

THE TRUST LEVEL OF DAIRY FARMERS IN DAIRY COOPERATIVES IN SLEMAN DISTRICT

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ABSTRACT

Cooperatives are a place for the welfare of dairy farmers in carrying out livestock farming. Various programs provided by cooperatives are intended to serve their members so that members can optimize the resources that come from the livestock they raise. This study was conducted with the aim of knowing the level of trust of dairy farmers in the cooperatives that farmers participate in. This research was conducted by taking a sample of 101 dairy farmers spread across Pakem and Cangkringan Subdistricts, Sleman Regency. The data is taken in the form of primary data which is carried out using a questionnaire tool that has been tested for validity and reliability. Measurement of the level of trust of dairy farmers in cooperatives by PCA (Principal Component Analysis) analysis resulted in the conclusion that trust in close friends in cooperatives is the main component that is able to reduce other components and can explain 89.174% of the variance that occurs.

Introduction

Cooperative is a forum for its members to improve welfare. In cooperative business activities, an innovation is needed in the product offerings of its members so as to expand business opportunities. Cooperatives are business entities consisting of people or legal entities with cooperative principles and the people's economic movement based on the principle of kinship (Siregar 2019). The cooperative was initially engaged in the credit sector. Along with the variety of problems in the community and members, cooperatives are also increasingly diverse in type.

The law governing cooperatives is stated in the Job Creation Law no. 11 of 2020. The law stipulates that the establishment of cooperatives is aimed at making arrangements regarding the development of buying and selling activities and as a liaison between suppliers and retailers. The application of the principles that have been regulated in the law needs to be a benchmark in managing cooperatives for the welfare of their members. The principles of cooperatives are daily work guidelines in which cooperatives act as elaborators

and translators of these principles to be applied with cooperative members (Marisan & Wibowo, (2016). This explanation proves that cooperative principles are a unity that cannot be separated from the values of cooperatives.

The cooperative principle is closely related to the family principle. The principle of kinship in cooperatives has a meaning as a reflection of cooperatives with their members related to moral responsibility (Satriadi & Dewi, 2020). The principle of kinship in cooperatives needs to be lived up to both cooperative managers and their members to achieve a synergy in activities within the cooperative even though this may lead to a deviation. There are several factors that can influence deviations in applying the cooperative family principle, such as the level of knowledge of the managers or administrators of the cooperative. (Satriadi & Dewi, 2020).

The dairy sector plays an important role in the milk supply chain in the country. This sector can improve the economy and livelihoods of farmers. This dairy farm provides a significant contribution to the provision of food and employment opportunities for the rural household sector. Dairy farming is dominantly carried out by family farms as a small-scale secondary economic activity (Yilmaz et al., 2020).

The existence of cooperatives is important in the rotation of the cow's milk value chain in the country. The dairy value chain describes the distribution of the benefits of the actors which are dairy farmers in the chain (Beyene et al., 2016). The cooperative will accommodate the milk production of its members which is then deposited to consumers so that the existence of the cooperative will determine the supply of milk. However, in field conditions there are still shortcomings. Bargaining position of farmers is still weak due to a long marketing supply chain (Setiyowati, 2020). Dairy farmers have problems with the level of trust for both organizations and veterinarians who are influenced by whether or not the services provided are good (Svensson et al., 2019).

Several gaps include deviations from the application of cooperative principles and principles as well as the value chain and milk supply chain, which are problems that arise in the management of cooperatives. This can cause a problem with the trust of members in the cooperative. As a result, it can reduce the level of member participation in cooperative membership. The participation of cooperative members can provide benefits for both the cooperative and its members because active participation can mobilize existing resources and involve members in joint decision making (Syahputra et al., 2019).

There are problems that are often encountered in the management of cooperatives. The problems experienced in the form of internal and external problems. The development of cooperatives still faces problems in the institutional and business fields of cooperatives. These problems include problems between cooperative members, cooperative management problems, cooperative employees, and the relationship

between cooperatives and outside parties such as banks, the government, and other partners. (Ayuningtyas & Rudiantono, 2021). This study aims to analyze level of trust of dairy farmers in Sleman District.

Materials and Methods

1. Materials

This research was conducted in all cooperatives in Sleman Regency. The research data was taken during April 2022. This research was conducted using a questionnaire. The questionnaire was measured using a Likert scale regarding the level of trust of dairy farmers in the management of the cooperative. The number of respondents in this study were 101 people who are members of the cooperative membership in Sleman Regency.

2. Methods

The locations chosen to be the research locations were the Villages of Hargobinangun and Purwobinangun in Pakem, and Villages of Umbulharjo and Wukirsari in Cangkringan. The specified location is the location where the dairy cooperative is located. The respondents of this study were dairy farmers in Sleman Regency, Yogyakarta Special Region Province. Determination of respondents is done by purposive sampling method. Respondents were selected with the criteria of being a dairy farmer in Yogyakarta, raising lactating cows and joining a dairy cooperative membership. Respondents were selected according to their participation in cooperative membership activities. Respondents taken can represent and describe the situation in this research. The determination of the sample was taken because of the difficulty of the data obtained in determining the sample based on the population. The population of dairy farmers in Sleman Regency is assumed to be infinite. Therefore, the population whose population cannot be identified can be determined directly by 100 samples. The research sample is good if it reaches a minimum of 100 samples (Cooper & Emory, 1996). Determination of 101 samples can represent the entire existing population.

The data used in this study are primary and secondary data types. The primary data was taken based on direct interviews with respondents. Primary data collection is done by means of a questionnaire. The questionnaire used is a questionnaire containing the respondent's level of trust in the cooperative. The questionnaire used used a Likert scale so that the respondent's level of trust in the cooperative could be measured. The secondary data used is in the form of livestock population data contained in the data from the Central Statistics Agency (BPS).

The data that has been collected is then analyzed. The data analysis used in this research is PCA (Principal Component Analysis). The PCA model analysis has four main parts, namely data, scores, loading, and residues (Bro & Smilde, 2014). PCA analysis aims to simplify the observed variables by shrinking the dimensions by eliminating the correlation between independent variables through the transformation of the

original independent variable to a new, uncorrelated one (Muttalib et al., 2019). PCA analysis can simply perform linear transformations to determine a new coordinate system from a dataset (Syakhala et al., 2015). The PCA analysis model can be seen as follows.

$$\frac{\sum_{i=1}^n X_i}{n}$$

Details :

X_i = the i -th data of the variable X

N = number of data

In the use of PCA analysis there are several series of tests, namely the Kaiser-Meyer-Olkin (KMO) test, the Bartlett test, the anti-image matrices test, and the communality test.

Results

Sleman Regency is one of the regencies located in the Special Region of Yogyakarta Province. Sleman is an area where the topography tends to be flat and hilly. The further north, the land in the Sleman area tends to tilt, especially the area around the mountain slopes. The dominance of land use in Sleman Regency is used as agricultural land because springs originating from the mountains are still abundant. Sleman Regency has an altitude ranging from less than 100 to more than 1000 meters above sea level with the height division into four, namely an altitude of less than 100 meters, an altitude of 100 to 499 meters, an altitude of 500 to 999 meters, and an altitude of more than 1000 meters. meters (Sub-Office of Food Crops and Horticulture, 2017). The climate in Sleman Regency is included in the category of wet tropical climate. The condition of the location is suitable to support dairy cattle raising activities.

Pakem District is one of the sub-districts in Sleman Regency which is located at an altitude of 600 to 1300 meters above sea level depending on the location of the area. The closer to the slopes of Mount Merapi, the higher the altitude of the area. In general, based on its topography, Pakem consists of a mountain with a volcanic mountain. There is a gentle slope of Gurung from the south to the north. Administratively, Pakem District has 5 villages including Hargobinangun, Purwobinangun, Candibinangun, Pakembinangun, and Harjobinangun. The locations taken as interview locations in this study were Hargobinangun and Purwobinangun villages. The basis for determining this location is based on primary data in the form of interviews with the Pakem District government. The majority of land use in Pakem District is used for rice fields and gardens, dry land, and recreation areas. Cangkringan is one of the sub-districts in Sleman Regency which consists of 5 villages, namely Argomulyo, Glagaharjo, Kepuharjo, Umbulharjo, and Wukirsari. Cangkringan District is geographically located in the highlands with a wet tropical climate. The typology

of the area in Cangkringan is filled with undulating land and hills. Cangkringan Subdistrict has economic potential which is supported by local MSMEs and nature tourism. Land use in Cangkringan is also used for farming and livestock activities. The villages chosen to be the research sites were Umbulharjo and Wukirsari villages. The location determination is based on primary data in the form of interviews with the sub-district government.

Dairy cows are one of the livestock commodities that have a high dual-use value, both for seeds and for milk production. The development of the dairy industry is an activity that is quite widely developed, especially in rural areas. One of the locations in Yogyakarta that is used as a center for the development of dairy cattle is in the Pakem and Cangkringan areas, namely the sub-districts in Sleman Regency. This location is used as a development center because the location has a cool climate so that it is suitable as a place for dairy cattle cultivation according to the statement that the development of dairy cattle in Indonesia requires optimal temperatures in a temperate climate to obtain optimum production (Heraini et al., 2019).

The type of dairy cattle developed in Pakem and Cangkringan sub-districts is Friesian Holstein (FH) dairy cow. FH cattle are cattle that are well adapted in Indonesia. FH cattle are cattle originating from subtropical countries but are able to adapt well to the tropical environment in Indonesia. A dairy cattle business that is run in conjunction with farmer empowerment activities can significantly increase cow's milk production (Rusdiana & Soeharsono, 2019). Dairy cattle business is one of the business units with high potential to be run with high profit. This is due to data showing that domestic milk production is still not sufficient for domestic milk needs, so it is necessary to import dairy products to meet these needs (Deny, 2014). Previously, it was explained that the center of cow's milk production in Indonesia is currently still run mostly by smallholder breeders, where a farmer has a small scale of livestock ownership. The existence of this phenomenon causes problems in the availability of domestic milk needs.

Based on the data collection activities carried out, the dairy farmers in Sleman Regency are spread out in Pakem and Cangkringan Districts. The research was conducted by collecting primary data in the form of interviews with 101 respondents. The selected respondents are dairy farmers who are members of the cooperative membership in Sleman Regency. The location of the research was determined because the location of the dairy cooperative is also in Sleman Regency, especially in Pakem and Cangkringan Districts. This is reinforced by the statement that Sleman is the main area in the Province of the Special Region of Yogyakarta which is focused on by the local government to be used as a center for dairy cattle production (Maryani et al., 2018). The existence of this potential causes at least residents of Sleman Regency, especially Pakem and Cangkringan Subdistricts to have the profession and livelihood of dairy farmers.

The livestock sector in Indonesia is one of the sectors in the agribusiness sector, which is still largely dominated by smallholder livestock. The existence of smallholder scale farms in Indonesia is characterized by a small scale of livestock ownership with an average livestock ownership of between 1 to 3 heads (Hidayah et al., 2019). Livestock, especially dairy cattle, is a business that is currently still run in the traditional way. Based on ongoing research activities, it is rare to find dairy farmers who have used both automatic and semi-automatic technology in running a dairy cattle business. In addition, in carrying out dairy farming activities, it is not only carried out individually but involves several people. Therefore, the livestock sector in Indonesia is generally a family business or business which is generally run by the nuclear family. The cattle husbandry sector in Indonesia has a fairly large family involvement which can be seen in the components of the role of family members in managing livestock, especially cattle (Takasenserang et al., 2021).

This research was conducted with the aim of measuring the level of trust of dairy farmers in dairy cooperatives. The measurement of the level of trust is carried out when dairy farmers are members of the dairy cattle membership in Sleman Regency. Trust is an aspect that needs to be considered in the incorporation of members in the sense of dairy farmers into an institution in this case a dairy cooperative because with this trust it is able to cause members of the institution to play a more active role and increase the productivity of their members. In terms of increasing the trust of its members, of course, an institution needs to do several things, including the quality of service and also the provision of facilities and facilities. The quality of services provided by cooperatives is one of several reasons to be able to increase the satisfaction of cooperative members so that later it will be expected that members will be loyal to the cooperatives that the members join (Sutrisno et al., 2017). The quality of services provided by cooperative management is proven to be able to increase the satisfaction of cooperative members (Guspul & Ahmad, 2014).

Satisfaction of cooperative members can increase member confidence in cooperatives. The existence of trust is able to glue all resources, especially existing human resources so that they can be organized more effectively (Sutrisno et al., 2017). The measure of member satisfaction can reflect as the level of feeling of the member to express the results of a comparison of the productivity of a service or program obtained by its membership institution (Lupiyoadi & Hamdani, 2008).

Based on the research conducted, the level of member trust in cooperatives is reflected in 6 variables, namely the variables of trust in friends in cooperatives, trust in neighbors in cooperatives, trust in other members, trust in cooperative employees, trust in cooperative leaders, and trust in extension workers or inseminators. cooperative. Based on the tests that have been carried out, the trust of members can be seen below.

Table 1. Kaiser-Meyer-Olkin and Bartlett Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,859
Bartlett's Test of Sphericity	Approx. Chi-Square	1043,337
	df	15
	Sig.	0,000

In analyzing the Principal Component Analysis (PCA) method, the thing that needs to be done is to do the KMO and Bartlett tests. The Kaiser Meyer Olkan (KMO) test is a test that is needed to see the requirements for the adequacy of the data possessed so that further tests can be carried out. The KMO method is the most frequently used method to check the data adequacy requirements for conducting PCA analysis (Zainuddin et al., 2016). The KMO method can measure the adequacy of sampling as a whole so that each indicator can be measured for its adequacy in conducting sampling. The results of the KMO test in this study were 0.859. In conducting the KMO test, the test results must have a value of more than 0.5 so that further tests can be carried out in the form of PCA analysis (Widarjono, 2015). Based on the comparison with the tests carried out, the data obtained can be tested for PCA because it has a value of 0.859 which is bigger than 0.5.

Based on Bartlett's Test of Sphericity with Chi-Square 1043,337 obtained sig value. 0.000. sig value. is greater than 0.05 which indicates that the existing correlation matrix is not an identity matrix so that the PCA test can be carried out. KMO value greater than 0.5 and a large p value ($0.000 < 0.05$) indicates that the data to be analyzed is considered feasible and can be analyzed further. The next test that needs to be done is the anti-image matrix checking test. The purpose of this check is to find out whether there are variables that are partially eligible for analysis and do not need to be excluded from testing.

Table 2. Anti Image Test

		1	2	3	4	5	6
Anti-Image Covariance	1	0.052	-0.018	-0.004	-0.030	-0.001	-0.023
	2	-0.018	0.083	-0.043	0.024	0.013	-0.060
	3	-0.004	-0.043	0.056	-0.021	-0.014	0.019
	4	-0.030	0.024	-0.021	0.052	-0.035	0.008
	5	-0.001	0.013	-0.014	-0.035	0.103	-0.028
	6	-0.023	-0.060	0.019	0.008	-0.028	0.149
Anti-Image Correlation	1	.895^a	-0.278	-0.082	-0.576	-0.008	-0.262
	2	-0.278	.793^a	-0.638	0.374	0.137	-0.544
	3	-0.082	-0.638	.862^a	-0.398	-0.182	0.213
	4	-0.576	0.374	-0.398	.815^a	-0.479	0.090
	5	-0.008	0.137	-0.182	-0.479	.918^a	-0.229
	6	-0.262	-0.544	0.213	0.090	-0.229	.881^a

There are 6 variables analyzed. All of the variables analyzed, all have MSA (Measures of Sampling Adequacy) values > 0.5. MSA values greater than 0.5 indicate that MSA has met the requirements so that further tests can be carried out (Delsen et al., 2017). Communalities show the size of the variety of origin variables, namely the factors that affect the level of trust of dairy farmers towards cooperatives which are explained by the factors that will be formed. The communality value can describe at least 50% of the diversity of the original variable data (Verdian, 2019). The bigger communality shows the close relationship between one indicator and another that will be studied with the formed factor.

Table 3. Commuality Test

	Initial	Extraction
1	1.000	0.957
2	1.000	0.850
3	1.000	0.946
4	1.000	0.893
5	1.000	0.879
6	1.000	0.826

Based on the measurements made, it is known that the highest communality value is in variable 1, namely trust in close friends. The value is 0.957. This value means that the factor of trust in close friends in cooperatives can explain 95.7% of the variance of the factors formed.

Table 4. Eigenvalue

Component	Initial eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variances	% Cumulative	Total	% of Variances	% Cumulative
1	5.350	89.174	89.174	5.350	89.174	89.174
2	0.377	6.278	95.453			
3	0.132	2.196	97.648			
4	0.073	1.211	98.859			
5	0.041	0.684	99.543			
6	0.027	0.457	100.000			

There are 3 columns of test results using the Principal Component Analysis (PCA) method. The component column is all the variables to be tested using the PCA method. In this study, the variables that will be used as components are the variables of trust in friends in cooperatives, trust in neighbors in cooperatives, trust in other members, trust in cooperative employees, trust in cooperative leaders, and trust in extension workers or cooperative inseminators.

The initial eigenvalues column is a column that shows the value of each variable in the analysis. This study uses 6 variables so that there are 6 components to be analyzed. In explaining a variance that occurs, two different analyzes are needed. The analysis is the initial eigenvalues and extraction sums of squared loadings. The initial eigenvalues analysis section shows the factors that will be formed, while the extraction sums of squared loadings analysis section can reflect or show the number and number of factors that can be formed. that in the initial eigenvalues section there is only 1 factor that can be formed from the 6 variables analyzed. This is because the requirement to become a formed factor is eigenvalue > 1 . The eigenvalue of component 1 is 5.350, which means this value is greater than 1. This describes that component 1 can be factor 1 and can explain as much as 89.174% of variation. The eigenvalue of factor 1 after the extraction

also did not change, namely 89.174%. If only 1 factor can be extracted, therefore data rotation cannot be carried out so that the 2 factors extraction test obtained can be stopped and has met the criteria.

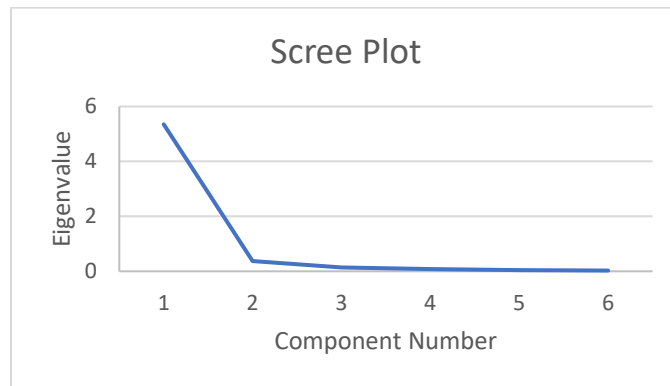


Figure 1. Scree Plot

Scree plots can be used to determine the factors that influence the level of trust of dairy farmers. The scree plot is a method that can show the number of factors formed (Zainuddin et al., 2016). Steep diagrams indicate that there are hints or markers for adding multiple components. On the other hand, a sloping diagram indicates that component additions have been discontinued. Based on Figure 1, it can be seen that only one factor is formed in the simplification of the level of trust of dairy farmers. The factor is trust in close friends. After knowing the factors formed, the next step is to determine the components of the matrix. The matrix component table can show the size of the relationship between each variable in the formed factors (Zainuddin et al., 2016). The values of the correlation coefficient between variables and formed factors can be seen in the table

Table 5. Matrix Components

Komponen	
1	
1	0.978
2	0.922
3	0.972
4	0.945
5	0.937
6	0.909

Based on the PCA analysis that has been carried out, the confidence level of dairy farmers has a high percentage value of 89.174%. This value is above 70%. Based on its relation to the theory of individual trust, dairy farmers have confidence in the level of some trust. The existence of a level of trust in the some trust position emphasizes that relying on an institution or government is a good trust because the full trust given will actually cause dependent individuals (Devine et al., 2021).

Conclusion

Based on the research that has been done, it can be concluded that this thesis was carried out with the aim of knowing the effect of the level of trust of dairy farmers on the membership of dairy cooperatives in Sleman Regency. Based on the level of trust testing carried out using the Principal Component Analysis (PCA) method, it can be seen that the trust of dairy farmers in Sleman Regency towards cooperatives is expressed by the variable trust in close friends in cooperatives which produces 1 factor with the resulting variance of 89.174%.

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