ACCESSIBILITY ANALYSIS OF PADDY FARMING ON MICRO FINANCIAL INSTITUTIONS: EFFORTS TO IMPROVE THE CONTRIBUTION OF LOCAL WISDOM (CASE STUDY OF INDRAMAYU DISTRICT, WEST JAVA, INDONESIA)

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Abstract- The productivity of local rice originating from breeder rice seedlings is quite high and valued higher in the grain market providing benefits for local rice farmers. But the need for farmers to continue to produce and increase productivity requires additional working capital, one of which is from microfinance institutions. This study aims to analyze the accessibility of Indramayu breeders in micro-credit to increase their farming production. The research location is in Indramayu District, West Java with samples of breeders in 15 sub-districts, spread in 40 local rice center villages using purposive sampling technique. The data of this study are primary data obtained from interviews with questionnaire guidelines. Time of data collection from August to October 2018. The analytical tool used is binary logistic regression with a maximum likelihood approach. The results of the analysis show that the opportunity for accessibility of breeders and general farmers in microcredit is 15.94%, while the rest do not or do not have access. Only the variable number of dependents of farmer families has a significant positive effect on access to micro credit. Based on the Exp (B) value it shows that the greater the family dependents have the opportunity 1,313 times compared to the small family dependents.

Keywords- farmer rice seed breeders, local rice seed, accessibility, microfinance institutions

I. INTRODUCTION

Indramayu has been known as West Java rice barn, which accounts for around 2.4% of national rice production. The area of paddy fields reaches 55% of the area of Indaramayu. With such a large rice field area, Indramayu ranks first in West Java. In terms of productivity, Indramayu still ranks first (BPS District of Indramayu, 2016). Thus, Indramayu District is a mainstay as a national rice stock, through the Bulog SubDivre Indramayu warehouse facility which has 8 warehouses with a capacity to harvest yields equivalent to 76,500 tons of rice (Cirebontrust, 2015)
Based on the decision of the Republic of Indonesia Constitutional Court No. 99 / PUU-X / 2012 guaranteeing the independence of rice breeders in Indramayu District in producing the ideal variety of rice that also functions as a germplasm preserver through the pattern of selecting plants that are considered beneficial. The independence of farmers in rice breeding is able to maintain local seeds produced such as: Bongong, Gading Putih, Bongi (kebo vs pandanwangi), Sri Putih, Rangbo, Borang and Bravo varieties. This local variety seed is able to increase the productivity of rice in Indramayu District. The advantages of several varieties of local rice seeds that are resistant to weather, adaptive to local conditions and high productivity attract the attention of surrounding farmers and are encouraged to plant local rice seeds in a wider area of rice fields. This activity has an economic impact on breeders and general farmers around it. The trust of the middlemen in the quality of local rice yields can increase the selling price of local rice crops. The obstacles faced by breeder farmers and their communities are limited capital, limited land managed and scarcity of rice farming workers. Efforts to expand farmed land using local rice seeds require additional capital, increasing the number of farmers participating in integrated pest management (SLPHT) field schools as a means of improving farmers' skills in general, and the risks inherent in farming cause not all farmers have the ability same for managing local rice.
The benefits obtained by breeder farmers are higher than those of farmers generally because of two things, namely savings in input costs and higher selling prices of crops. However, the benefits obtained have not been able to cover all the necessities of life and capital requirements for the next planting season. This is because the cultivation of rice fields managed by farmers is generally narrow. Based on the research of Ichdayati and Sari (2016), cultivating farmers in the area of less than 0.5 hectares of paddy fields has not been profitable, so that additional capital is needed to expand the cultivation of rice fields. However, according to Anggraeni (2009), farmers are generally difficult to access sources of funds because of constraints on asset ownership as collateral. Mulyakin and Haryani (2013) showed factors in farmers, such as: farmer's character, education, collateral, farmer group membership, and previous loan experience affecting the accessibility of rice paddy farmers to sources of capital. In addition, elements outside of individual farmers, such as: credit scheme requirements, financing facilitators and program credit socialization policies. Based on the formulation of the above problem, the objectives of this study can be determined: to analyze the accessibility of breeder farmers in micro credit institutions in Indramayu

District, West Java, Indonesia in an effort to increase their farming production. So that it can provide information on how breeders are able to access sources of funds and are able to eliminate the risks inherent in local rice farming.

II. DETAILS EXPERIMENTAL

The research location is the local rice production center of Indramayu Regency, West Java. The research data collection was carried out for 3 months (August - October 2018). Sampling was done by purposive sampling, namely farmers in Indramayu Regency who carried out breeding in 15 sub-districts spread over 40 villages. The number of samples used in this study amounted to 131 breeders and general farmers with consisted of 35 breeders and 98 general farmers. In addition to farmers, supporting data is collected from bank / non-bank financial institutions and libraries related to this research

The data was processed using binary logistic regression method with a maximum likelihood approach, with the help of SPSS type 20 software. Conformity testing was carried out partially by the parametric logistic test with Wald Test and simultaneous test by G. Test. general farmers, as follows:

$Z \hat{} * = \alpha_0 + \alpha_1 w_1 + \alpha_2 w_2 + \alpha_3 w_3 + \alpha_4 w_4 + \alpha_5 w_5 + \alpha_6 w_6 + \alpha_7 w_7 + \varepsilon i$

Where: Z = opportunity to access microcredit (1 = access, 0 = no access)

αi = estimated parameters, w1 = farmer's age (years), w2 = number of family members (people), w3 = farmer's education years (years), w4 = farming experience (years), w5 = farmer group membership (years), w6 = arable land area (ha) and w7 = local rice productivity, εi = random variable. All expected parameters are positive.

III. RESULTS AND DISCUSSION

3.1. Characteristics of Respondents

The processed data shows that the age of respondents who were successfully screened ranged from 25 years to 86 years with an average of 46.85 years. The highest age at 45 years is 11 people. When viewed from the production period of 25-55 years, there are 80.2% of respondents still in productive period, so they are able to work in the fields optimally.

The range of education successfully completed by respondents is between 0-16 years of education. The frequency of education that appears a lot is 6 years, equivalent to SD as many as 42 people (41.2%) and the second highest is SMA with 30.5%. The average education of the respondents is at the level of 8.69 years, equivalent to junior high school or not until completing his junior high school. It means the education of farmers in the district. Indramayu has begun to improve because farmers who have successfully completed secondary school (junior and senior high school) have 54.2%. Increasing the level of education is expected to be able to empower farmers to become more prosperous than the previous generation, because the ability to access facilities outside agriculture is increasingly large to advance the agricultural sector itself. Farmers who have never participated in a field school have reached 39 respondents (29.8%). But the rest who succeeded in joining 1-2 times the field school reached 43.5%. It is hoped that new knowledge regarding lowland rice cultivation can be applied and disseminated among farmers. For a range of farmers' land area between 0.14 hectares to 7.14 hectares with an average of 1.14 hectares (ha). The frequency of the most cultivated land of 0.71 hectares was owned by 27 respondents, the second most was 1 hectare owned by 14 respondents. While the productivity of rice produced between 17.5 kw / ha to 87.5 kw / ha with an average production of 57.28 kw / ha. The productivity frequency of 70 kw / ha was successfully obtained from 29 respondents, then 56 kw / ha was obtained from 15 respondents.

3.2. Performance of Funded Source for Farmers

The sources of funding for rice farmers, both breeders and general farmers, mostly use personal funds (60.9%). In detail the performance of financial institutions that can be accessed is listed in Table 1. The number of institutions that can provide working capital for farmers for the next planting season are seven institutions, namely: Self (personal capital), Bank (BRI / BPR / PNPM), cooperatives, farm Store, Rentenir (moneylenders) and neighbors. The number of farmers who are able to access official financial institutions is 19.2% (Table 1). Most are in the western part of Indramayu, which has more complete facilities, such as market, road and transportation. Farmers who are able to access official financial institutions generally use loan funds for side business needs such as trading, workshops and businesses that produce faster turnover.

Table 1. Capital Access to Breeder farmer and General Farmers in subdistrict of Indramayu District in 2017

Subdistrict	Capital Access						
	Self	Cooperative	Bank	Farm Store	rentenir	Neighbor	Total
Juntinyuat	3		1				4
Kedokan Bunder	7						7
Kertasemaya	11		2			1	14
Arahan					2	1	3
Cantigi	5		2		1		8
Lohbener	5		3	1		1	10
Widasari	14	3	2			4	23
Bangodua	11						11
Cikedung	10	4					14
Terisi	2		2	1	1		6
Anjatan	8	4	5				17
Gabus Wetan	1	5	5				11
Kroya	4	1	3				8
Bongas	0		3	1			4
Gantar	4		2				6
	10	0	0	0	0	0	10
Total	95	17	30	3	4	7	156
Percentage	60,9	10,9	19,2	1,9	2,6	4,5	100

This research focuses more on breeders who have access to microfinance institutions such as banking and cooperatives. So what is meant by access is the number of breeders and general farmers who get loans from banks and cooperatives. However, out of 131 respondents surveyed, all breeders did not open access to loans to microfinance institutions. They generally have sufficient capital for the next planting season from their own harvested crops.

3.3. Accessibility of Farming Finance

The results of binary logistical regression analysis use block 0 to test the logistic regression requirements before the variables enter into the model equation. Furthermore, block 1 is the result of analysis after the variables entered in the SPSS model equation. The stages of analysis of binary logistic regression and show that the access variable has fulfilled the category made in accordance with the desired definition, namely Z = opportunity for access of breeder farmers and general farmers to micro-credit institutions, where value 1 = farmer has access to microcredit and value 0 = farmers do not have access.

processed classification data shows that the amount of data is zero (farmers do not have access to credit) there are 84 farmers and data worth one (farmers have access to credit) as many as 47 farmers. The percentage of model accuracy (percentage correct) in qualifying observations is 64.1% percent.

In the block one stage, the results of the analysis of the equation of the micro credit access model for farmers. The micro-credit access model of farmers has been tested using the Omnibus test with a chi-square approach which is the result of simultaneous testing of the effect of the independent variables with a model significance value of 0.099 ~ 0.1. These results indicate that the independent variables used together influence farmers' access to microcredit institution loans significantly at the 10% alpha level or at least one influential independent variable.

Based on X2 value of 13,385 <X2 tables at df 8 (number of independent variables 8) that is 15,507 or not significance at alpha 5% (0,099> 0,05) but can be significant at 10% alpha level (Sig 0,099 <0,1) so that reject H0, which indicates that the addition of independent variables can have a real effect on the model, or in other words the model is declared FIT.

Next is the Hosmer and Lemesshow test for 10 steps to get the final results of the analysis, as follows:

Table 2. Model Summary

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	157,626[a]	,097	,133

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

The Nagelkerke R Square value is 0.133 and the value of Cox & Snell R Square is 0.097, which indicates that the ability of the independent variable to explain the dependent variable is 0.133 or 13.3% and there are 100% - 13.3% = 87.7% other factors outside the model that explains the dependent variable.

Followed by variable classification tables, as follows:

Table 3. Classification Table

Classification Table[a]

Observed			Predicted		
			Akses		Percentage Correct
			0	1	
Step 1	Akses	0	75	9	89,3
		1	34	13	27,7
	Overall Percentage				67,2

a. The cut value is ,500

Based on the Classification Table table above, it can be said that the number of samples that do not have access to micro credit institutions is 75 + 9 = 84 people. Those who really do not have access as many as 75 people and who should not have access but get loan assistance, as many as 9 people. The number of samples that have access is 34 + 13 = 47 people. Those who really have access are 34 people and who should have access but not take loans, as many as 13 people. So the interpretation of logistic regression with SPSS: The table above gives an overall percentage value of (75 + 13) / 131 = 67.2%; which means the accuracy of this research model is 67.2%. Next, for the Parameter estimation, as follows:

Table 4. Parameter Estimation

Variables in the Equation

Step 1[a]	B	S.E.	Wald	df	Sig.	Exp(B)
Age	-,027	,031	,763	1	,382	,974
Education	,106	,070	2,323	1	,128	1,112
Number of Family	,273	,137	3,988	1	,046	1,313
Experiance	-,005	,028	,028	1	,866	,995
Member of Farm Group	,339	,487	,484	1	,487	1,403
Field School	-,024	,072	,113	1	,737	,976
Land Area	-,204	,191	1,133	1	,287	,816
Productivity	,009	,013	,448	1	,503	1,009
Constant	-1,663	1,653	1,013	1	,314	,190

From the Table 4, it can be seen that out of the 8 independent variables, there is only one independent variable that is significant at 5% alpha, namely the family dependents with a significance value of 0.046 (<0.05) indicating there is an influence on farmers' access to micro credit institutions. While seven other variables were not significant at 5% alpha. Than, Odds ratio (OR) can be seen in the Exp (B) column showing the magnitude of the influence of each variable.

the binar logistic regression model that is the access model of micro credit institutions for farmers in. Indramayu district as follows:

Z = Ln (p / 1-p) = -1,663 - 0,027 w_1 + 0,106 w_2 + 0,273 w_3 - 0,005 w_4 + 0,339 w_5 - 0,024 w_6 - 0,204 w_7 + 0,009 w_8

The meaning of each regression coefficient from the micro credit access model is as follows:

1. The intercept value is -1,663 which means that the negative sign indicates that farmers have no access to microcredit, so the probability of farmers who do not have access to micro credit is large.

ln (p / 1-p) = 1,663
(p / 1-p) = exp (1,663)
P = exp (1,663) / (1 + exp (1,663) = 84.06%
The opportunity for farmers to access microcredit is 100% - 84.06% = 15.94%.
2. Only the third variable, namely the number of dependents of farm families, has a significant effect on the access of microcredit institutions with a coefficient of 0.273 which has a significant effect on the alpha level of 5%. A positive sign shows that the amount of family dependency affects farmers to have access to micro credit. Based on the Exp (B) value of 1.313, it shows that the larger the family dependents have the opportunity of 1.313 times compared to the small family dependents.

3. Seven other variables have no effect on access to micro credit. However, when viewed from the coefficient sign it can be interpreted that: Age with a negative indicates that the older the farmer tends to be a risk averse (not willing to take risks) so the desire to access credit is also small.
4. The positive variable education variable which shows that the higher the education level the greater the opportunity to access microcredit, but the effect is not significant.
5. Experience variables are negative which indicate that farmers with little farming experience have a greater chance of accessing microcredit because many require capital assistance compared to experienced farmers, but the effect is not significant.
6. The dummy variable of a member of a farmer group with a positive sign indicates that farmers who join a farmer group have a greater opportunity to access microcredit, but the effect is not significant.
7. The variable number of times following the field school course with a negative sign indicates that farmers who have never participated in field school courses tend to have greater opportunities for access to micro credit, but the effect is not significant.
8. Variable area of land cultivated with a negative sign indicates that the narrower the farmer's land to be planted, the greater the need for access to micro credit, but the effect is not significant.
9. Positive productivity variables indicate that the higher the productivity of rice produced, the greater the chance to access microcredit, but the effect is not significant.

CONCLUSIONS

Based on the results of analysis and discussion, a conclusion can be drawn: Opportunities for accessibility of breeders and general farmers in an effort to increase their farming production in micro-credit in Indramayu Regency by 15.94%, while those who do not have access to opportunities are 84.06%. Only the third variable, namely the number of dependents of farmer families has a significant effect on access to microcredit with the coefficient of 0.273 having a significant effect on the alpha level of 5%. A positive sign shows that the amount of family dependency affects farmers to have access to micro credit. Based on the Exp (B) value of 1.313, it shows that the larger the family dependents have the opportunity of 1.313 times compared to the small family dependents.
Recommendation: The opportunity for farmers to be able to access microfinance institutions is very small, only 15.94%. Opportunities for farmers' access can be increased by harmonizing the nature of seasonal agriculture with a loan repayment ceiling for banks / microfinance institutions with a seasonal tempo. The nature of high-risk agricultural products requires the opportunity to delay repayment in the event of crop failure and interest rates that do not burden farmers who are already loaded with large burdens. For this reason, interest rate subsidies are needed, so farmers only try to pay off the installments. The ease of accessing microfinance institutions is mainly administrative requirements, without collateral and the need for technical guidance on the use of loan funds.

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