DETERMINANTS OF MARKETING SUPPLY CHAIN OF AGRICULTURAL COOPERATIVES OUTPUT IN ETHIOPIA

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Abstract:

The study is planned to identify and evaluate the determinants of marketing supply chain of agricultural cooperatives output in Ethiopia (a case of Jimma Zone cooperative union). To achieve the objectives of the study the data was collected from cooperatives through questionnaires and Interview. Stratified sampling was applied to reach the target population and regression and correlation considered to analyze the results. The finding revealed that, factors such as Cooperative Management, Members' participation, Marketing information, Financial Resource and Infrastructure access were found to be the determinant factors affecting agricultural output marketing performance. Hence, to solve noncompliance of agricultural cooperatives output marketing performance the cooperative union should be maintaining Cooperative Management, Members' participation, Marketing information, Financial Resource, Infrastructure access, and providing social services to the general public.

Keywords:

1. Introduction

A cooperative is an autonomous association of persons united voluntarily to meet their economic, social, and cultural needs and aspirations through a jointly owned and democratically controlled enterprize. Cooperatives, as economic enterprizes as self-help organizations, play a meaningful role in up lifting the socio-economic conditions of their members, and their local communities (ATA, 2014). The prime objective of cooperative is to solve problems that individuals failed to address independently. In view of that, cooperatives are involving in output marketing activities, credit provision and providing other services to the members. But the insufficient performance of agricultural output marketing in the country has a major barrier in boosting agricultural sector and the overall economy (MoA, 2012).

In Africa, Cooperatives are omnipresent and represent a significant part of the private sector in most African countries. During colonial period, cooperatives in Africa were used by the colonial powers as a strategic tool to group rural producers into clusters, so that essential export commodities such as coffee, cocoa and cotton, could be collected more cost-effectively. After independence, the governments of the now sovereign States accorded an essential role to cooperatives, in particular for the development of rural areas (ILO, 2008).

In Ethiopia, cooperatives have a long history particularly in the form of traditional collective action organizations, such as work groups (jiges, wonfels, debos), rotating savings and credit associations (iqubs), and burial societies (idirs), which are still very much present in different areas (Bernard et al., 2010). In Ethiopia, the number of agricultural cooperatives has been increasing rapidly and they play a major role in providing farmers with inputs while ensuring members' social cohesion and economic empowerment (MOA et al, 2012). However, according to Emana (2009) the functionality of cooperatives was constrained by shortages of skilled human resources (especially in cooperative business development), due to high staff turnover and repeated structural adjustment of the cooperative promotion agencies.

In addition, cooperatives also encounter technical skills constraints and capital shortages, which hinder the attainment of objectives. Lack of skills in cooperative development is also attributed the allocation of cooperative professionals to other sectors and replacing them with people who have no cooperative background, which affect the performance of cooperatives. Moreover, according to Jemal (2008), stiff competition, hangover the past and luck of commitment, globalization, and government attitude towards subsidy are the major challenges of cooperative societies in Ethiopia. Furthermore, Yemane (2010) pointed out that embezzlement, limitation in the capacity of Management Committee or Board of Directors, lack of capital, unhealthy competition from private traders, absence of education, and training and lack of physical resources are the main challenges of the performance of agricultural cooperatives.

According to Union Office documents (2019) agricultural Cooperatives Societies are incompetent to collect and to sale members' products well during harvesting season with fair price and down payment, then members' sale their product to venders. Therefore, members are not benefited from their produce and affected by market fluctuation. Cooperative members do not trust the cooperative societies due to lack of monitoring activities of cooperative management/boards members. Most members are not voluntary to serve their cooperative as members of Management Committee and others committee members.

In addition, Management committee uses the resource out of the objective's rules and regulations of cooperatives. They do not know about ownership right of members. They do not serve members equally and fairly based on the by-law and they also do not prepare report about actual performance to general assembly. In general, agricultural cooperative societies are incapable to give expected service to their members and the surrounding community. The service rendered by cooperatives is seasonal and it is limited to somehow on input distribution (Adisu, 2011). In addition to this some of the critical problems facing Cooperative Societies are lack of financial resources, lack of market information, poor members' participation, and infrastructural access problems (Dawit, 2005). Therefore, the study is planned to identify and evaluate the determinants of marketing supply chain of agricultural cooperatives output in Ethiopia (a case of Jimma Zone cooperative union).

The study is going to achieve the following objectives specifically

To examine the effect of cooperative management on agricultural cooperatives output marketing performance.

To investigate the effect of poor member participation on agricultural cooperatives output marketing performance.

To assess the effect of marketing information on agricultural cooperatives output marketing performance.

To identify the effect of financial resources on agricultural cooperative output marketing performance.

To evaluate the effect of infrastructural access factor on the output marketing performance of agricultural cooperatives.
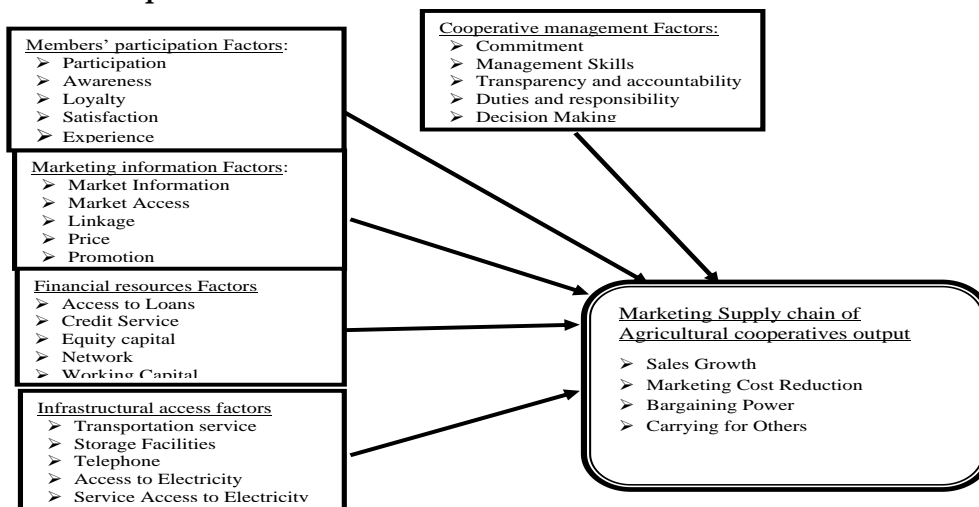
2. Research Conceptual Frame Work

Fig.1 Conceptual Frame Work

2.1. Research Hypothesis

H1: Cooperative management factor has significant effect on the performance of agricultural output marketing

H2: Members' participation factor has significant effect on the performance of agricultural output marketing.

H3 Marketing information factor has significant effect on the performance of agricultural output marketing.

H4: Financial resource factor has significant effect on the performance agricultural output marketing.

H5: Infrastructure factor has significant effect on sales volume of agricultural output marketing.

2.2. Empirical models

This part presents methods of statistical analysis of relationships between two variables. The relationship between variables lies at the heart of empirical reviews of the study. In this study there are two types of variables. Regressing the dependent variable over independent variables help to know the impact of each independent variables on the dependent variable. Moreover, the significance of each of the independent variables will be determined based on their p-values. According to the coefficients of each of the independent variables, determinants of marketing supply chain of agricultural cooperatives output will be determined as follows.

Based on the above information, the empirical model will be:

$Y = \beta_0 + \beta_1 X1 + \beta_2 X2 + \beta_3 X3 + \beta_4 X4 + \beta_5 X5 + \varepsilon$

Where;

β_0 = Constant

e_t = error term

β_i = Coefficients of regression for the independent variables

Independent Variable X_i (for i = 1, 2, 3, 4, 5)

Cooperative Management Factors = X1

Members' participation factors = X2

Marketing information factors = X3

Financial Resource Factors = X4

Infrastructure access Factors = X5

Dependent Variables, Y = Marketing supply chain of Agricultural cooperatives output

3. Research Methods

The study was focused on finding about union perception towards marketing supply chain of agricultural cooperative output. So, cause and effect relationship are required to be conducted. Therefore, Causal Research Design was applied. The target population of this was Jimma Zone cooperative unions and in order to get representative number of agricultural cooperative members, a multi-stage sampling technique was used to generate the required primary data. The study used primary data that could be collected through self-designed questionnaires.

The collected data was encoded and tabulated in MS Excel and IBM SPSS software. The data was analysed through Descriptive and inferential statistics. Since the study focused on mean, Standard deviation, multivariate analysis and Multiple Regression Analysis were used.

Also, while conducting this study Qualitative research Validation and Reliability will be checked. Creswell (2013) consider "validation" in qualitative research to be an attempt to assess the "accuracy" of the findings, as best described by the researcher and the participants. Internal validity refers to correct mapping of the phenomenon with findings. This is through triangulation which is make use of multiple and different sources, methods, investigators, and theories to provide corroborating evidence. So, result of the study is evaluated through collaborating evidence from different sources to shed light on perspective. Further, prolonged engagement and persistent observation in the field will takes place to check for misinformation that stems from distortions introduced by the researcher or informants.

External validity refers to generalizability of findings. To assure the generalizability of the study the researcher will collect the information from target population which is interdependent group systematically as it describes the detail of the participants or setting under study using strong action verbs, and quotes. Reliability will be assured through asking question of the same concept. All necessary requirements were considered will collecting the data. The

research results discussed, analyzed and reported without actually side with the participants on issues that emanated from spending considerable time with them. Additionally, Cronbach's Alpha used to check reliability (see table 1).

4. Results and Discussions

This section presents the analysis, discussion and inferences made on the basis of the responses obtained. All the data were coded and entered in to SPSS version 20.0 and inferences were made based on the statistical results. The research instrument used in the study was survey questionnaire. For the descriptive analysis the mean, mode and standard deviation values of each variable were constructed (see table 2) and discussed accordingly.

Cooperative Management affected the effective implementation of Marketing supply chain of Agricultural Cooperative Output in Unions. The use of Cooperative Management in the Union has not been effectively implemented since most of the responses were subjected to the mode value of 2.2 (higher side of disagree) and standard deviation is less than 1 that is 0.5596. Hence responses indicated the opinion of the respondents towards nearly disagrees and less deviated.

Also, Members Participation affected the effective implementation of Marketing supply chain of Agricultural Cooperative Output Union. The use of Members Participation in the Union has not been effectively implemented since most of the responses were subjected to the mode value of 2.25(higher side of disagree) and standard deviation is less than 1 meant it is 0.6074. Most the responses indicate the opinion of the respondents towards nearly disagrees and less deviated.

Additionally, Marketing Information has the impact on effective implementation of Marketing supply chain of Agricultural Cooperative Output Union. The use of Marketing Information in the Union has not been effectively implemented since most of the responses were subjected to the mode value of 2(disagree) and standard deviation is less than 1(0.6210). Responses indicated the opinion of the respondents towards exactly disagrees and less deviated.

Further, Financial Resource affected the better implementation of Marketing supply chain of Agricultural Cooperative Output Union. The use of Financial Resource in the Union has not been effectively implemented since most of the responses were subjected to the mode value of 2(disagree) and standard deviation is less than 1(0.6738). Responses indicated the opinion of the respondents towards exactly disagrees and less deviated.

Furthermore, Infrastructure Access affected the effective implementation of Marketing supply chain of Agricultural Cooperative Output Union. The use of Infrastructure Access in the Union has not been effectively implemented since most of the responses were subjected to the mode value of 2.3(higher side of disagree) and standard deviation is less than 1 that is 0.5027. Hence responses indicated the opinion of the respondents towards nearly disagrees and less deviated.

Marketing supply chain of Agricultural Cooperative Output has good relationship or impact relationship with all five independent variables in the study. Since it has also the responses were subjected to the mode (mean) value of 2.25 (2.506) (higher side of disagree) and standard deviation is less than 1(0.7136). Responses indicate the opinion of the respondents towards nearly disagrees and less deviated.

The mean values of each variable were in the range between 2.397 and 2.506 (see table 2). This indicated that most target respondents were chosen more towards higher side of disagree or lower side of neutral. The highest mean (2.506) falls under dependent variable Marketing supply chain of Agricultural Cooperative Output (Y) whereas the lowest mean (2.397) falls under Members' participation (X2). Also, the mean values of both dependent (Y) and independent(X) variables were in the range between 2.397 and 2.506. This indicates that most target respondents were chosen more towards higher side of disagree from the centre in the scale. This indicates there are better inter-variables explanatory issues (one depends up on the other) for both dependent and independent variables. Therefore, it led the researcher to use the inferential statistical test of the data.

5. Regression Analysis

The regression analysis was conducted to know by how much the independent variable explains the dependent variable. Before we go to in detail of multiple regression assumption of multivariate normal distribution, independence of errors, and equality of variance were first tested. This study involves a relatively large sample (230 Members) and therefore, the Central Limit Theorem could be applied and hence there is no question on normality of the data. Two major methods were utilized in order to determine the presence of multicollinearity among independent variables in this study. These methodologies involved calculation of both a Tolerance test and Variance

Inflation Factor (VIF) (Kleinbaum & Klein, 2002). The results of these analyzes are shows as all predictors VIF is below 10 and none of the Tolerance levels is < or equal to .01. Multicollinearity was not a concern with this data set as confirmed by the main effect regression models.

According to Andy Field (2009) the acceptable Durbin – Watson range is between 1.5 and 2.5. In this analysis Durbin – Watson values are ranges from 1.823 to 2.133, which are between the acceptable ranges, show that there were no auto correlation problems in the data used in this research. Thus, the measures selected for assessing independent variables in this study do not reach levels indicate of multicollinearity. Therefore, regression analysis of Predictors and Dependent variables was conducted and the results of the regression analysis are presented as following section.

The study further applied regression analysis to establish the statistically significance relationship between the independent variables notably, Cooperative Management, Members' participation, Marketing information, Financial Resource and Infrastructure access on the dependent variable which was Marketing supply chain of Agricultural Cooperative Output summarized (see table 3) and discussed below accordingly.

The regression model summary shows (R) the correlation between dependent variable (Marketing supply chain of Agricultural Cooperative Output) and independent variables (Cooperative Management, Members' participation, Marketing information, Financial Resource and Infrastructure access). Hence, R of 0.898 represents a situation in which the strong correlation of independent variables with dependent variable (see table 3).

Coefficient of determination or correlation coefficient squared ($R2$) tells that how much of the variance in Marketing supply chain of Agricultural Cooperative Output is expressed by the regression model from sample of 230 respondents and which measures the amount of Marketing supply chain of Agricultural Cooperative Output predictors (Cooperative Management, Members' participation, Marketing information, Financial Resource and Infrastructure access) which each factors were shared the relation each other.

The Square of correlation coefficient of each factors' share is 80.70% of Marketing supply chain of Agricultural Cooperative Output predictors (See table 3). Therefore, the researcher found that (Cooperative Management, Members' participation, Marketing information, Financial Resource and Infrastructure access) shared 80.70% of Marketing supply chain of Agricultural Cooperative Output at Coperative Uunion in Jimma Zone. This means that 19.30% of the Marketing supply chain of Agricultural Cooperative Output predictors cannot be explained by these predicting variables (Cooperative Management, Members' participation, Marketing information, Financial Resource and Infrastructure access) factors alone. Therefore, there must be also other variables which were not included in this study which have an influence on Marketing supply chain of Agricultural Cooperative Output in the study area.

The adjusted ($R2$) value indicates the loss of predictive power or shrinkage, the adjusted value tells us how much variance in the Marketing supply chain of Agricultural Cooperative Output would be accounted for if the model had been derived from which the population that the sample was taken for this study. The adjusted R2 gives some idea of how well our model generalizes and ideally its value to be the same, or very close to, the value of R2.

The difference for the model summary was small (the difference between the values is (0.807 −0.802) = .0.005 (about 0.5 %) (see table 3). This shrinkage (loss of the prediction) means that if the model was derived from the population rather than a sample it would account for approximately 0.5 % less variance in the output marketing Performance) by identified predictors (Cooperative Management, Members' participation, Marketing information, Financial Resource and Infrastructure access). Therefore, the regression model resulted in significantly better prediction of the dependent variable (Marketing supply chain of Agricultural Cooperative Output) in this study.

Additionally, Analysis of Variances was tested (see table 4) and the F ratio is used to assess the overall fitness of the regression model. F value, 187.017 is large by a small significant p-value of <0.0001(0.000) which is less than 0.05. This indicates that the Marketing supply chain of Agricultural Cooperative Output (DV) was predictable by Cooperative Management, Members' participation, Marketing information, Financial Resource and Infrastructure access (IVs). In other words, the regression model was considered as good fit.

5.1. Regression Model Result for Beta Coefficients
Which indicated the coefficient of the independent variables to express the explanation of the impact of each independent variable on dependent variable Marketing supply chain of Agricultural Cooperative Output tested (see table 5) and described below accordingly.

The regression coefficient β represent the change in the outcome resulting from a unit change in the predictor and that if predictors (independent variables) are having significant impacts to predict the outcome (dependent variable) then this β should be different from 0 and big in relation to its standard error. The t-statistics can be derived to test whether a β-value is significantly different from 0. The t-tests measures whether the predictor is making a significant contribution to the model or not. Therefore, the t-test associated with a β-value is significant if the value of Sig. is less than 0.05(given) then the predictor is making a significant contribution to the model.

The p-value is less than 0.05 for all the independent variables. Thus, it indicates that the 5 independent variables are significant predictors of Marketing supply chain of Agricultural Cooperative Output (dependent variable). Therefore, the β is different from 0 and the researcher found that the predictor variables make a significant contribution in predicting Marketing supply chain of Agricultural Cooperative Output were Cooperative Management(X1) β1 = 0.179, Members' participation(X2) β2 = 0.017, Marketing information(X3) β3=0.217, Financial Resource(X4) β4=0.192 and Infrastructure access(X5) β5=0.678. Therefore, variables are statistically significant to predict the Marketing supply chain of Agricultural Cooperative Output at cooperative union in Jimma Zone.

Each of the beta values has an associated standard error indicating to what extent these values would vary across different samples and then standard errors are used to determine whether or not the β-value differs significantly from zero (see table 5).

To express the impact and relationship of independent variables on the dependent variable (Marketing supply chain of Agricultural Cooperative Output), the regression function is as follows:

$$Y= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

$$Y=-0.624 + 0.179 X_1 + 0.017 X_2 + 0.217 X_3 + 0.192 X_4 + 0.678 X_5 + 0.317$$

The β - values tells to what extent each predictor affects the outcome if the effects of all other predictors are held constant. The linear equation above indicates that there is a positive relationship between the above predictors and Marketing supply chain of Agricultural Cooperative Output.

This can be explained as for every better implementation of Infrastructure access, Marketing information, Financial Resource, Cooperative Management and Members' participation would improve the Marketing supply chain of Agricultural Cooperative Output at Ccooperative Union In Jimma Zone by 67.80%, 21.70%, 19.20%, 17.90% and 1.70%respectively.

In addition, the effectiveness of each independent variable in affecting the dependent variable is determined by the standardized coefficients beta value. From the Table above it is found that Infrastructure access ($\beta = 0.678$) is the most influential factor followed by Marketing information ($\beta = 0.217$), Financial Resource($\beta = 0.192$), Cooperative Management($\beta = 0.179$) and Members' participation($\beta = 0.017$) was the least influential factor in determining Marketing supply chain of Agricultural Cooperative Output at cooperative union in Jimma Zone.

5.2. Testing Research Hypothesis

The five independent variables (Cooperative Management, Members' participation, Marketing information, Financial Resource and Infrastructure access) of the study were correlated with the dependent variable Marketing supply chain of Agricultural Cooperative Output at cooperative union in Jimma Zone whereby H1, H2, H3, H4 and H5 were supported by this research model. Hypothesis of the study was tested and stated with significant level of the hypotheses (see table 6).

Four the research hypotheses were accepted because the four independent variables and dependent variables are significantly correlated at P-values<0.05 for H1, H3, H4 and H5. In other round one hypothesis was rejected because the Members' participation independent variables and dependent variables is not significantly correlated at P-values/0.828>0.05 for H2.

6. Conclusions and Recommendations

The findings reveled that Cooperative Management has a significant influence on Marketing supply chain of Agricultural Cooperative Output at cooperative union. Increasing strong commitment to implement management duties and responsibilities by applied cooperatives laws by a unit would increase the levels of effectiveness of Marketing supply chain of Agricultural Cooperative Output. The study further showed Marketing supply chain of Agricultural Cooperative Output related issues like defined awareness, knowledge and skill to manage, assigning transparent and accountable committee, participatory decision making in marketing performance developments and

equity in the management of Marketing supply chain of Agricultural Cooperative Output to solve the identified problem in the zone. Also, marketing information has a significant influence based on the model. Adequate levels of Marketing information like creating appropriate linkages, providing clear and competitive price and utilization of media resources in cooperative union would have a significance improvements or impact on Marketing supply chain of Agricultural Cooperative Output. Further, Financial Resource had a significant influence on Marketing supply chain of Agricultural Cooperative Output. Providing adequate access to members loan, creating proper network with financial resource, utilizing working capital efficiency and Keeping record /documentation system in Financial institution would highly improve the levels of Marketing supply chain of Agricultural Cooperative Output. Furthermore, it was identified that the impact of Infrastructure access on Marketing supply chain of Agricultural Cooperative Output cooperative union. Improving levels of Infrastructure access issues like Using adequate storage, providing transportation service and accessing communication service by a unit would increase the levels of effectiveness of Marketing supply chain of Agricultural Cooperative Output.

The recommendation provided based on the result of the study is:
The managing bodies of cooperative union should improve the use of Cooperative Management the issues like strong commitment to implement duties/responsibilities, awareness, skill and skill to manage cooperative union activities, providing transportation and accountable committee, making participatory and adequate decision relationship to avoid which have direct impact on Marketing supply chain of Agricultural Cooperative Output cooperative union. The management of cooperative union in Jimma Zone should use adequate Marketing information by providing clear and competitive price, creating appropriate linkage, utilization of media resource and equity in opportunity of publics and efficient use of Marketing supply chain of Agricultural Cooperative Output.
The management of cooperative union in Jimma Zone should apply adequate Financial Resource by providing adequate access to members loan, creating proper network with financial institutions, utilization of working capital efficiency and keeping financial records/documentation system of Marketing supply chain of Agricultural Cooperative Output. Finally, the management of cooperative union in jimma Zone should identify the exact and appropriate Infrastructure access by applying the issues like exact level and size of storage, providing adequate transportation services and accessing good communication procedures to solve Marketing supply chain of Agricultural Cooperative Output problems.

Appendixes

Table 1: reliability test results

Variables	Construct	Cronbach's Alpha
DV	Agricultural Cooperative Output Marketing Performance	0.891
X1	Cooperative Management	0.966
X2	Members' participation	0.927
X3	Marketing information	0.910
X4	Financial Resource	0.938
X5	Infrastructure access	0.896

Source: own survey, 2020

Table 2: Descriptive Analysis of Constructed Variables

Variables	N	Mean	Std Dev	Mode	Minimum	Maximum
Cooperative Management (X_1)	230	2.478	0.5596	2.2	1.20	4
Members' participation (X_2)	230	2.397	0.6074	2.25	1.25	4
Marketing information (X_3)	230	2.42	0.6210	2	1.00	5
Financial Resource (X_4)	230	2.45	0.6738	2	1.40	5
Infrastructure access (X_5)	230	2.436	0.5027	2.3	1.30	3.8
Marketing supply chain of Cooperative Output(Y)	230	2.506	0.7136	2.25	1.25	4

Source: Own survey, 2020

Table 3: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.898	0.807	0.802	0.317

Source: (Own Survey, 2020)

Table 4: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	94.079	5	18.816	187.017	0.000
Residual	22.537	224	0.101		
Total	116.615	229			

Source :Own survey,2020

a. Dependent Variable: Marketing supply chain of Agricultural Cooperative Output

b. Predictors: five independent variables

Table 5: Regression Model Result for Beta Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	(Calculated P-Values) Sig.
	B	Std. Error	Beta		
(Constant)	-0.624	0.110		-5.671	0.000
X_1	0.179	0.068	0.140	2.643	0.009
X_2	0.017	0.079	0.015	0.218	0.828
X_3	0.217	0.073	0.189	2.974	0.003
X_4	0.192	0.058	0.181	3.323	0.001
X_5	0.678	0.106	0.477	6.368	0.000

Source: own survey, 2020

Table 6: Tests of the Hypotheses

Hypothesis	Hypotheses Types	Given P-value	(Sig) Calculated p-value	Comparison	Conditions
H_1	Cooperative management factor has significant effect on the performance of agricultural output marketing	0.05	0.009	0.009<0.05	H_1 is accepted

H$_2$	Members' participation factor has significant effect on the performance of agricultural output marketing	0.05	0.828	0.828>0.05	H$_2$ is Rejected
H3	Marketing information factor has significant effect on the performance of agricultural output marketing	0.05	0.003	0.003<0.05	H$_3$ is accepted
H$_4$	Financial Resource factor has significant effect on the performance of agricultural output marketing	0.05	0.001	0.001<0.05	H$_4$ is accepted
H$_5$	Infrastructure access factor has significant effect on the performance of agricultural output marketing	0.05	0.000	0.000<0.05	H$_5$ is accepted

Source: (own survey, 2020)

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