

ANALYSIS OF FARMERS DECISION TO PARTNER WITH ARA CAHAYANI GAYO COFFEE COOPERATIVE IN BANDAR DISTRICT, BENER MERIAH REGENCY

Siti Salmah¹, Zuriani², Martina³

¹Jurusan Agribisnis, Fakultas Pertanian, Universitas Malikussaleh, Aceh Utara

E-mail: ¹siti.190320001@mhs.unimal.ac.id ²zuriani@unimal.ac.id ³martina@unimal.ac.id

Abstract

This research was conducted in Ara Cahayani Gayo Cooperative in Bandar District. Ara Cahayani Gayo Cooperative is a cooperative that has the largest number of members in Bandar District. Of the 2.753 members who joined Ara Cahayani Gayo, only 456 members came from Bandar district, while the rest mostly came from other districts. This shows that there are still few farmers in the District of Bandar who joined Ara Cahayani Gayo. This study aims to analyze the factors that influence farmers' decisions to partner with Ara Cahayani Gayo coffee cooperatives in Bandar District, Bener Meriah Regency. The data analysis method used in this research is descriptive quantitative and qualitative with binary logistic regression. Sampling using simple random sampling with a total of 46 partner farmers and 48 non-partner farmers. The results showed that of the 5 independent variables included in the model, there are 4 independent variables that have a significant effect on the decision of farmers partnering with Ara Cahayani Gayo, namely the land area with a significant value of 0.002, the number of family members with a significant value of 0.043, market assurance with a significant value of 0.001 and training with a significant value of 0.003. While 1 other variable, namely experience with a significant value of 0.124, has no significant effect on the decision of farmers to partner with the Ara Cahayani Gayo cooperative.

Keywords: partnership, farmer decisions, coffee cooperative

1. INTRODUCTION

The current government has pursued many programs to improve the economy and welfare of the community. One of the programs pursued by the government is cooperatives. Cooperatives are joint business entities whose members are generally economically weak people who join voluntarily and on the basis of equal rights and obligations to run a business that aims to meet the needs of its members. The main objective of cooperatives is to improve the standard of living and welfare of its members (Gamal, 2006).

The plantation cooperative is a forum for farmers that aims to collect production results from both members and non-members to be processed and marketed and provide production facilities needed by cooperative members. This cooperative is built on the basis of common interests to meet common needs, so that cooperatives have an important role as an economic driver where cooperatives are able to play their role as supporting institutions in agricultural activities (Agustia *et al.*, 2017).

One of the plantation cooperatives that is currently growing rapidly is coffee cooperatives. This is evidenced by the number of coffee farmer cooperatives in Indonesia that have been managed very well. Bener Meriah Regency is one of the districts in Aceh Province that has a superior commodity of arabica coffee. This district is undoubtedly an excellent arabica coffee producing area. In fact, gayo arabica coffee from Bener Meriah and Central Aceh districts is listed as one of the best arabica coffees in the world. There are 23 coffee cooperatives in Bener Meriah district with a total of 14,340 members spread across several subdistricts. Bandar sub-district has

the largest number of coffee cooperatives in Bener Meriah district. Ara Cahayani Gayo is the coffee cooperative that has the largest number of members, 2,753 people spread across 32 villages, of which 30 villages are in Bener Meriah District and 2 villages are in Central Aceh District.

Through the Ara Cahayani Gayo cooperative, farmers can establish mutually beneficial partnerships because the Ara Cahayani Gayo cooperative has 3 certifications, namely Organic, C.A.F.E Practices, and Fairtrade. Currently, out of a total of 2,753 members of the Ara Cahayani Gayo cooperative, only 456 people or around 16.5% come from Bandar sub-district. The remaining 83.5% are dominated by members from Permata and other sub-districts. This number shows that there are still few farmers in Bandar District who are members of the Ara Cahayani Gayo cooperative. Although this cooperative is one of the larger certified coffee cooperatives in Bandar sub-district, more of its members come from other sub-districts. Based on the background previously described, the problem in this study is what factors influence farmers' decisions to partner with the Ara Cahayani Gayo coffee cooperative in Bandar District, Bener Meriah Regency. The purpose of this study was to analyze the factors that influence farmers' decisions to partner with the Ara Cahayani Gayo coffee cooperative in Bandar District, Bener Meriah Regency.

2. LITERATURE AND THEORETICAL REVIEW

Decision theory is a methodology for structuring and analyzing uncertain or risky situations. Decisions are perspectival, not descriptive. Decision-making is a necessary means under conditions of uncertainty and risk. Decision-making is a series of steps that an individual or group takes in solving a problem. Decision-making occurs as a reaction to a problem. Decision making requires interpretation and evaluation of information. Information from various sources is filtered, processed and interpreted through individual perceptions (Nurkolis, 2003).

Decision-making is always associated with difficulties, conflicts, or problems. Through a decision and its implementation, people hope that a solution to the problem or resolution of the conflict will be achieved. Formally, decision-making is a process of choosing one way or direction of action from various available alternatives in order to achieve a desired result. Taking or making a decision means making a selection from various possibilities or alternatives (Firdaus, 2012).

Partnership is a business cooperation between small businesses and medium or large businesses accompanied by coaching and development by medium or large businesses with due regard to the principles of mutual need, mutual strengthening and mutual benefit. According to experts, a partnership is a relationship between two or more parties that aims to seek profit where one party is in a lower condition than the other party but forms a relationship that places both based on an agreement to achieve a goal. Business partnership is a skill in development for the welfare of the people (Jeane, 2001).

In general, cooperative comes from Latin, namely *cum* which means with, and *aperari* which means work. From these two words, in Dutch it is called *Cooperatieve Vereniging* which means working together with others to achieve certain goals. The word cooperation is then lifted into an economic term as a cooperative which is standardized into an economic language known as a cooperative which means an economic organization consisting of people who work together voluntarily. Therefore, a cooperative can be defined as an association or economic organization consisting of people who work together in a family manner to run a business, with the aim of improving the welfare of its members (Rahardjo, 2017).

3. IMPLEMENTATION METHOD

This research was conducted at Ara Cahayani Gayo Cooperative, Bandar District, Bener Meriah Regency. The research location was determined using the purposive method because Ara Cahayani Gayo Cooperative is a cooperative that has the most members compared to other cooperatives in Bandar District. The objects determined in this study were partner and non-partner coffee farmers in Bandar District. The scope of this research is only limited to knowing the factors that influence farmers' decisions to partner with Ara Cahayani Gayo coffee cooperatives in Bandar District, Bener Meriah Regency.

This research uses primary data and secondary data. Primary data is data sourced from the field or research objects obtained by means of direct interviews and using a list of questions (questionnaires) that have been prepared for research purposes to respondents, namely partner and non-partner coffee farmers. Secondary data is complementary data obtained from various sources related to this research such as the Central Statistics Agency (BPS), Ministry of Cooperatives and MSMEs, journals, literature studies and other literature.

The data analysis method used is descriptive quantitative and qualitative. Furthermore, the data were analyzed using the binary logistic regression method used to see the effect of a number of independent variables, namely land area, farming experience, number of family members, market assurance and training on the dependent variable, namely the decision of farmers to partner with the Ara Cahayani Gayo coffee cooperative in Bandar District, Bener Meriah Regency. The logistic regression formula is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 D_4 + \beta_5 D_5 + e$$

Description:

Y = Farmers' decision to partner with Ara Cahayani Gayo cooperative

Y = 1, if the farmer makes a partnership

Y = 0, if the farmer does not make a partnership

β_0 = constant

β_0 - β_n = regression coefficient

X1 = land area (ha)

X2 = farming experience (years)

X3 = number of family members (people)

D4 = market guarantee

D4= 1, if there is market guarantee

D4= 0, if there is no market guarantee

D5 = training

D5 = 1, if there is training

D5 = 0, if no training

e = error term

a) Regression Model Feasibility Test

1. Model Feasibility Test

This test is conducted to determine the feasibility or suitability of the logistic regression model used by looking at the significant value in the Hosmer and Lemeshow test, with the following criteria:

- If the Hosmer and Lemeshow statistical value is equal to or less than 0.05 then there is a significant difference between the model and its observation value so that the model cannot be accepted because it does not match the observation data.
- If the Hosmer and Lemeshow statistical value is greater than 0.05, there is no significant difference between the model and its observation value so that the model can be accepted because it fits the observation data.

2. Determination Coefficient Test

This test is conducted to determine how much the independent variable is able to explain and influence the dependent variable. The coefficient of determination in logistic regression can be seen in the Nagelkerke R square value, whose value varies between 0 and 1. If the Nagelkerke R square value is closer to 1, then the independent variable is able to explain and provide all the information needed to predict variations in the dependent variable.

3. Classification Table Analysis

Classification Table is an analysis to test validation and accessibility, in this model a classification table is used to estimate whether it is correct or not model in this study. The model will depend heavily on the estimated probability of farmers' decisions. The decision obtained in the classification table is the sensitivity level of the model.

4. Multicollinearity Test

This test is conducted to determine whether in the regression model analyzed there is a correlation of independent variables and how much the correlation value is. A good regression model is a regression model in which there is no correlation between the independent variables. If there is a correlation between the independent variables, multicollinearity will occur with the correlation coefficient value of each independent variable obtained > 0.8 will be a serious problem.

b) Hypothesis Test

1. Simultan Test / Overall Model Test (Overall Model Fit)

The G test or overall test is used to determine the effect of the independent variable (independent) on the dependent variable (dependent) in the model, so it is tested with the Likelihood test. The criteria are as follows:

- If the significant value of $G \leq 0.05$, the variables of land area, experience, number of family members, market assurance and training simultaneously have a significant effect on the variable farmer decisions to partner with Ara Cahayani Gayo Cooperative.

- If the significant value of $G > 0.05$ then the variable land area, experience, number of family members, market guarantees and training simultaneously has no significant effect on the variable farmer decisions partnering with cooperatives Ara Cahayani Gayo.
2. Partial Test / Wald Test
- Partial test (wald test) is used to test whether or not the influence of independent variables (independent) on the dependent variable (dependent) partially. The goal is to find out which independent variable has a significant effect on the dependent variable. Testing the meaning of the parameter (β coefficient) partially can be done through the Wald test with the following criteria:
- If the significant value of $W \leq 0.05$ then the variable land area, experience, number of family members, market assurance and training partially significant effect on the variable decision farmers partner with Ara Cahayani Gayo Cooperative.
 - If the significant value of $W > 0.05$ then the variable land area, experience, number of family members, market guarantees and training partially does not have a significant effect on the variable farmer's decision to partner with Ara Cahayani Gayo cooperative.

4. RESULTS AND DISCUSSION

4.1. Farmer Characteristics

Farmer characteristics in this study are characteristics that are generally owned by farmers in managing their farms. Farmer characteristics observed in this study are age, education, experience and number of family members.

Table 1. Number of farmers by age

Age	Partner		Non-partner	
	Total	Percentage	Total	Percentage
Productive (25-64)	43	93.00%	40	83.30%
Non-productive (>65 tahun)	3	7.00%	8	16.70%
Total	46	100%	48	100%

Table 2. Farmers education level

Education	Partner		Non-partner	
	Total	Percentage	Total	Percentage
Elementary School	10	21.74%	5	10.42%
Junior High School	4	8.70%	3	6.25%
Senior High School	15	32.60%	24	50.00%
College	17	36.96%	16	33.33%
Total	46	100%	48	100.00%

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Table 3. Farmer experience

Experience	Partner		Non-partner	
	Total	Percentage	Total	Percentage
6-10 years	19	41.30%	10	20.83%
11-15 years	10	21.74%	8	16.67%
> 15 years	17	36.96%	30	62.50%
Total	46	100%	48	100.00%

Table 4. Number of farmer family members

Family Members	Partner		Non-partner	
	Total	Percentage	Total	Percentage
Few (1-3 people)	34	82.61%	32	66.67%
Medium (4-6 people)	12	17.39%	16	33.33%
Total	46	100%	48	100%

4.2 Factors Influencing Farmers Decisions to Partner with the Ara Cahayani Gayo Cooperative

In this study, the analysis of factors influencing farmers' decisions to partner with Ara Cahayani Gayo cooperative was conducted using a binary logistic regression model. In this case, the decision to partner with Ara Cahayani Gayo cooperative given a value of 1 and the decision not to partner with Ara Cahayani Gayo cooperative given a value of 0. The decision was influenced by several factors including land area, experience, number of family members, market assurance, and training. The results of the analysis can be seen as follows:

a) Regression Model Feasibility Test

1. Model Feasibility Test

Step	Chi-square	Df	Sig.
1	6.147	8	.631

From table 1, it can be seen that the significant stage of observation for the calculated chi square value is $6.147 < \chi^2_{table} 15.507$. The Hosmer and Lemeshow Test results show a significance value of $0.631 > \alpha (0.05)$. This means that the model is able to predict its observation value or it can be said that the model is acceptable because it matches the observation data.

2. Determination Coefficient Test

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	40.999 ^a	.613	.818

From Table 2, it can be seen that Nagelkerke R Square gives a value of 0.818. This value indicates the strength of the model used in the study. From the above value, it can be interpreted that the independent variables are able to explain the dependent variable by 81.80%, while the remaining 18.20% is explained by other variables outside the model.

3. Classification Table Analysis

	Observed	Predicted		Percentage Correct
		Y		
		Tidak bermitra	Bermitra	
Step 1	Tidak bermitra	43	5	89.6
	Bermitra	3	43	93.5
Overall Percentage				91.5

Based on Table 10, the number of samples who chose to partner was 3+43=46 people, who actually chose to partner as many as 46 people, but those predicted by the model were 43 people and those who should have chosen to partner but did not choose were 3 people with a percentage predicted by the model of 93.5%. While the number of samples who chose not to partner was 43 + 5 = 48 people, which was predicted by the model as many as 43 people and those who should have chosen not to partner but did not choose as many as 5 people with a percentage that could be estimated by the model of 89.6%. Overall, the logistic regression model in this study can estimate 91.5% of the cases for the two decisions chosen by coffee farmers in Bandar District.

4. Multicollinearity Test

	Constant	X1	X2	X3	D4	D5	
Step 1	Constant	1.000	-.499	-.630	-.628	.179	-.288
	X1	-.499	1.000	.297	.356	-.499	-.122
	X2	-.630	.297	1.000	.361	-.470	.176
	X3	-.628	.356	.361	1.000	-.526	-.141
	D4	.179	-.499	-.470	-.526	1.000	-.029
	D5	-.288	-.122	.176	-.141	-.029	1.000

In Table 11, it can be seen that the variables in the research model do not experience multicollinearity, because there is no correlation value of each independent variable greater than 0.80. This means that the independent variables of land area (X1), experience (X2), number of family members (X3), market assurance (D4) and training (D5) do not experience serious multicollinearity.

b) Hypothesis Test

1. G-test (Chi Square)

		Chi-square	Df	Sig.
Step 1	Step	89.270	5	.000
	Block	89.270	5	.000
	Model	89.270	5	.000

The G test for the coefficient model shows that the χ^2 statistical test is to test the hypothesis, where all coefficients are expected to be equal to zero is χ^2 count 89.270 > χ^2 table 11.070 with 5 degrees of freedom and a significance value of $0.000 < \alpha 0.05$. This shows that the independent variables simultaneously have a significant effect on the dependent variable. It can be concluded that the addition of independent variables can have a real influence on the model or in other words the model is declared FIT.

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2. Wald test

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1 ^a	X ₁	-3.252	1.050	9.591	1	.002	.039
	X ₂	-.087	.057	2.362	1	.124	.916
	X ₃	-.981	.486	4.080	1	.043	.375
	D ₄	5.641	1.666	11.456	1	.001	281.621
	D ₅	3.103	1.057	8.621	1	.003	22.259
	Constant	1.043	2.213	.222	1	.638	2.836

The model equation is as follows :

$$Y = 1.043 - 3.252X_1 - 0.087X_2 - 0.981X_3 + 5.641D_4 + 3.103D_5$$

With the following logistic function:

$$f(Y) = \frac{e^{1.043-3.252X_1-0.087X_2-0.981X_3+5.641D_4+3.103D_5}}{1+e^{-(1.043-3.252X_1-0.087X_2-0.981X_3+5.641D_4+3.103D_5)}}$$

a. Land Area (X1)

Based on table 13, the significant value of land area of $0.002 < \alpha (0.05)$ which means that the land area has a significant effect on the decision of farmers to partner with Ara Cahayani Gayo cooperative. The value of the logistic regression coefficient of land area variable is negative, which means that if the farmer's land area increases, the farmer's decision to partner with Ara Cahayani Gayo cooperative will decrease. Exp(B) value of 0.039 indicates that if the farmer's land area increases by 1 hectare, farmers tend not to partner with Ara Cahayani Gayo cooperative by 0.039 times.

b. Experience (X2)

Based on table 13, a significant value of experience of $0.124 > \alpha (0.05)$ which means that the farming experience has no significant effect on the decision of farmers to partner with Ara Cahayani Gayo cooperative. The logistic regression coefficient value of the experience variable is negative. Exp(B) value of 0.916 indicates that if the farmer's experience increases by 1 year, then farmers tend not to partner with Ara Cahayani Gayo cooperative by 0.916 times. Conversely, if the experience of farmers decreased by 1 year, then farmers tend to partner with Ara Cahayani Gayo cooperative by 0.916 times.

c. Number of Family Members (X3)

Based on table 13, the significant value of the number of family members of $0.043 < \alpha (0.05)$, which means that the number of family members has a significant effect on the decision of farmers to partner with Ara Cahayani Gayo cooperative. The value of the logistic regression coefficient of the variable number of family members is negative, indicating that if the number of family members increases, the chances of farmers decisions to partner with Ara Cahayani Gayo cooperative will decrease. Exp(B) value of 0.375 indicates that if the number of family members increases by 1 person, then farmers tend not to partner with Ara Cahayani Gayo cooperative by 0.375 times.

d. Market Assurance (D4)

Market assurance referred to in this study is a dummy variable (1 = there is market assurance, 0 = no market assurance). Based on table 13, the significant value of market assurance of $0.001 < \alpha (0.05)$ which means that the existence of market assurance has a significant effect on the decision of farmers to partner with Ara Cahayani Gayo cooperative. The value of the logistic regression coefficient of the market assurance variable is positive, which means that if there is a market assurance, the opportunity for farmers to partner with Ara Cahayani Gayo cooperative will

increase. Exp(B) value of 281.621 indicates that in the presence of market assurance, farmers tend to partner with Ara Cahayani Gayo cooperative by 281.621 times compared with no market assurance.

e. Training (D5)

Training referred to in this study is a dummy variable (1 = no training, 0 = no training). Based on table 13, the significant value of training of $0.003 < \alpha$ (0.05) which means that the presence of training has a significant effect on the decision of farmers to partner with Ara Cahayani Gayo cooperative. The value of the logistic regression coefficient of the training variable is positive, indicating that if there is training, the opportunity for farmers to partner with Ara Cahayani Gayo cooperative will increase. Exp(B) value of 22.259 indicates that in the presence of training, farmers tend to partner with Ara Cahayani Gayo cooperative by 22.259 times compared with no training.

5. CONCLUSION

Based on the results of research and data analysis can be concluded that the factors that influence the decision of farmers to partner with Ara Cahayani Gayo cooperative in Bandar District Bener Meriah Regency analyzed using binary logistic regression model, of the 5 independent variables included in the model there are 4 independent variables that have a significant effect on the decision of farmers to partner with Ara Cahayani Gayo cooperative at a confidence level of 95% ($\alpha=0.05$). These variables are land area (X1), the number of family members (X3), market assurance (D4) and training (D5). While 1 other variable that is experience (X2) has no significant effect on the decision of farmers to partner with Ara Cahayani Gayo cooperative.

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