crucial impact on funding all farming activities, including both fixed costs and variable costs (Abdallah, 2016; Anang et al., 2016; Yadav & Rao, 2022). Furthermore, this business which is notorious for having high variable costs further emphasizes the importance of financing as a crucial supporting factor to ensure optimal results for solar salt farmers.

The advantage consistently highlighted in the farming businesses operated under the sharecropping system is called assured financing, commonly referred to as credit (Baah & Kidido, 2020; Prihantini et al., 2017a,b). This also applies to traditional solar salt businesses. Financing in the traditional solar salt industry under the sharecropping system indeed does not impose interest on tenant farmers (who act as debtors). On the other hand, the amount of credit requested by tenant farmers varies significantly and is determined by numerous factors. Nonetheless, the fulfillment of living expenses during the waiting period for the harvest, along with financing all solar salt production activities, contributes to the substantial value of the loans. Therefore, according to Ray (1998), the loans they undertake can be classified as both consumption credit and working capital.

Rural credit is generally facilitated by informal financial institutions within the community or a village-like environment. The lack or ambiguity of rules governing rural credit categorizes these institutions as informal finance institutions. According to Ray (1998) in his book, there are three types of rural credit: (a) consumption credit, (b) working capital, and (c) fixed capital. Consumption credit refers to the credit used for short-term consumption needs. Meanwhile, working capital is credit utilized to initiate new agricultural ventures. Furthermore, fixed capital is credit intended to finance the entire range of production activities or ongoing agricultural operations.

The amount of credit requested by tenant farmers varies significantly. However, the landowner holds full authority in credit rationing (Jia et al., 2010; Muhongayire et al., 2013). This implies that

regardless of the credit amount applied, it is the landowner who determines the size of the credit that the tenant farmer will receive. Several studies on the factors influencing the amount of credit requested by farmers indicate that the agricultural land area is one of the main factors (Jaya et al., 2017; Rifaini et al., 2022; Saha & Sharma, 2011). This also applies to the traditional solar salt business operated under the sharecropping system in Pamekasan Regency. The extent of solar salt land is also a determining factor in the amount of credit requested by tenant farmers. Other determining factors will be explained in the results-and-discussion section of this paper. This is crucial as the sharecropping system in solar salt businesses in Pamekasan Regency reaches a rate of 70.5 percent (Regency Secretary of Pamekasan, 2015). The main aim of this research is to find the relationship between the sharecropping system, informal credit, and salt land productivity. Hopefully, the findings of this study can be taken into consideration in policymaking by the government.

Source: Research Documentation (2024)

Figure 1. The Tenant Farmers in Traditional Solar Salt Business in Pamekasan Regency are Harvesting Salt

RESEARCH METHODS

Research Data

This research was conducted from December 2023 to March 2024. A multi-stage sampling approach was employed to select the research locations. Initially, East Java, Indonesia, was purposefully chosen. Subsequently, Pamekasan Regency was selected based on its high productivity in solar salt areas on Madura Island. Furthermore, three districts within Pamekasan Regency—Pademawu, Galis, and Tlanakan—were chosen due to their significant salt land area, production, productivity, and the presence of numerous salt business groups. The respondents for this study were tenant farmers engaged in traditional solar salt businesses. Simple random sampling was utilized to select the sample. To create the sampling frame, a comprehensive list of all salt farmers was compiled. Then, 98 tenant farmers were randomly selected from each of the three districts. The survey instrument was a structured questionnaire developed from literature reviews and data obtained from relevant institutions such as government agencies and farmer groups.

Analysis of Factors Influencing Credit Amount

This analysis is conducted to identify the factors that influence the magnitude of the credit received by tenant farmers, as it is crucial in gaining more insight around this situation. The applied

method is multiple linear regression analysis (Gujarati, 2003). The variables utilized are based on empirical results, experiences, and theories related to the topic of factors influencing the credit amount. The obtained equation is presented in Equation 1.

$$KRDT = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5 + \alpha_6 X_6 + \alpha_7 X_7 + \alpha_8 D_1 + \alpha_9 D_2 + \varepsilon \quad (1)$$

Where:
$KRDT$ = Credit amount obtained by tenant farmers (in IDR)
α_0 = Intercept
α_i = Parameter of variable X_i
X_1 = The cost of funds (in percentage)
X_2 = Farming experience (in years)
X_3 = Age of the tenant farmer (in years)
X_4 = Loan duration (in months)
X_5 = Profits received by the tenant farmer (in IDR)
X_6 = Area of solar salt land cultivated by the tenant farmer (in hectares)
X_7 = The latest education level of the tenant farmer
D_1 = Dummy variable of the collateral availability (1 = available; 0 = not available)
D_2 = Dummy variable of other credit sources availability (1 = available; 0 = not available)
i = Respondent i-th (i = 1, 2, ..., 93)
ε = Error

The selection of factors influencing the credits received by tenant farmers is based on theories and empirical experiences from several studies conducted by Aleem (1990), Anang et al. (2016), Anggraini (2015), Azriani (2014), Bhattacharjee et al. (2009), Bottemley (1975), Jaya et al. (2017), Nwaru et al. (2011), Rifaini et al. (2022) and Yoko, (2015). The amount of credit obtained by tenant farmers is entirely determined by the landowner as the finance provider, but this analysis approaches it from the factors and conditions of the tenant farmers. The expected coefficient values are α_1, α_3, α_4, α_5, α_8, $\alpha_9 > 0$, and α_2, α_6, $\alpha_7 < 0$. The subsequent step to be taken is the testing of the model. Tests conducted on the obtained model include (a) model reliability test, (b) *F*-statistic test, (c) *t*-statistic test, and (d) multicollinearity test. Decisions made are based on the formulated hypotheses.

Model Evaluation

The models derived from each regression needs to undergo evaluation for their validity. Tests conducted for each model are based on the model and regression method employed. This study employs the multiple linear regression model with the ordinary least squares (OLS) method. The employed tests are as follows, (a) model reliability test by checking the R^2 value which is close to 1. The R^2 value explains the extent to which the variation in the dependent variable can be accounted for by its independent variables. As the R^2 value approaches 1, it indicates a greater degree to which the variation in the dependent variable can be explained by the independent variable (Koutsoyiannis, 1977). (b) *F*-Statistic Test, the objective of this test is to determine whether all independent variables can explain the dependent variable. (c) *t*-Statistic test, this test is to determine whether each independent variable significantly influences the dependent variable at the α level. (d) Multicollinearity test, this test is employed to identify the presence of perfect linear relationships among independent variables in the credit amount model. Multiple regression models with numerous independent variables often exhibit strong correlations among these variables. This concern can be

addressed by directly reviewing the output of the program used; specifically, if the Variance Inflation Factor (VIF) values are < 10, there is no issue of multicollinearity.

RESULT & DISCUSSION

Characteristics of Respondents (Tenant Farmers)

The number of respondents who participated in this study is 93 tenant farmers. The tenant farmers involved in the two-sharing pattern consist of 13 individuals, while the remaining 80 individuals are tenant farmers involved in the three-sharing pattern. The characteristics described in this subsection is presented in Table 1.

Age

The age of the respondents ranges from 21 to 56 years, with an average age of 37 years. The majority of tenant farmers in the two-sharing pattern, aged between 15 – 50 years, constitute 92.31 percent. This figure is not significantly different from the percentage of tenant farmers in the three-sharing pattern, which is 98.75 percent. The conclusion that can be drawn is that almost all tenant farmers, both in the two-sharing and three-sharing patterns, fall within the productive age category, ranging from 15 to 50 years. This fact aligns with the findings of studies conducted by Apriliana (2013), Jamil (2014) and Nurdiani (2013). The respondents who participated in those studies were in the productive age range, constituting more than 50 percent of the overall respondents.

Latest Educational Level

Tenant farmer respondents in the two-sharing pattern generally have completed elementary school and, in some cases, pursued education up to the secondary and bachelor's degree levels. In contrast, tenant farmer respondents in the three-sharing pattern mostly have only completed elementary school. Based on these results, the educational level of tenant farmer respondents in the two-sharing pattern is better than those in the three-sharing pattern. The conclusion that can be drawn is that the tenant farmer respondents still have relatively low levels of education. This finding aligns with the studies on salt farming conducted by Apriliana (2013) and Jamil (2014). Approximately 30 to 50 percent of the salt farmers who became respondents in their studies had no formal education and only completed elementary school. This particular circumstance can be deemed as unfortunate since education significantly influences the ability to receive information, use technology, and make informed decisions. However, with farming experience, education can be complemented by practical knowledge gained in the field.

Table 1. Characteristics of Respondents (Tenant Farmers)

Characteristics	Two-Sharing Pattern		Three-Sharing Pattern	
	Number of people	%	Number of people	%
Age				
15 – 50 Years	12	92.31	79	98.75
51 – 60 Years	1	7.69	1	1.25
< 15 or > 60 Years	0	0.00	0	0.00
Total	**13**	**100.00**	**80**	**100.00**
Average (in years)				**37.17**

Latest Educational Level				
No Schooling	1	7.70	13	16.25
Elementary School	6	46.15	49	61.25
Secondary School to Bachelor's Degree	6	46.15	18	22.50
Total	**13**	**100.00**	**80**	**100.00**
Farming Experience				
< 5 Years	2	15.38	5	6.25
5 – 15 Years	7	53.85	53	66.25
> 15 Years	4	30.77	22	27.50
Total	**13**	**100.00**	**80**	**100.00**
Average (in Years)				**12.26**
Credit Amount (in IDR)				
< 3 million IDR	12	92.31	15	18.75
3 million – 6 million IDR	1	7.69	57	71.25
> 6 million IDR	0	0.00	8	10.00
Total	**13**	**100.00**	**80**	**100.00**
Average (in IDR/Person)				**3,753,763**
Solar Salt Field Area (in Ha)				
≤ 1.00	13	100.00	54	67.50
1.01 – 2.00	0	0.00	25	31.25
>2.00	0	0.00	1	1.25
Total	**13**	**100.00**	**80**	**100.00**
Average (in Ha/Person)		**1.29**		**1.08**
Total Average (in Ha/Person)				**1.25**
Productivity (in Ton/Ha)				
Minimum			65.00	60.00
Maximum			110.00	125.00
Average			**81.77**	**87.60**

Source: Processed Primary Data (2024)

Farming Experience

Experience in farming significantly influences the skills and decision-making behaviors in the operation of solar salt businesses. The comparison results between these two patterns indicate that, in both the two-sharing and three-sharing pattern categories, the majority of respondents (tenant farmers) generally fall within the range of 5 – 15 years of farming experience. The conclusion that can be drawn is that, generally, respondents possess relatively extensive farming experience. This experience significantly influences their skills in solar salt production and decision-making behavior in the context of solar salt business operations. The findings of this study align with those of Apriliana (2013) and Nurdiani (2013), who concluded that the respondents (salt farmers) have relatively long farming experience. The farming experience of their respondents (salt farmers) generally falls within the range of 6 – 15 years and 10 – 50 years. Considerable farming experience can compensate for the shortcomings of tenant farmers with relatively low educational levels. Long-term farming experience positively impacts the ability to manage salt businesses effectively.

Credit Amount

Traditional solar salt businesses can be categorized as capital-intensive enterprises. This indicates that these businesses require a substantial amount of capital to operate. Traditional solar salt businesses typically have a significant demand on capital for variable input costs, which are used to pay labor wages during the post-harvest period. One advantage of the sharecropping system is the availability of production capital in the form of interest-free credits. This serves as an attraction for tenant farmers to participate in a sharecropping arrangement.

Based on the above comparison results, it is evident that, in general, respondents (tenant farmers) in the two-sharing pattern category tend to receive credits below the average credit amount, falling within the range of credits less than 3,000,000 IDR. In contrast, tenant farmers in the three-sharing pattern category generally have received credits above the average, ranging from 3,000,000 IDR to 6,000,000 IDR. This discrepancy is attributed to the fact that tenant farmers in the three-sharing pattern category usually cultivate a larger area of solar salt fields compared to those in the two-sharing pattern category. With an increase in land area, the associated expenses also rise, thereby justifying the need for tenant farmers in the three-sharing pattern category to receive higher credits.

Solar Salt Field Area

The solar salt field ownership by tenant farmer respondents is divided into three groups: salt field areas of ≤ 1.00 Ha, 1.00 – 2.00 Ha, and > 2.00 Ha. For tenant farmers in the two-sharing pattern category, the entire cultivated solar salt field area falls within the group of ≤ 1.00 Ha. As for tenant farmers in the three-sharing pattern category, 54 farmers have cultivated salt field areas of ≤ 1.00 Ha. The average size of solar salt fields cultivated by tenant farmers in the two-sharing pattern category is, in fact, larger than the average size for those in the three-sharing pattern category. Surprisingly, both groups of tenant farmers have an average cultivated solar salt field area that is greater than the overall average for all tenant farmers, regardless of the sharecropping arrangement they follow. In the two-sharing pattern category, the average cultivated salt field area for tenant farmers is 1.29 Ha per person, while tenant farmers in the three-sharing pattern category have an average cultivated salt field area of 1.08 Ha per person. The overall average cultivated salt field area for all tenant farmers—without distinguishing the sharecropping arrangement they follow—is 1.25 Ha per person.

Solar Salt Field Productivity

The productivity of solar salt fields achieved by tenant farmers in the two-sharing pattern category ranges from 65.00 to 110.00 tons per hectare, while for tenant farmers in the three-sharing pattern category, productivity ranges from 60.00 to 125.00 tons per hectare. The average productivity of both groups of tenant farmers involved in the sharecropping system is not significantly different. However, these values are still below the solar salt field productivity level in Pamekasan Regency, which reaches 135.00 tons per hectare (Regency Secretary of Pamekasan, 2015). However, when compared with the productivity of fields managed by individual land-owning farmers and leased salt farmers, the productivity of salt fields managed by sharecropping tenant farmers is higher (Prihantini, 2016a). The productivity values of solar salt fields in this study are not significantly different from those in the study by Jamil (2014), which only reached 51.50 tons per hectare. This implies that the average productivity of solar salt fields in this study is still below the maximum productivity in Pamekasan Regency.

Factors Influencing Credit Amounts in Pamekasan Regency

The determination of factors affecting the magnitude of credits obtained by tenant farmers employs multiple linear regression and the Minitab 11 program. Independent variables suspected to impact the credit amount acquired by tenant farmers include the loan duration, solar salt field area,

farming experience of tenant farmers, age of farmers, cost of funds borne by tenant farmers for the credit, profits received by tenant farmers, the latest education level of tenant farmers, the availability of collateral, and the presence of other sources of credits. Subsequently, the regression model for the credit amount received by tenant farmers will be assessed using the tests outlined in the previous section.

Table 2. Regression Analysis Results of Factors Influencing Credit Amounts

Variables	Coefficient	*P*-Value	VIF
Constant	-15,579,586	0.000	
Cost of Funds	**171,625**	**0.000**	**2.2**
Farming Experience of Tenant Farmers	-11,536	0.258	3.6
Age of Tenant Farmers	8,056	0.355	4.1
Loan Duration	**167,335**	**0.000**	**1.7**
Profits Received by Tenant Farmers	**0.09704**	**0.000**	**9.1**
Solar Salt Field Area	**128.31**	**0.000**	**10.3**
Latest Education Level of Tenant Farmers	-32,714	0.548	1.7
Availability of Collateral	**544,814**	**0.001**	**3.3**
Other Sources of Credits	**89,296**	**0.015**	**1.8**
R-Squared	96.0%		
Adjusted *R*-Squared	95.5%		
F-Statistic	212.12	0.000	

Source: Processed Primary Data (2024)

Model Evaluation

(a) Reliability test of the model, according to the Table 2, the R^2 value obtained by this model is 96.0 percent. The interpretation of this R^2 value is that 96.0 percent of the variation in the model, representing the credit amounts received by the respondents (tenant farmers), can be explained by the independent variables within the model. The model can be trusted with a 95 percent confidence interval. (b) F-Statistic test, the calculated *F*-statistic value obtained by this model is 212.12, with a *p*-value of 0.000. The criterion for rejecting H_0 is *p*-value < α. If $H_0 : \alpha_1 = \alpha_2 = ... = \alpha_i = 0$ and H_1 : at least one $\beta_i \neq 0$, then the conclusion is to reject H_0. This implies that the independent variables in the model can significantly explain the credit amounts received by the respondents at a significance level of five percent. (c) Multicollinearity test, the VIF values for each independent variable are less than 10 (VIF < 10), indicating that the regression model is free from multicollinearity issues. (d) t-Statistic test, the results of the multiple regression analysis revealed that six independent variables exhibit a significant impact at the 5% significance level (α = 5%). As depicted in Table 2, all variables align with the anticipated expectations and adhere to the economic theory. Moving forward, the independent variables that wield significant influence on the credit amount model will undergo an interpretation of the parameter values derived from the regression outcomes. These pivotal variables are outlined below.

(1) Cost of Funds

The negative sign of the parameter aligns with theoretical expectations. The parameter value for the variable of cost of funds is 171,625, indicating that a one-percent increase in the cost of funds results in a significant increment of 171,625 IDR in the credit amount obtained. This implies that as the credit amount increases, the cost of funds borne by tenant farmers also increases. However, this finding contradicts the studies conducted by Anggraini (2015), Yoko (2015) and Prihantini et al. (2016b). Both concurred that the cost of funds and the credit amount received have a negative

relationship. Borrowers typically consider the credit amount they will apply to the financier. High costs of funds or interest rates depict a significant burden on the credit. Hence, it is appropriate for this variable to have a negative impact.

Nevertheless, there exists a distinction in the case of solar salt farming business compared to other agricultural endeavors, particularly for farmers operating under a sharecropping system. The constraint of capital for production compels them to persist in obtaining loans (credits), notwithstanding the substantial costs of funds. Basu (1997) in his journal article elucidated that the interest rates paid by tenant farmers engaged in sharecropping systems can soar as high as 360 percent. Despite the exorbitant expenses linked to credits, the elevated cost does not dissuade tenant farmers in the solar salt farming industry in Pamekasan Regency from continuing to seek financial assistance. The credit amounts received by tenant farmers typically range from 1,500,000 IDR to 10,000,000 IDR. However, the costs of funds can be several times higher than the interest rates imposed by formal banking institutions. This discrepancy is undoubtedly unjust, but eliminating this system has proven to be quite challenging. Therefore, active government involvement is necessary to address the financing issues.

(2) Loan Duration

The obtained parameter value is positive and aligns with expectations. The parameter value for the variable of loan duration is 167,335. This implies that with each additional month of duration or extension of the loan duration, the credit amount will increase by 167,335 IDR. This phenomenon can occur because a longer loan duration may provide advantages to landowners. This finding is consistent with the research conducted by Aleem (1990) and Rao & Priyadarshini (2013). Yadav & Sharma (2015) in their study concluded that there is a positive relationship between the demand for cooperative credit and the loan duration. According to her research, this happens because the longer the loan duration is, the higher the likelihood of increasing the amount of cooperative credit will be. Based on economic theory, as the loan amount increases, the time or duration of credit repayment will also increase. This is because as the credit amount rises, the repayment burden becomes higher, consequently leading to an extended loan duration. Azriani (2014) state that the interest rates of informal financial institutions can exceed 60 percent per year. The method applied by the lenders is to covertly increase the selling prices of the production.

(3) Profit Received by Tenant Farmers

The parameter for this variable is positive and aligns with expectations. The obtained parameter value is 0.09704. The interpretation of this value is that if tenant farmers receive an additional profit of 1,000,000 IDR, the amount of credit obtained increases by 97,040 IDR. The profit received by tenant farmers can be used as collateral for obtaining credits. The higher the profit, the higher the collateral value will be, thereby increasing the received credit amount. Additionally, the profit received by tenant farmers can be linked to their ability to repay the credit. The higher the profit is, the more landowners expect tenant farmers to be able to repay the obtained credit and avoid defaulting. The findings of this research align with studies conducted by Azriani (2014) and Yoko

(2015). Their studies conclude that borrowers with higher incomes receive larger credits compared to those with lower incomes. In solar salt farming businesses that operate under a sharecropping system, the amount of profit received by tenant farmers is significantly influenced by the share provided by landowners from the sale of the produced salt. At times, tenant farmers receive the proceeds directly from these sales without a comprehensive understanding. The position and influence of landowners are highly dominant. In other words, it can diminish the role of tenant farmers in determining salt prices, and there is even a tendency to observe monopolistic behavior by landowners toward tenant farmers (Ray, 1999; Roy & Serfes, 2001).

(4) Solar Salt Field Area

The parameter for this variable is positive and aligns with expectations. The parameter value is 128.31. The interpretation of this value is that the larger the salt field area is cultivated by tenant farmers, the larger the loan will be received. This finding has been previously reported by Yoko (2015), who concluded that there is a positive relationship between the cultivated rice field area and the amount of credit received. This suggests that as the land area increases, the demand for production inputs also rises, consequently affecting the production costs incurred by farmers. Farmers with limited personal capital will seek larger credits, leading to an increase in the received credit amount. This conclusion aligns with the findings of studies conducted by Harianto et al. (2019), Namboka et al. (2017), Nwaru et al. (2011), and Rifaini et al. (2022). According to economic theory, an increase in the solar salt field area undoubtedly affects the use of production inputs, leading to larger production costs for tenant farmers. Tenant farmers will decide to increase the credit requested from landowners, and landowners are more likely to grant such requests. Therefore, it is clear that there is a positive relationship between the solar salt field area and the credit amount received by tenant farmers.

(5) Collateral Availability

The parameter value for this variable is 544,814. The interpretation of this value is that tenant farmers with collateral will receive a larger credit than those without collateral, and the difference in the credit amount obtained is 544,814 IDR. The percentage of tenant farmers with collateral for the received credit is 81.72 percent. This percentage is significant. More than 80 percent of tenant farmers, who generally lack capital, surprisingly provide collateral to landowners. The common forms of collateral given to landowners are marriage certificates or vehicle registration certificates (Indonesian: *Surat Tanda Nomor Kendaraan* [STNK]). Typically, tenant farmers who provide collateral receive significantly larger credits. The remaining tenant farmers, who do not provide collateral, constitute only about 18.28 percent. These farmers are usually the ones without any collateral, and the credits they receive are relatively small; hence they do not require collateral. These findings align with the research conducted by Ajegbe et al. (2012), Akpan et al. (2013), Azriani (2014), and Bhattacharjee et al. (2009). The authors concur that the availability of collateral has a positive impact on the credits that tenant farmers receive. The higher the value of the collateral concerning the exchange rate, the greater the confidence bestowed by investors upon the borrower.

(6) Other Credit Sources

The sign of this parameter is positive and aligns with expectations. Tenant farmers with other credit sources will receive larger credits than those without other credit sources. This is because of a perception that someone with other credit sources is considered to have the ability to take a larger credit. Therefore, the lender, in this case, the landowner, will provide a larger credit. The parameter value for the variable of other credit sources is positive, at 221,861. This means that tenant farmers with other credit sources will obtain a larger credit compared to those without other credit sources, and the difference in the credit amount obtained is 221,861 IDR. The research findings are consistent with those conducted by Shah et al. (2008). According to their research, this phenomenon can occur because, in addition to the ability to repay credits, there is a perception that borrowing from others reduces the dominance of lenders or monopolistic behavior. For instance, if three individuals are registered as lenders in a village, and a borrower borrows from all three, the dominance of any one lender will decrease, thereby avoiding a monopoly from any single lender. For this reason, the variable of having other credit sources can inherently enhance competition in the credit market in that village (Akudugu, 2012).

The Correlation between Solar Salt Field Area, Productivity, and Credit Amount in Two Sharecropping Patterns

This analysis is employed to investigate the extent of credits received by tenant farmers based on the size and productivity of the cultivated solar salt fields. The discussion aims to ascertain whether there is a positive correlation between the field area and the credits acquired by tenant farmers. Additionally, the inquiry extends to the relationship with productivity: whether it demonstrates a positive correlation with the amount of credit received by tenant farmers or, conversely, exhibits a negative association. The results of the analysis concerning the relationship between the credit amount, land area, and productivity of the cultivated solar salt fields are presented in Table 3.

Table 3. The Comparison of Credit Amount, Field Area, and Productivity Among Sharecropping Patterns Per Season

Solar Salt Field Area (in Ha)	Average Credit Amount (IDR) Per Season	
	Two-Sharing Pattern	Three-Sharing Pattern
1.00	2,300,000 (100)	3,109,259 (67,50)
1.01 – 2.00	-	5,625,000 (31,25)
> 2,00	-	10,0000,000 (1,25)
Productivity (in ton/Ha)		
60 – 80	2,187,500 (61.53)	3,358,571 (43.75)
81 – 100	2,300,000 (30.77)	4,120,588 (42.50)
101 – 120	3,200,000 (7.70)	5,595,454 (13.75)
Number of Respondents	**13**	**80**

Source: Results of Primary Data Analysis (2024)

In the category of land area less than 1.00 Ha (< 1.00), the number of tenant farmers involved in the two-sharing pattern consist of 13 individuals (100%), each with a land area of one hectare. This is due to the limited extent of the cultivated solar salt fields for tenant farmers in the two-sharing pattern. The newly established solar salt fields constrain tenant farmers to manage an area of only one hectare. The average credit received by tenant farmers in the two-sharing pattern is 2,300,000 IDR per season.

Tenant farmers in the three-sharing pattern indeed have a more varied land area. Generally, tenant farmers in the three-sharing pattern also cultivate solar salt fields with an area of one hectare, totaling 54 individuals or about 67.50 percent of all participating tenant farmers in the three-sharing pattern. Tenant farmers with a cultivated solar salt field area of one hectare receive an average credit of 3,109,259 IDR per season. When compared to tenant farmers in the two-sharing pattern with the same cultivated solar salt field area, those in the three-sharing pattern receive higher credits. This can occur because tenant farmers in the three-sharing pattern apply for larger credits, leading landowners to provide larger credit amounts. Moreover, the credit amount received by tenant farmers is influenced by the size of the credit they request. Landowners are inclined to approve these credit applications as long as they meet the conditions for repayment.

Tenant farmers in the three-sharing pattern with a category of cultivated salt field area between 1.00 to 2.00 hectares account for 31.25 percent or 25 individuals. They have an average credit of 5,625,000 IDR. Conversely, for tenant farmers engaged in the three-sharing pattern with a cultivated salt field area of > 2.00 hectares, the average credit received per season stands at 10,000,000 IDR. Notably, this scenario applies to only one individual, representing approximately 1.25 percent of the total tenant farmers within the three-sharing pattern. The conclusion for tenant farmers in the three-sharing pattern is that there is a positive relationship between the cultivated salt field area and the amount of credit received by them. This can occur because as the cultivated salt field area increases, the associated costs also rise, leading to higher credit requests from tenant farmers. These credit applications will influence the landowner's decision to grant credits to tenant farmers. Landowners are inclined to approve credit applications from their tenant farmers, establishing a positive relationship between the cultivated salt field area and the amount of credit received by tenant farmers. This observation is also applicable to tenant farmers in the three-sharing pattern. Based on Table 2, there is a positive correlation between the cultivated salt field area and the amount of loan they receive.

Based on the data presented in Table 3, it is evident that for tenant farmers adopting the two-sharing pattern system, there is a clear correlation: the higher the productivity of the cultivated salt land, the greater the credit amount received. This trend remains consistent across all productivity categories. In the productivity range of 60 to 80 tons per hectare, the average credit amount stands at 2,187,500 IDR per season. On the other hand, within the productivity range of 81 to 100 tons per hectare per season, the average credit received increases to 3,200,000 IDR. Thus, the results of the regression analysis in Table 2 have been substantiated, aligning seamlessly with the findings of the prior studies (Guirkinger & Boucher, 2005; Weber & Musshoff, 2012). It occurs not only in the two-sharing pattern but also in the three-sharing pattern. Among the three productivity categories established, it is evident that there is indeed a positive correlation between the amount of credit received by tenant farmers and the productivity level of the cultivated solar salt field area. The results of this analysis further bolster the findings of previous research studies, such as those conducted by Baga et al. (2023), Linh et al. (2019), Martey et al. (2019), Namboka et al. (2017), and Rifaini et al. (2022). Moon et al. (2020) explained in his research that productivity and profitability was higher for

owner and cash tenant compared to others. Significant productivity and profitability difference were found between owner farmers and cash tenants versus sharecroppers. Result also found that inefficiency level was significantly high for fifty-fifty input-output share tenant and only output share tenant compared to cash tenant and owner operator implying that Marshallian inefficiency exist due to sharecropping system in the Boro rice production. Yadav & Rao (2022) stated that based on the propensity score matching (PSM) estimation, revealed that average treatment effect (ATE) and average treatment effect on the treated (ATET) for all the selected crops are found to be significantly higher for the treated group vis-à-vis non-treated group suggesting that institutional agricultural credit has a statistically and significant positive impact on the crop productivity. So, it was clear that there is a positive relationship between sharecropping system, informal credit, and productivity.

CONCLUSION & SUGGESTION

Conclusion

This study employs nine independent variables to identify the factors affecting the magnitude of informal credit. The credit acquired by tenant farmers is notably impacted by six independent factors, including costs of funds, loan duration, profits earned by tenant farmers, the extent of solar salt land, the availability of collateral, and the presence of other credit sources. The extent of solar salt land has a positive correlation with the credit amount, as does the productivity of the land. This suggests that landowners have employed this strategy to ensure the continuity of the sharecropping system. However, several studies have indicated that the sharecropping system (traditional) has not provided equality for tenant farmers.

Suggestion

Hopefully, the government can provide credit assistance to tenant farmers to transform the sharecropping system into a lease system. Operating a salt business under a lease system is expected to yield greater profits compared to the sharecropping system. This can also reduce the dominance of landowners who also act as middlemen. Evaluation of several ongoing credit programs indicates that formal credit is less favored by small-scale farmers and has relatively small or even no collateral. As a result, these farmers prefer accessing informal credit. Therefore, special suggestion and consideration is highly needed regarding credit rationing for these small-scale farmers.

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