Determinants of Women's Participation in Agricultural Cooperatives Activities: The Case of Sodo Zuria Woreda, Wolaita Zone, Southern Ethiopia

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Abstract

The objectives of the research were to study the extent of women's participation in agricultural cooperatives and to investigate the factors affecting women's participation in agricultural cooperatives. Multistage sampling procedure was employed for the realization of the research objectives. In the first stage, the study area was selected purposively for geographic and economic advantage or convenience. In the second stage, three sample agricultural cooperatives out of eight were selected purposively in consideration of their viability. In the third stage a total of 120 sample respondents were selected by simple random sampling technique based on probability proportional to size (PP). Primary data was collected through interview schedule, in-depth interview and Focus Group Discussion. The level of women's participation in agricultural cooperatives was measured by calculating the score values of the participation index. Accordingly, the level of women's participation was high in some of the identified activities such as participation in general meeting, election/voting, approving bylaw/rules, and purchasing agricultural inputs whereas it was low in activities like working as committee member and selling the produces. Based on the mean score values women were categorized into low (27.5), medium (53.3), and high (19.2) participation groups. Percentage, mean difference, one way ANOVA, spearman correlation, and chi-square test were used with the ordered logit model for data analysis. Out of 14 hypothesized variables, seven were found to be significantly influencing participation of women in cooperative activities. These variables include number of shareholding, farm land size, possession of farm ox, distance to cooperative service center, members' perception towards their cooperative and its management, educational level, and access to cooperative training were found to be significantly influencing the participation. Increased effort in integrating different activities focusing on women empowerment by different bodies, monitoring the realization of cooperative values of equity, equality, and proportional benefits to women, continuous education and training to improve their self-esteem, and placing additional attention to gender mainstreaming in cooperative sector are suggested to improve the participation of women in agricultural cooperatives.

Keywords: Agricultural Cooperative, Women, Participation, Ordered logit model, Wolaita

1. INTRODUCTION

Within Africa and the international community, there is growing interest in supporting agricultural cooperative and cooperative union development as a platform for enabling vulnerable Male and Female smallholder farmers to secure sustainable livelihoods. In Ethiopia, 85 percent of the population depend on agriculture for their livelihoods; most are smallholder farmers who lack access to modern inputs and markets (FAO, 2011). Cooperatives hold much potential to empower these economically weak women and men by enhancing their collective bargaining power in the market, thereby reducing the risks that they face in the market and enabling them to leverage enhanced market opportunities, and by building individual capacities, thus improving members' income, leadership skills, and overall socio-economic status (World Bank, 2009).

Evidences showed that rural women play vital roles in bringing about food and economic security for their households (CSA, 2010). Due to this essential evidence, greater attention is being paid to ensure that agricultural policies and programs are gender sensitive and address barriers to women's equal participation and benefit in rural producer groups and cooperatives (USAID, 2012). This recognition, however, has not yet translated into policies and programs in the cooperative sub-sector that are effectively facilitating the women's increased and meaningful participation in these formal groups.

Participation of the members consisting of several kinds, namely participation in business activities (buying and selling/loan and save), participation in the capital formation (consciousness of members in meeting their obligation, that is paying the major deposits, mandatory deposits, and voluntary deposits), participation of the members in making decisions, and participation of the members in monitoring the activities of their cooperatives. Hence, this particular research is aimed to know the factors that affect the participation of the women in agricultural cooperative.

Women face, more often than not, major obstacles to joining and being active members of typically

Male-dominated cooperatives. Due to unequal gender norms and relations, women have a lower socio-economic status, compared to their Male counterparts, which limits their opportunities to access and participate in formal groups. Women's freedom is constrained by Men's control over their mobility, by socio-cultural expectations that they are primarily responsible for all domestic work, and in relation to this, by their uneven reproductive, productive, and community work burdens (Suwatno, 2010). Their restricted access to, control over, and ownership of land, credit, and information, as compared to men, disadvantage them from meeting conditions of the formal group membership and leadership (World Bank, 2009). These dominant gender inequalities contribute to the fact that cooperative organizations are controlled and managed by men. Wealthier, educated, larger-scale, male farmers have advantages over more economically vulnerable farmers, particularly resource-poor women. The latter lack the education, knowledge, respect, time, and productive assets to engage meaningfully and to have their voices heard in comparison to these more privileged men (Oxfam International, 2013).

Women's equal participation in agricultural cooperatives is both a women's right and important for sustainable and people-centered development. If cooperatives are gender-responsive and inclusive, they can help the Women overcome gender specific constraints to improve their self-confidence, knowledge, leadership skills, income, and access to agricultural inputs, social networks, and position in value-chains. When women are more economically and socially empowered, evidences show that there are direct and positive impacts on women's household and community decision-making power and on access to and control over productive assets. These changes lead to improved household nutrition, food and income security, broader development outcomes, and a more integrated production of both food and cash crops (FAO, 2011).

Sustainable and all round developments of a society cannot be brought about without the full and unreserved participation of both Women and Men in the development process, and such a balanced development should also call for the elimination of all forms of discrimination, and the protection against all forms of violence against women. Although women constitute two third of the world's working hours, produce half of the world's food and above all, bear and rear children, they continue to suffer from all forms of discrimination (World Bank, 1998).

The reality of the women of sub Saharan countries is that they remain a vulnerable marginalized group that is yet to enjoy the equality in status and access to services and resources with their counterparts. Women are found at the "bottom rung of poverty, illiteracy, landlessness" and are concentrated in rural areas where facilities and services are scarce (FAO, 2011).

Agricultural Cooperatives have been regarded as one of the main institutional machineries for empowering the economically weak members of the society, particularly women. Despite the availability of cooperative societies, it appears that a significant proportion of the rural women are either unaware of the existence of such co-operative societies or are lacking in the basic socioeconomic characteristics that form the prerequisite for participation in such activities of cooperatives (Alkali, 1991).

Women are major stakeholders in the development of the society. However, their contributions are hampered by certain impediments that affect them as individuals. In Sub-Saharan Africa, women are the backbone of the rural economy. Agricultural cooperatives hold much potential for economically weak farmers-both women and men-to improve their livelihoods through developing their collective and individual capacities (Alkali, 1991). However, in Ethiopia, cooperative membership is generally very low. Only 40 percent of the rural households have access to Cooperatives within their Kebeles (small administrative units) (Spielman, 2009).

In the case of women, while their representation is slowly growing, they represent fewer than 20 percent of the Cooperative membership; and there are even fewer women in leader-ship positions. Men dominate in agricultural cooperative membership and management (Mogues *et al.,* 2009).

In Ethiopia, women's participation in agricultural cooperatives is generally very low. As the owners and users, the participation of the members in general and women in particular is decisive importance in business development of cooperatives. The importance of improving the participation of the women members as a solution in improving the performance of cooperatives, which is still low, so far, is need to be explored. With very little research available on what factors contribute to women's participation in cooperatives; this research study aims to fill this critical gap by identifying the factors affecting the participation of Women in Agricultural Cooperatives. Hence, specific objectives of the study were to study the level of women participation in agricultural cooperatives, and to investigate factors affecting their participation in the activities.

2. RESEARCH METHODOLOGY
2.1. Description of the study area
This study was conducted in Sodo zuria woreda which is one of the twelve administrative woredas (districts) of wolaita zone. The woreda (district) is divided into 31 administrative kebeles (small administrative units). Out of 186,779 total population, 94,932 (50.83%) are female and the remaining 91,847 (49.17%) are male, and the average household size is six (Statistical office of wolaita zone, 2012).

Agriculture is the mainstay of people in the woreda. The agro ecology of the woreda grouped into two categories: mid-land (65%) and high-land (35%) which is suitable for diverse agricultural production. Crop and livestock production are the major sources of income and livelihood of people in the woreda. The total area of the woreda is 41,927 hectare out of which the total of 22,326 (53.26%) hectare land is used for annual crop production, 5,429 (12.95%) hectare is covered by permanent crops, 2,022 (4.43%) hectare is covered by forest, and 2,710 (6.47%) hecater is used for other purposes such as grazing. Livestock is also important part of the production system in the woreda. Production of Cattle, Sheep, Goat, Horse, Donkey, Mule and Poultry are a very common practice. Information obtained from the woreda agriculture office reveals that a total of 9,440 (22.53%) hectare land is used for grazing (Soddo Zuria Woreda agricultural office, 2012).

There are a number of farmers' primary cooperatives in the woreda organized under nine types of cooperatives. Among these, there are Eight agricultural cooperatives with a total membership of 8,859, out of which 1,068 (12%) are female, and 7,796 (88%) are male, 37 youth cooperatives with a total membership of 1,868, out of which 1,365 (73%) are male, and 503 (27%) are female, four forest cooperatives with a total membership of 580, out of which 550 (95%) are male, and 30 (5%) are female, one bee production cooperative with a total of 20 male membership (100%), one highland fruit cooperative with a total membership of 25, out of which 18 (72%) are male, and 7 (28%) are female, one fattening cooperative with a total membership of 15, out of which nine (60%) are male and Six (40%) are female, one hide & skin processing cooperative with a total of 40 male membership (100%), one dairy cooperative with a total of 42 membership, out of which 34 (81%) are male, and eight (19%) are female, one nursery cooperative with a total membership of 13, out of which eight (62%) are male, and five (38%) are female (Sodo Zuria Woreda cooperative promotion office, 2012).

2.2. Sampling Techniques

There are several approaches to determine the sample size. These include using a census for small populations, imitating a sample size of similar studies, using published tables, and applying formulas to calculate the sample size. This study applied a simplified formula provided by (Yamane, 1967) to determine the required sample size at 95% confidence level, 8% precision level, and degree of variability is 0.05.

Multi-stage sampling procedure was applied for the selection of sample women members of agricultural cooperatives in the Woreda (district). In the first stage, sodo zuria woreda was selected purposively based on the potential of agricultural cooperatives. In the second stage out of eight primary agricultural cooperatives in the woreda, three primary agricultural cooperatives (Gulgula, Wachiga, and Beklosagno) with the total of 516 women membership were selected purposively because of their viability and location advantage.

In the third stage, in consideration of the available resource and time at disposal of the researcher a total of 120 women members were selected by using simple random sampling techniques with recognition of probability Proportional to sample size (PPS).

2.3. Types of Data and Method of Data Collection

The primary data, the main source of information for the study, was collected from the sample respondents (sample women members of agricultural cooperatives), key informants (cooperative officers) through interview and focus group discussion. The interview schedule was prepared in English and translated into local community's language (wolitigna) for practical field work. The pre-testing of interview before actual administration was effected with 5 women agricultural cooperative members. These are not considered in the sample size of the study. Full participation of the researcher for close supervision and guidance of the three enumerators during the entire data collection period was undertaken.

The study also included secondary data from both published and unpublished documents. Secondary data relevant for this research work was collected from the cooperative office of wolaita zone, cooperative office of the district, sodo zuria district's youth and women office, and other published and un-published documents prepared by different governmental (including wolaita zone statistics office) and non-governmental organizations and other related areas that was relevant to the research area. Different relevant websites were also utilized.

2.4. Method of Data Analysis

Once the data collection process is accomplished, the data was edited, coded, and entered in to computer for analysis. Different quantitative statistical procedures and methods were utilized for the analysis of data. The quantitative data was analyzed using descriptive statistical tools like mean, standard deviation, frequency, percentage, minimum, and maximum,; and, from inferential statistics F-test for continuous variables and χ^2-test for dummy/discrete variables. Qualitative analytical methods like interpretation and explanation of various opinions, views, concepts, and summarizing, categorizing, and presentation of these in convenient forms were used to supplement quantitative analysis. SPSS software program (version 16) was used for the analysis of the data.

2.4.1. Dependent Variable of the study

The dependent variable of the study was women's participation. According to this study women's participation is defined as the tendency to actively participate in planning, implementing, monitoring and evaluation of activities related to agricultural cooperatives in addition to participating in input and output marketing. The variable was measured by the score value calculated from the indicator activities of members' participation identified.The frequency counts of responses were recorded to compute the Participation Index (PI) of a woman for each of the selected activities. Then, Participation Index for each individual activity was computed by using the following formula:

PI= (N1X1) + (N2X2) + (N3X3) + (N4X4)   Where

Members were asked for each activity with four response categories ranging from frequently to Never. The values for each response categories were 3=frequently, 2=occasionally, 1=seldom, and 0=Never. Subsequently, respondents were categorized in to low, medium, and high participation categories using mean score values. This gives the dependent variable an ordinal nature.

2.4.2. Econometric Model

Use of appropriate model is usually determined by the nature of the dependent variable or variables. As indicated above, in this study the dependent variable has ordered nature. Hence, ordered logit model was used to assess the determinants of women's participation in agricultural cooperatives having three distinct categories: - low, medium, and high participation categories.

Following Greene (2008) and Liao (1994) the functional form of ordered logit model is specified as follows:

$$y^* = \sum \beta_k \chi_k + \varepsilon. \qquad (1)$$

$Y^* =$ is unobserved and thus can be thought of as the underlying tendency of an observed Phenomenon.

$\varepsilon =$ we assume it follows a certain symmetric distribution with zero mean such as normal or Logistic distribution. What we do observe is:

$y = 1$ if $y^* \leq \mu_1 \ (=0)$
$y = 2$ if $\mu_1 < y^* \leq \mu_2$
$y = 3$ if $\mu_2 < y^* \leq \mu_3 \qquad (2)$

$y = j$ if $\mu_{j-1} < y^* \leq \mu_j$

Where y is observed in j number of ordered categories, μs were threshold parameters separating the adjacent categories to be estimated with βs.

The general form for the probability that the observed y falls into category j and the μs and the βs are to be estimated with an ordinal logit model is:

$$\Pr ob(y = j) = 1 - L\left(\mu_{J-1} - \sum_{k=1}^{k} \beta_k \chi_k \right) \qquad (3)$$

Where L (.) represents cumulative logistic distribution

Table 1 Summary of hypothesized explanatory variables and their unit of measurement

No	Independent variables	Type of measurement	Effected sign
1	Age	Continuous	+
2	Family size	Continuous	-
3	Education level	Continuous	+
4	Number of share holding	Continuous	+
5	Farm land size	Continuous	+
6	Number of farm oxen holding	Continuous	+
7	Amount of fertilizer used	Continuous	+
8	Amount of grain sold	Continuous	+
9	Distance to cooperative service center	Continuous	+
10	Distance to the nearest local market	Continuous	+
11	Participation in coop training	Dummy	+
12	Duration of membership	Continuous	+
13	Farm input credit access	Dummy	+
14	Perception towards cooperative & its mgm't	Continuous	+

3. RESULTS AND DISCUSSION

3.1. The status of Women's Participation in Cooperative Activities

The extent of women's participation was measured by calculating the score values obtained for each respondent

from the frequency of participation in different activities. Then the mean value is calculated after summing up of each individual score.

Table 2: Indicator activities for Women Participation and their given values

No	Participation in	Nature of Participation	Values given
1	General Assembly meeting	Never	0
		Seldom	1
		Occasionally	2
		Frequently	3
2	Approving rules/bylaws	Never	0
		Seldom	1
		Occasionally	2
		Frequently	3
3	Voting/election	Never	0
		Seldom	1
		Occasionally	2
		Frequently	3
4	Committee work	Never	0
		Seldom	1
		Occasionally	2
		Frequently	3
5	Buying input	Never	0
		Seldom	1
		Occasionally	2
		Frequently	3
6	Selling output	Never	0
		Seldom	1
		Occasionally	2
		Frequently	3

Respondents were classified into three categories such as low, medium and high on the basis of their respective score values (Table 2). The classification is based on the actual score of the respondents obtained for the value of the whole activities. Therefore, the categorization of respondents based on their participation score was ranged from 0-3, 4-8 and 9-12 for low, medium, and high categories respectively.

The score was expected from zero which is minimum score to 18 which is maximum score for each respondent whereas the actual score obtained lies in between 0 to 12. The mean difference of these categories was tested for significances through chi square test. The result displayed in Table 3 revealed that there is a significant mean difference among the three participation groups at less than 1% probability level. The results from the indicators show that 33 (27.5%) of the sampled respondents are under low level participation category, 64 (53.3%) are under medium level participation category, and 23 (19.2%) of the respondents are under high level participation category.

Table 3: Participation status and their score ranges

Participation categories	N	%	participation score	Mean	F	P
Low	33	27.5	0 – 3	1.97	6.31	0.000***
Medium	64	53.3	4 – 8	5.51		
High	23	19.2	9 - 12	9.54		
Total	120	100	0 – 12			

Source: own survey, 2016. Note; *** represents significant at less than 1%.

3.2. Descriptive statistical analysis of Factors Affecting the Participation

The main focus of this research work was to identify and measure the factors influencing the level of women participation in business and administrative affairs of their cooperatives. Accordingly, variables such as demographic, economic, institutional, and psychological were hypothesized and tested whether they have a significant impact/relationship with dependent variable or not.

According to descriptive analysis, some variations/differences were observed between different categories of women who are participating in cooperative activities in terms of demographic, socio-economic and institutional factors (Table 4 and 5). The three groups (low, medium and high participant categories) differ to some extent in age, farm size, family size, education, ownership of oxen, number of shareholding, fertilizer use, amount of grain sold, distance to cooperative center, distance to market, duration of membership in cooperative, perception, credit access and training. The study revealed that the mean age of respondents who participated in cooperative activities was 38.8 years. The sample respondents under low participation category have more aged mean than those respondents in the high participation category. In terms of education, the mean value for respondents' educational attainment is 2.38 whereas the mean values for the low, medium, and high participatory groups are 1.35, 2.58, and 4.15 respectively. The higher mean values of participants under high participation category imply that women's participation increases along with the progress in education level. Average farm size of the respondents was 0.68 hectare. The mean land holding size of high participants category is greater than low and medium participation categories (Table 4). This result shows that women with larger land size holding have better participation level in the administrative and business affairs of their cooperatives.. Oxen ownership was another important household's characteristic. Average oxen owned by the total sampled women was 0.95. Proportionally, women who are in high participant category owned almost twice greater oxen than those households who are low and medium participant category. Variations were also observed in other socioeconomic and institutional factors (see Table 4 and 5).

F-tests (ANOVA analysis) and Chi-Square tests (Table 4 and 5) were used to examine presence or absence of difference between the three groups of women. The mean values of the continuous variables in both categories were compared using F-test. According to the F-values, out of 12 continuous variables, the three categories were found to differ significantly in 12 of them. The computed F-values indicate the mean differences for twelve variables, namely age, farm size, education, ownership of oxen, number of shareholding, fertilizer use, amount of grain sold, distance to cooperative center, distance to market, duration of membership in cooperative, perception, credit access and training were found to be significant at 1% probability level (Table 4).

On the other hand, the Chi-Square test was used to examine the existence of statistically significant differences between the discrete/dummy variables of the three categories. Accordingly, discrete variables were considered and the three categories were found to be significantly different in two discrete variables. More specifically, the chi-square test reveals that use of credit and training were statistically significant at 1% probability level (Table 5).

Table 4: Descriptive statistics for continuous explanatory variables

Variable	Level of participation								F-test
	Low		Medium		High		Total		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Age	43.08	10.20	38.45	9.81	34.37	5.43	**38.83**	**9.17**	6.54***
Family Size	3.12	1.63	2.85	1. 24	2.31	1.08	2.79	1.34	1.10
Education	1.35	0.38	2.58	0.26	4.15	0.19	2.38	0.28	2.51***
Number of Shares hold	6.67	2.15	6.74	1.62	7.01	1.54	6.80	1.77	1.50***
Farm land size	0.58	0.27	0.64	0.23	0.83	0.22	0.68	0.25	1.39**
Oxen holding	0.82	0.39	0.95	0.43	1.02	0.26	0.95	0.38	1.46**
Fertilizer use	42	21	58	17	65	15	56	18	6.59**
Amount of Grain sold	85	28	134	21	179	18	132.67	22.33	2.24*
Distance to Cooperative	3.01	0.72	2.80	0.65	2.31	0.60	2.91	0.68	2.19***
Distance to market	2.01	0.57	2.25	0.81	2.69	0.84	2.35	0. 76	2. 57***
Duration of Membership	6.39	2.13	6.48	1.64	6.72	1.59	6.53	1.78	1.65**
Perception	16.22	4.14	17.01	3.28	21.25	3.35	18.26	3.59	3. 17***

Source: survey result, 2016. Note: *, **, *** represent significant at 10%, 5%, and 1% level respectively

Table 4: Descriptive statistics for dummy variables

Variable	Response	Participation category								χ^2
		Low		Medium		High		Total		
		N	%	N	%	N	%	N	%	
Credit access	Yes	2	6	12	19	14	61	28	23.3	8.723*
	No	31	94	52	81	9	39	92	76.6	
Training	Yes	5	15	45	70	19	82	69	57.5	53.06***
	No	28	85	19	30	4	8	51	42.5	

Source: survey result, 2016. Note: *, *** represent significant at 10%, and 1% level.

3.3. Result of Ordered Logit Regression Model

The selection of the variables for the study was done on the basis of theoretical explanations, findings of empirical studies and researcher's prior knowledge about the problem at hand. Based on this eleven continuous and two discrete/dummy variables were selected. These explanatory variables were tested for the existence of multi-collinearity problem using variance inflation factor (VIF) for continuous explanatory variables and contingency coefficient for dummy/discrete variables before entering them in to the model.

The value of contingency coefficient ranges from zero to one where zero shows no association exists between variables one indicates the existence of strong association between variables. Commonly, the association is said to be strong if the value of contingency coefficient exceeds 0.78. Accordingly, the test shows that there is no sever collinearity problem among the variables under investigation.

Table 6: Result of ordered logit regression model

Variable	Coefficient	Odds ratio	Std. error	P-Value
AGE	-. 0144	.9857	.4842	0.394
FAMSIZE	-.0849	.9186	.3557	0.454
EDU	.0009	1.0009	.5883	0.008***
SHARE	1.2749	3.5783	.7396	0.085*
CULTAREA	1.9545	7.0604	1.0190	0.004***
OXHOL	.0005	1.0005	0.5534	0.057*
INUTI	1.8596	6.4215	1.2958	0.151
SELLVOL	.1286	.8790	.3515	0.85
DISCOFF	-.8658	.4207	. 3557	0.015**
DISMARK	.6737	.5100	.2347	0.317
DURMEM	. 0045	1.0045	.4826	0.389
PERCEP	.3125	1.3670	.7765	0.003***
CRAC	2.0737	7.9542	1.7154	0.210
COOPTRAIN	.0487	1.0499	.4938	0.071*
-2Log likelihood		40.939		
Chi-square		87.701***		
Number of observation		120		

Source: Model output. Note: *, **, *** represent significant at 10%, 5%, and 1% level.

The logit model results used to study factors influencing women's participation in cooperative activities are shown in Table 7. Among the 14 variables used in the model, 7 variables were significant with respect to women's participation in cooperative activities with less than 10% of the probability level. These variables include share holding (SHARE), farm size (CULTAREA), oxen holding (OXHOL), distance to cooperative service center (DISCOFF), members perception towards cooperative (PERCEP), education level (EDU), and training (COOPTRAIN), whereas the rest 7 explanatory variables were found to have no significant influence on partcipation. The effect of the significant explanatory variables on the women's participation in cooperative activities in the study area is discussed below:

Respondents' Shareholding (SHARE): this variable was hypothesized to be correlated positively with the dependent variable. It was found that shareholding had positively and significantly influenced the probability of women's participation in agricultural cooperatives at 10% significance level. This implies that women with larger number of shares are more likely to participate in the affairs of agricultural cooperatives compared to women with small number of shares. This is because more investment in cooperatives in the form of share creates sense of ownership and responsibility in the mind of members. The odds ratio of 3.5783 for shareholding indicates that, other things being constant, the odds ratio in favor of women participation in agricultural cooperatives increases by a factor of 3.5783 as number of share increases by one unit.

Respondents' Farm land size (CULTAREA): It was found that farm size had positively and significantly influenced the probability of women's participation in the affairs of agricultural cooperatives at 1% significance level. This implies that women with larger farm size are more likely to participate in the affairs of agricultural cooperatives compared to women with smaller farm size as it has impact on members' purchase of agricultural inputs from their cooperatives and sell their surplus production to cooperatives for better price because of collective bargaining. The odds ratio of 7.0604 for farm size shows that, other variables remain unchanged, the odds ratio in favor of participation in agricultural cooperatives increases by a factor of 7.0604 as the farm size increases by one hectare. This result is also supported by the finding of Idrisa (2007) which concluded that the relationship between farm size and women's participation in agricultural cooperatives is significant at 5% significance level.

Respondents' Oxen holding (OXHOL): Oxen ownership positively and significantly influenced the probability of participation at less than 10% significance level. This result suggests that, those women who

owned more oxen have better chance to participate in cooperative business than those who have owned smaller number of oxen. Because, ox is very indispensable for the preparation of farm land which in turn leads to the demand of agricultural inputs from cooperatives. Other things being constant, the odds ratio of 1.0005 for the number of oxen owned indicates that, the odds ratio in favor of women's participation in agricultural cooperatives increases by a factor of 1.0005 as the number of oxen increases by one unit. This result is also supported by the finding of Eshetu (2005) which concluded that women's right towards ownership of properties is merely limited and found affecting women's participation significantly.

Distance to Cooperative Service center (DISCOFF): distance from cooperative service center to women's residence is negatively and significantly correlated with the probability of participation in the activities of agricultural cooperatives at less than 5% significance level. The negative correlation suggests that the likelihood of participating in the activities of agricultural cooperatives declines as the distance from cooperative service center increases. This is because the proximity allows women to participate easily as it requires less time, energy, and cost to travel. This means that, those women who are in the areas close to cooperative service center may have better chance to participate in the activities of agricultural cooperatives. The odds ratio of 0.4207 for distance to cooperative service center reveals that, other variables held the same, the odds ratio in favor of women's participation decreases by a factor of 0.4207 as the distance to cooperative service center increases by one kilometer. This finding also coincides with the finding of (Abebe, 2011) which stated distance to cooperative service center is significant to women participation in rural cooperatives at 10% significance level.

Members' Perception towards their Cooperative and its Management (PERCEP): women's perception towards the functioning of their cooperative and its management was hypothesized to be correlated either positively or negatively to their participation on the base of their feeling towards the functioning & management of their cooperatives. It was found to be affecting women's participation positively and significantly at less than 1% probability level. This positive association reveals that the probability of participating in the activities of agricultural cooperatives increases with the positive perception of members towards their cooperative and its management. The odds ratio of 1.3670 for members' perception towards the functioning of their cooperative and its management reveals that, other variables kept constant, the odds ratio in favor of women's participation increases by a factor of 1.3670 as women's perception increases by a unit.   This result is consistent with the result of (Tilahun, 2008) which stated that members' perception is associated positively and significantly with the level of their participation in accessing and utilization of rural credit.

Educational level (EDU): education is vital in improving one's ability in acquiring and processing information needed to decide on. This variable was hypothesized to be positively associated with the dependent variable. Accordingly, it was found to be correlated positively and significantly at 1% probability level. This suggests that members with better intellectual capacity have the ability to improve their access to seek information so that, they can easily understand the benefit of collective efforts, their duties and responsibilities and the principles and values of cooperation. The odds ratio of 1.0009 for women's education level suggests that, other things remain the same, the odds ratio in favor of women's participation increases by a factor of 1.0009 as women's education increases in a year of schooling (grade). This result also coincides with the finding of (Idrisa et al., 2007) which stated that women's participation in cooperatives was significant for education level at 5% significance level.

Access to Cooperative Training (COOPTRAIN): one of the principles of cooperatives emphasizes continuous education and training to the members, leaders, and general public so as to improve their overall understanding towards cooperatives. This variable had influenced women's participation positively and significantly at less than 10% probability level. This means that the probability of participating in the activities of agricultural cooperatives increases with the increase in the access to cooperative training. The odds ratio of 1.0499 for access to cooperative training suggests that, other variables remain unchanged, the odds ratio in favor of women's participation increases by a factor of 1.0499 as access to cooperative training increases in a unit.

4. CONCLUSION AND RECOMMENDATION

Agricultural cooperatives play an important role in the sector by promoting rural development. They are organized to provide economic benefits such as large economies of scale, bargaining power in the market, coordination of demand and supply, risk pooling, and reliable access to agricultural input and output marketing to the member patrons. Generally speaking, the access to and the participation of women in agricultural cooperatives in our country is very low. Their number is few compared to men.   This research was undertaken bearing the specific objectives of assessing the extent women's participation in agricultural cooperatives, and factors that affect the participation of women in agricultural cooperatives.

The study was based on conceptual framework considering demographic, socio-economic, institutional, and psychological factors as the main parameters for measuring the extent of women participation in agricultural cooperatives.

Out of twelve continuous variables except age all others were found significant at different probability

level and affected women's participation in cooperative actvities. The two dummy/discrete variables were found significant at different probability level and affected the dependent variable. Ordered logit model result has showed that members' shareholding, members' oxen possession, and members access to & attainment of cooperative training were significant at 10%, distance to cooperative service center at 5%, and volume of farm land, members' perception towards their cooperative & its management, and respondents' educational attainment were significant at 1% level.

Based on the major finding, possible suggestions were forwarded to address the problems identified in data analysis and interpretation. In general, in order to improve the existing situation regarding women participation all the necessary remedial actions should be taken by all the concerned bodies. Following cooperative principles like continuous education and training should be arranged in order to improve women's participation in cooperative activities. Efforts should be increased to the realization of the values of equity, equality and proportional benefits of women in their cooperatives. Awareness creation to women to develop high self-esteem needs additional endeavor.

Integration of different activities focusing on women empowerment by different bodies is needed to make the efforts more fruitful. Additional efforts have to be placed in gender mainstreaming so as to alleviate the problem at hand.

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