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The Determinants of Participation in Livelihood Strategies: The Case of Resettlement Chewaka District, Buno Badele Zone, Oromia Regional State, Ethiopia

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Abstract: Due to land scarcity, agricultural land infertility, high population pressure and recurrent drought, the government of Ethiopia implemented resettlement programs in 2003 EC before 15 years. The program aimed at addressing the problem of drought and famine through improved access to land and availing institutional support. In light of this, the objective of the study is to identify existing livelihood strategies adopted by rural households and analyze factors that determine households' participation to choose alternative livelihood strategies in Buno Bedele Zone, Chewaka resettlement district. The data were collected through both primary and secondary data collection methods. The data were obtained from 137 sample household heads that were selected through simple random sampling techniques. The study used both descriptive and econometrics for analysis. The descriptive statistics were used to explain socio economic characters of the household comparison which it resettlers have better encouragement than the hosts community,… and it was used to identify the existence of livelihood strategies that was 60.72 percent of households total annual income from the on farm strategy (agriculture) and 23.46/15.81percent was from off/nonfarm activities. Multinomial logit model applied to analyses the factors that determine households' participation to choose alternative livelihood strategies. In this regard, the econometric investigation indicate that out of the total seventeen variables included in the models four variables in non and off farm activities, ten variables in off farm and on farm strategies, eight variables in combination of on farm, off farm and nonfarm activities and four variables in on farm and nonfarm activities were solely or simultaneously in different strategies significant including age of household heads, family size, dependent ratio, settlement fragmentation, number of oxen, irrigation access, education access, land size, livestock holding size, sex of household head,, market distance, total annual income from on farm, membership in local association, extension service, agricultural input use and credit access are found to be the significant determinants up to 10% probability levels. The results of this study recommend that resettlement implementation should be for sustainable livelihood development. To do so, higher concern would be given to the environmental issue and both agricultural intensification and non/off farm strategies could be strengthened to raise positively farmers' participation in various livelihood strategy.

Keywords: Livelihood Strategies, Rural Households, Ethiopia, Resettlement, Multinomial Logit Mode

1. Introduction

The resettlement program has the potential to improve the food security situation and diversifying livelihood strategies if it is fully supported by government and other stakeholders. Beneficiaries of Chewaka resettlement scheme were afforded larger and relatively productive landholdings resulting in them being able to produce more than in their area of origin, hence improving the food security situation of the majority of the resettled households. However, the program did not go concomitantly with the access to the necessary technology for farm production such as improved farm implements,

improved seed varieties, use of fertilizers, provision of extension services and the related infrastructure as should have been the case [50]. Ethiopian 2003 resettlement program is based on the fertility of land for agricultural land productivity [48] which is from rural to rural. In the country's rural households activities for their livelihood change is agriculture. So as the resettlement program has the potential to improve the livelihood and food security situation of settlers if it is fully supported by government and other stakeholders [50]. And the chewaka resettlement program was resettling the farmers in rural area. Additionally, major district household's livelihood activities are agricultural sector and related activities. Even if there was the research and discussion on the impacts of resettlement program in this area of study, researcher focus was mainly on the food security only. Even though the researcher was explain some what else about the socioeconomic characters of resettled farmers with their native area comparison there was no comparison with host community. Despite there was conclusion by the researcher on the study area as the resettlement program have a positive effects for affect community to secure their, nothing is not reflected about the impact of resettlement on environment and the perception and effort of settlers (resettlers and host community) to conserve their environment. Therefore, the focuses of this study are; what are their new livelihood creation and determinants of participation in the activities after resettlement? What encouragement is there on their socioeconomic level? And what are the resettlers and host perception and efforts to conserve the environment?

1.1. Objective of the Study

The overall objective of the research is to study the rural households' resettlement based livelihood strategies in the study area.

Specific Objectives

The specific objectives are:

1. To describe the demographic, socio-economic and farm specific characteristics /attributes of the households, and
2. To analyze the determinants of participation decision in livelihood strategies after resettlement in the study area.

1.2. Research Questions

The study objectives are; to answer the following research questions in relation among resettlers and host communities in a district.

1. What is the status of the socio-economic characteristics of the resettled and the host households?
2. What are the determinants of participation in livelihood strategies of the rural households in general?
3. Is there a difference in terms of livelihood strategies among the groups of resettlers and the host communities?
4. Are there correlations between the environmental opinion and efforts (resettles and host communities) and livelihood creation strategies of the households over the past 15 years?

2. Methodology

2.1. Sampling Techniques and Sample Size

Since the data collected from entire population, the researcher must statistical inferences to made sample size. Chewaka district was selected purposively because of resettlement. A strata random sampling was employed in this study in order to draw a sample from the kebeles that select randomly from the district. From this randomly selected kebeles the researcher stratified farmers into the strata groups of resettled farmers and host community then the sample is selected from the strata groups by using systematic random sampling technique. Finally the proportions to sample size calculated from each randomly selected of *kebeles*. The sample size of settlers determined by using [11] formula:

$$n = \frac{z^2 pq}{e^2} \quad (1)$$

$$n=\frac{z^2 pq}{e^2}=\frac{1.96*0.9*0.9}{0.05^2} = 138.29 \approx 138$$

But to reduce sampling error 14 (10%) more respondents were added and then the total of 152 sample respondents was drawn.

Where,

Z=is the selected critical value of desired confidence level at 90%, n=is the sample size and e=is the level of precision, p=is the estimated proportion of a resettled farmers q=(1-p), is the estimated proportion of a host community,

Finally, the calculated 152 sample respondents were selected from each four *kebeles* randomly and proportional to their population, out of which 152, 10 of households were not available (3 household were not volunteer to gave the information and 7 household was absent from the home on survey time) and 5 of questioners respondent paper was invalid. So, only 137 households gave required complete information. Hence, these 137 households constituted the sample size for the study.

Table 1. *Samples size distribution for sampled kebeles.*

Sampled Kebeles	Total Household Population	Sampled Households	Covered (Completed)
Demaksa	546	49.3=49	44
Terkenfata	671	62.356=62	56
Shimal-tokke	267	24	21
Camman	103	10	9
Mirgisa	74	7	7
Total	1661	152	137

Source: Own survey data, 2018.

2.2. Research Design

To undertake this study, cross-sectional survey involving both qualitative (focus group discussion, key informant interview, and on spot observation using different checklists) and quantitative (mainly using survey questionnaire) or mixed approach by giving more emphasis to the qualitative approach was employed.

2.3. Data Sources and Technique

To collect the required data for this particular study, both primary and secondary sources of data was used. The data from primary sources was gathered using survey, focus group discussion and key informant interview methods. The secondary data was collected from secondary data sources such as published and unpublished documents.

2.4. Methods of Data Analysis

The data was analyzed using descriptive, inferential statistical methods and econometric model called multinomial logit.

2.4.1. Descriptive Analysis

Descriptive statistics like percentage, mean, variance, standard deviation, frequency distribution and correlation were used to describe the socio-economic, institutional and demographic features of the selected households. These characteristic features was compared between the two groups using t-test for continuous and $\chi 2$ test for discrete variables and as a whole for the households.

2.4.2. Multinomial Logit Model Specification

When there is a dependent variable with more than two alternatives among which the decision maker has to choose (i.e. unordered qualitative or polytomous variables), the appropriate econometric model would be either multinomial logit or multinomial probit regression model. Regarding estimation, both of them estimate the effect of explanatory variables on dependent variable involving multiple choices with unordered response categories. However, multinomial probit is rarely used in empirical studies due to estimation difficulty imposed by the need to solve multiple integration related to multivariate normal distribution [22]. Moreover, multinomial logit model is selected not only because of the computational ease but also multinomial logit analysis exhibits a superior ability to predict livelihood diversification and picking up the differences between the livelihoods strategies of rural households. It is a simple extension of the binary choice model and is the most frequently used model for nominal outcomes that are often used when a dependent variable has more than two choices. In this study therefore, a multinomial logit model specification was employed. This model makes it possible to analyze determinants of participation of resettlers households' in various choices of livelihood strategies in the context of multiple choices. Following Green, the multinomial logit model for a multiple choice problem is specified as follows:

$$Pij = \frac{e^{xi\beta j}}{\sum_{j=1}^{j=4} e^{xi\beta j}}, \mathrm{j} = 1..4 \qquad (2)$$

Where *pij*=the probability representing the i^{th} respondent's chance of falling into category *j* or (it is the probability of household's *I* choice of the livelihood strategies from category *j)*, *xi*=is predictors of response probabilities; *e* is the natural base of logarithms; and *j* are the parameters to be estimated by maximum likelihood estimator (MLE). The estimated equations provide a set of probabilities for the *j + 1* choice for a decision maker with *xi* characteristics. For identification of the model, we need to conveniently normalize by assuming $\beta_0 = 0$ [21]. Therefore, the probabilities are given by

$$Prob.\left(yi = \frac{j}{xi}\right) = Pij = \frac{e^{xi\beta j}}{\sum_{j=2}^{J} e^{xi\beta j}}, \text{for J} > 1 \qquad (3)$$

$$Prob.\left(yi = \frac{1}{xi}\right) = Pi1 = \frac{1}{1+\sum_{j=2}^{J} e^{xi\beta j}} \qquad (4)$$

The marginal effects (δij) of the characteristics on the probabilities are specified as,

$$\delta ij = \frac{\partial pij}{\partial xi} = Pij\left[\beta j - \sum_{j=0}^{J} Pij\beta j\right] = Pij[\beta j - \beta^{-}] \qquad (5)$$

3. Result and Discussion

This chapter presents the findings of the study on the major socio-economic characteristics of the households and the determinants of participation in various livelihood strategies of rural household based on both descriptive and econometric analysis.

3.1. Descriptive Analysis of Households' Characteristics

Socioeconomic Characteristics of the Household

Age of the household head: The mean age of a sample household heads was 37.38 years with the standard deviation of 11.76. Accordingly the mean age of resettlers was 36.13 years and 47.6 years for host community with the mean difference of 9.47/11.47. The maximum and minimum age of the sample households was 100 and 22 years respectively. The statistical analysis showed that there was a significant difference (at 10% significance level) between host community and resettlers in terms of age. It was observed that the ages of the household heads lie in the range of active labor force (between 15 and 65 years) for resettlers household and 72 (inactive labor force) for host community. This is shows the resettlers household heads are more active in labor force than host communities household.

Family size: In the context of sustainable livelihood approach, looking at the trends such as demographic trends, resource trends and government trends are the important elements to be considered (Agitew, 2011). Due to continuous and ongoing resettlement, which has been undertaking since the year 2003, the study area has experienced higher population trend within ten years, which was not ever seen in its history. In connection with it, looking at family size of the households, which is one of the manifestations of the demographic characteristics, is important. The family size of sampled household respondents is found to be between 1 (minimum) and 12 (maximum) per household. In the study area, the average family size for all samples is 5.42 persons per household. The mean family size for resettlers was 5.67 with a standard deviation of 2.67and it is 5.46 for host community with a standard deviation of 1.88. The mean

difference is 0.21 which was statistically significant at1% probability level.

Total household Income: This refers to the annual farm income obtained from sale of crop, livestock and livestock products forestry, bee-hives... etc of the households in the study area. From the household survey, the total household mean income was 53964.93 birr with standard deviation of 35950.33. Total household income of resettlers are mean of 56326.19 and with standard deviation 35946.11, at their native area the resettlers household total income in birr by the mean 9309.75 and with standard deviation 9945.37 and host community in birr by the mean 34760 and with standard deviation 30718.14. From this resettlers household gets more income than host community household and resettlers household gets five exceeds of their original (native area) income earn..

Table 2. *Descriptive statistics of resettlers and hosts household, age family size and total income.*

No	Variables	Resettlers		Host community		t-value
		Mean	Standard. D	Mean	Standard. D	
1	Age of household heads	36.13	-	47.6	-	-35.4
2	Family size	5.67	2.67	5.46	1.88	-15.48
3	Household total income	56326.19	35946.11	34760	30718.14	-17.56

Source: computed from my own survey data of 2018.

Health service: In the study area in each *kebele* there is health extension service house (health station) and there are seven governmental health centers, five private clinic and one non-government organization centers of health in the district. From the household survey, 78.68% of resettlers and 40% 0f host community have access to health extension service. The distance of household from health center for resettlers household is 1.43 km on average and 4.64 km from clinic but the distance from the service for host community on average 9.33 km for health center and 10.67 for clinic. The following statistical table results show a relationship between clients (household) and health service.

Table 3. *Relationship between household and health service.*

Kebele		Access of health extension service		Distance from hospital in mean	Distance from health center in mean	Distance from clinic in mean
		Yes	No			
Demaksa Terkanfeta Shimaltokke	Resettlers	96 (78.68%)	26 (21.31%)	93.3km	1.43km	4.64km
Cemman Mirgisa	Host community	6 (40%)	9 (60%)	110.53	9.33	10.67

Source: my own survey data of 2018.

Access to Education: The success of resettlement programme depends on different socio-economic factors. However, educational level of the settlers is one of the dominant explanatory variables of their settlement programme in enhancing the livelihood of the settlers. In this regard, the data collected from the sample survey depicted that the average distance of primary school (Grade"1-8) at the study area (after resettlement) regardless of one' s home is near (ten minutes' walk) than at the area of origin which was an hour walk. Similarly, the mean distance of the high school (Grade 9-10) was located at relatively near distance about an hour and thirty minutes' walk at the study area (after resettlement) as compared to the area of origin (before resettlement) which was two hours and thirty minutes' walk. But for host community it is somewhat far than the resettlers household the average distance to primary school (grade1-8) averagecally without regardless to home that near to school they can reach in one hour and thirty minutes' walk (7.45 km mean) and for high school by average it is three hours walk. Moreover, the FGDs participants (from resettlers) also agree that they have free access to primary education services to their families and the provision has shown an improvement after resettlement.

Access to agricultural extension: Among the sample household survey91.24% offarmershave acces to agricultural extension service while 8.76% have not access.

Table 4. *Agricultural extension service.*

No	Access to extension service	Frequency	Percent
1	No	12	8.76
2	Yes	125	91.24
3	Total	137	100.00
No	Farmers	Contacts days mean	SD
1	Hosts	5.93	11.87
2	Resettlers	16.12	19.21

Source: my own survey data, 2018.

This above tables indicate that the resettlers households are more access and the provision to agricultural extension services than hosts household.

Use of improved agricultural inputs: To raise farm productivity per hectare and livestock head, only 106 (53%) sample households utilized different improved varieties and commercial fertilizers. The rest, 94 (47%) did not utilize any improved agricultural inputs in the last cropping seasons. The percentage mean utilization of improved agricultural inputs of resettlers was 56, while that of the host community was 49% with the mean difference of 7%, but its statistical difference was not significant. Both resettlers and host community except the use of few improved poultry species did not utilize other

improved animal breeds for milk and beef production. The qualitative survey results also showed that even though the productivity of different crops per hectare is very high but livestock per heard was very low in a resettlers household.

3.2. Resettlement and Environment

3.2.1. Reason of Resettlement

As it has been clearly indicated in the program document, relocating people from chronically food insecure areas caused by land shortage, drought, and other problems and to let about 440,000 households to attain the household food security and gain better livelihood opportunity by providing access to land from identified potential areas is the objective of the program (Agitew, 2011).

Chewaka district resettlement was voluntary resettlement program. Based on the survey questionnaire, key informant and deep focused group discussion of the study area the main reason and initiation of resettlement program was land shortage, lack of farm land, drought, lack of rain land degradation, loss of employment and others (Table).

Table 5. *Survey opinion result of the households on reason of resettlement in the study area.*

Reason of resettlement	Frequency	Percent
Lack of farm land	31	25.41
Landlessnes	19	15. 57
Land degradation	28	22.95
Recurrent drought/hunger	7	5.74
Loss of employment	24	19.67
Lack of rain	13	10.66
	Total 122	Total 100

Source: computed from my own survey of 2018.

From the above table, the main reasons of resettlement are lack of farm land, land degradation, recurrent drought/hunger, landlessnes, loss of employment and lack of rain. The main problem of those resettlers when they were at their original place was land problem. however, some exaggerated information about the new area such as conduciveness of the area for any kind of crop, livestock, the infrastructure facilities such as road, availability of electricity, telecommunication service, potable water and even the residence houses are ready made and waiting for the beneficiaries to be used, photographs and video shows which reflect only better features of new area were untrue and misleading information provided to the settlers that the government official cadres were use as the initiation for the resettlement program was obay to resettlers because of push and pull factors.

Perception of Host community for resettled society: Among the sampled households, 87% host community household believed that coming of the resettlers was generally good to diversify the activities of areas livelihood and improvement of their livelihood by adopting the new life experience. But 13% of them believe that the program affected the host community. From the focus group discussion, one of respondent (Tamesgen Wakjira who live in mirgisa kebele) from host community expresses his attitude for resettlers as the follows.

"As they are active in labour work field and doing effort to improve their life, they don't have the competent. I like this behavior from them. They work up to their force, they know many agricultural technique, they are so generous if you don't anxiety them. They are sensitive to fight in one small issue but immediately they solve their matter with being together in cultural way there is no revenge among them. Besides on this, their kindness, taking the others problem as their problem and try to solve as much as they can, and their openness for the social issues discussion, frank and accomplisher of their decision on what take as their responsibility. And they do not know a fake in social affairs. Those are why I appreciate them. If there is a best community, harar-oromo community is among the best one".

This means however there was some difference between ours and their culture and social life with each other's, the hosts' perception for resettlers are positive on resettlers life experience share, agricultural technique and their transparence and frank decision in the social affairs.

Common land resource property: Common property resources (CPRs) offer diverse opportunities: pasture, water, hunting game, gathering of fruits, firewood, source of construction material and livelihood activities (such as cultivation). Studies (Worku, 2011) indicated that the linkage between access to natural resources and livelihood in rural areas is direct. In the study area, common property resources are assets towards which the settlers have direct interest, i.e., the community generated economic and non-economic benefits from the CPRs. Communal land utilization with household community was asked in the survey. The survey result has shown that 78.83% of the household use communal land for different purposes such as pasture land, firewood collection, construction of houses, expansion of agricultural land; whereas 21.17% do not utilize communal land. The main reason mentioned in the latter case is that these household do not have livestock, do not have common land use (it was sales by kebeles head) and although they collect firewood for their energy source from nearby forest/woodland and also use crop residues (Table 7).

Table 6. *Distribution of Respondents by communal land utilization with household.*

No	Common land use	Frequency	Percent
1	No	29	21.17
2	Yes	108	78.83
3	Total	137	100.00

Source: computed from my own survey, 2018.

Based on the survey result, the main purpose of using communal land resource are for grazing of livestock/pasture (10.95%), agricultural land expansion (34.31%), fire wood (26.28%), gathering of fruit (3.65%) and source of construction material (2.19%).

Table 7. Usage of communal land resource property for household.

No	Reason for common land use	Frequency	Percent
1	Pasture	15	10.95
2	Agricultural lan expansion	47	34.31
3	Fire wood	36	26.28
4	Gathering of fruit	5	3.65
5	Source of construction	3	2.19
6	Total	106	77.8

Source: computed from my survey data of 2018.

3.2.2. Society and Knowledge of Environmental Change

Farmer's level of awareness of what is happening in their environment in terms of change in climate, land productivity, water resource and forest coverage could be taken as one measure of their knowledge of the environment 83.94% and 86.13% of the respondents replied that there were environmental problem (loss of land fertility and climate change) in the study area.

Among the respondents (112) or 65.75% replied that there was environmental change in the study area, i.e., the change in forest cover (deforestation). Among 115or 83.94% respondents said that decreasing land productivity was the major environmental problem, while (46) and from all sample of households 118 or 86.13% reported climate change. Based on the response obtained from the respondents, decreasing of water sources is major environmental problem in the area (accounted 10.67%). Similarly they also mentioned the major causes of these problems. About of 47or 34.31% respondents responded that the environmental problem is expansion of farmland. Out of sample households, 20.6% of the respondents mentioned population growth becoming of shortage of farm land. About 45.5% of the respondents reported lack of environmental education and government control as the cause of environmental problems.

To conserve the environment, 126 or 91.97% have positive attitude and doing effort to change the affected environment by refforesting the trees on the hills of communal forest, afforesting the the farm land by mango's fruits trees and tracing the erased soil land.

The resettlement effects on the environment and the perception and effort to conserve the environment have a weak positive correlation by the pearson correlation coefficient number of 0.2860 from the results of statistics table.

In all, resettlement program has positive effects to encourage the live status of affected community and to diversify the livelihood strategies of settled community. However, it have negative effect on the environment by deforesting the forest (lose in wild animal), loss of land fertility (reason for agricultural land expansion majorly), decreasing of sream water …etc. the societies altitude and perception are positive to conserve thier affected environment.

3.3. Livelihood Strategies

According to the study [13] the term livelihood strategies are defined *as* the range and combination of activities and choices that people make in order to achieve their livelihood goals, including productive activities, investment strategies, reproductive choices, etc. Livelihood strategies are composed of activities that generate the means of household survival and are the planned activities that men and women undertake to build their livelihoods.

In chewaka resettlement district the dominant sources of economic activities are agricultural (on farm) activities. The total income earned from on farm activities annually is 3853250 and its 60.72 percent of total income while from others activities are 1488950 and 1003396 for off farm and non-activities respectively.

Table 8. The contribution of each income sources to the total household net annual income.

No	Sources of income	Sum	Mean	Percentage
1	On farm	3853250	28125.91	60.72
2	Off farm	1488950	10868.24	23.46
3	Non-farm	1003396	7324.05	15.81
4	Total	6345596	15439.41	100.00

Source: calculated from survey data of 2018.

In this study livelihood strategy was categorized into four alternative and one base outcome category, those are: on farm alone as a base category, off farm plus nonfarm, on farm plus off farm, on farm plus off farm plus nonfarm and on farm plus nonfarm.

Figure 1 gives a breakdown of the different livelihood strategies that households pursue in the study area. In Figure 1 livelihood strategies used by rural households in the study area. The descriptive statistics (pie chart) result indicated that relying only on farm activities as a livelihood strategy is the most commonly used strategy by the farmers in the study area. About 34.3% of sampled households were engaged only on-farm activity (crop and livestock production) as their livelihood strategy.

Moreover, about20.4% of the households combined on-farm activity with off-farm activity as their livelihood strategy. They combined crop and livestock production with off-farm activities like land rents, wage of agricultural land, wage casual labor, crop share *etc.,* to achieve their livelihood goals. The combination of farm and off-farm activities was among the strategies practiced by rural household heads. The descriptive statistics result also indicated that about 16.06% of the households were practicing crop and livestock in combination with non-farm and 13.87% are engaged in farm and nonfarm activities like petty trade, mining, handicraft, casual labor, *etc.* to achieve their livelihood. Finally, about 15.33% of the sampled households were engaged in the combination of farm, off-farm and non-farm activities to drive their livelihood.

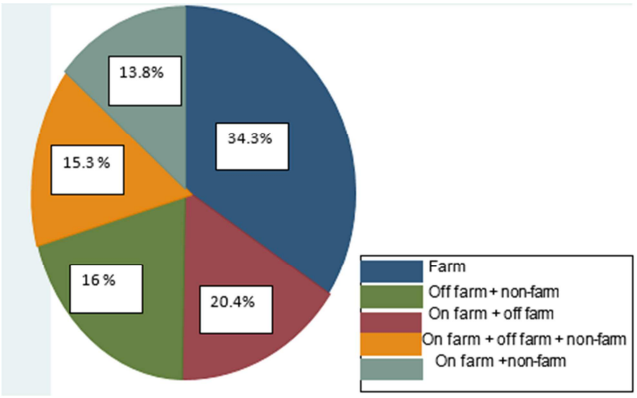

Figure 1. *Percentage share of livelihood activities in the study area.*

The Determinants variable determines the participation of HH in Livelihood Strategies.

The study employed ANOVA (F-test) and chi-square test to make comparisons (to make sure the presence or absence of difference) between the livelihood groups of the households. The mean values of continuous variables in all livelihood categories were compared using ANOVA (F-test). The analysis of variance (ANOVA) showed the presence of a significant mean difference between rural households falling in the four livelihood strategies in terms of total annual on farm income, age of household heads, TLU, family size and frequency of extension contacts.

Descriptive statistics results showed that those farmers who were using the combination of on-farm and off-farm activities as their livelihood had relatively better total annual on farm income than the others. The mean value of total annual on farm income earned by those farmers relying on combination of on farm and off-farm activities for their livelihood strategies was Birr 32846.4 while it was Birr 28750, 23222, 29271.4 and 30425 for those households relying farm, off farm and non-farm, farm and nonfarm and off-farm and farm and nonfarm to drive their livelihood respectively. Descriptive statistics results indicated that those households depending on off farm and nonfarm for their livelihood had more frequency of contact than the rest categories. The mean value of extension contact received by those farmers relying nonfarm and off farm activities for their livelihood strategies was 13 contacts, while it was 11.3, 12.3, 12.3, and 10.55 contacts, respectively, for those households relying on farm, on farm and off-farm, a combination of farm, off-farm and non-farm and on-farm activities as their livelihood strategies. The households those age of their household is most matured than other are highly participate in the combinations of on farm, off farm and nonfarm strategies than others where means of their age are 41.73 while for in others activities participant 36.68, 36.92, 38.31 and 36.6 on farm, off farm and nonfarm, off farm and on farm and nonfarm and on farm respectively. It also indicated that the households those engaged and participates in off farm and on farm activities have most family size than others. While the family size average of households those participate and engaged in off farm and on farm activities are 7.2 for the household s those engaged into on farm, off farm and nonfarm, a combinations of off farm, on farm and nonfarm, and on farm and nonfarm activities are 6.5, 5.2, 4.7 and 5.3 respectively to sustain their livelihood. In the last, the result indicates that the household those participate and engaged in off farm and nonfarm activities have largest tropical livestock unit than others. It is 8.39 while for in only farm, on farm and off farm, combination of farm, nonfarm and off farm, and nonfarm and on farm activities are 6.9, 3.75, 3.87 and 4.72 respectively to drive their livelihood.

In the study area, However livestock are the source of cash income the household rearing quantity is so low level because of tsetse fly insects that it would be cause for livestock disease. On rearing of animal production most of the household have fear to take a risk. Since the area is not convenient to rear the animals because of tsetse fly, the animals that bite by it, is die immediately and seasonal livestock disease. From key informant survey even though this problem of livestock disease was identified and approved scientifically by the research there was no efforts and propagation to solve the problem. So, although livestock are the source of cash income and play a positive role to determine the participation of household into different livelihood strategies it population in the district was so small. (Table)

Table 9. *Summary statistics of the continuous variables by the determinants of Participation in livelihood strategies.*

No	Variables	Y=0		Y=1		Y=2		Y=3		Y=4		F-value
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	mean	SD	
1	AGEHH	36.68	11.86	36.92	8.86	38.31	9.94	41.73	20.75	36.6	12.58	1.25***
2	FAMSIZ	6.5	3.02	5.2	1.92	7.2	3.42	4.71	2.87	5.33	2.16	1.94**
3	LANDSIZ	1.33	1.08	1.5	1.11	1.5	1.11	1.33	1.08	1.25	0.64	0.75
4	TLU	6.90	11.30	8.39	17.70	3.75	3.19	3.87	3.47	4.72	4.23	2.06***
5	EXSERV	11.30	13.13	13	17.35	12.3	16.26	12.3	16.28	10.55	15.26	1.3**
6	INFOFAM	28750	16297	23222.2	18623.3	32846.4	15858.8	29271.4	12666.3	30425	17816	2.46***

Source: calculated from my own survey of 2018. On here (*, **, ***) significance at 10%, 5% and 1% respectively, replaced Y=0 is farm alone, Y=1 is off farm and nonfarm, Y=2 is on farm and off farm, Y=3 is a combination of farm, nonfarm and off farm and Y=4 is nonfarm and on farm activities.

On the other hand, a chi-square test indicated the existence of statistically significant difference between the five strategies in terms of five discrete variables. More specifically, the test revealed that there was a significant difference between the livelihood groups in terms of the sex of households' heads, irrigation access, improved agricultural input use, settlement fragmentation and participation in local membership at less than 10% significance level.

Table 10. *Summary statistics of the discrete variables by the determinants of Participation in livelihood strategies.*

Livelihood strategies in percents and chi-square value.									
No	**Variables**		**Y=0**	**Y=1**	**Y=2**	**Y=3**	**Y=4**	**Total**	**X2-value**
1	Sex	Female	10.22	5.84	2.19	2.15	5.11	25.55	32.76*
		Male	24.09	10.22	18.25	13.14	8.76	74.46	
2	Irrigation access	No	17.52	12.41	10.95	13.87	8.03	62.78	8.94**
		Yes	16.78	3.64	9.50	1.46	5.84	37.22	
3	Credit access	No	18.98	12.4	13.14	9.49	6.57	60.59	6.13
		Yes	15.33	3.64	7.3	5.84	7.3	39.41	
4	Input use	No	5.11	9.49	6.57	3.64	5.11	29.93	22.08*
		Yes	29.19	6.57	13.84	11.68	8.76	70.7	
5	Settlement fragmantn	No	19.71	2.92	2.92	2.19	5.84	33.58	14.78*
		Yes	14.60	13.14	17.52	13.14	8.03	66.43	
6	Local membership	No	14.60	10.22	2.92	3.64	5.11	36.49	9.99**
		Yes	19.71	5.84	17.62	11.68	8.76	63.51	

Source: my own surveys of 2018.

3.4. Description (Effects) of Resettlement on Diversifying Livelihood Strategies (Creation of New Livelihood Strategies)

From host community household survey, before the implementations of resettlement program the households' in destination was engage into some of off farm activities. 42.6% of household engaged into beehives keeping, 26.4% producing the short time cash livestock (goat and sheep), 19.3% harvesting common land mango resource property, and 11.7% using forest resource such like charcoal, hunting wild animal and provides construction material to the markets to sustain and achieve their livelihood. (Table)

Table 11. *Households' engagement activities before the resettlement program to sustain their live.*

No	Activities	Percent
1	beehives keeping	42.6
2	producing cash livestock	26.4
3	Harvesting mango	19.3
4	using forest resource	11.7
5	Total	100

Source: computed from my own household survey data of 2018.

Almost all of the household engaged and participate into one strategy i.e. off farm activities to achieve and sustain livelihood. There were no activities such like crops cultivation, petty trade, rents and wages from agricultural land, crop share…etc. This shows that nonexistence of diversified livelihood strategies in the area before the implementation of resettlement program.

However there was no participation in different livelihood strategies before the implementation of resettlement program in the destination of study area. There was existence of diversified strategy after the program implementation. From the sampled household survey separately responded from the community, among the resettlers, 33.61% of household engaged into on farm, 17.21 of household were engaged into off farm and nonfarm, 20.49 of household engaged into off farm plus on farm, 14.75 of household engaged into on farm plus off farm plus nonfarm and 13.93 of household engaged into on farm plus nonfarm. And among the host community, 40% of household engaged into on farm, 6.67% of household engaged into off farm and nonfarm, 20% of household engaged into off farm plus on farm, 20% of household engaged into on farm plus off farm plus nonfarm and 13.33 of household engaged into on farm plus nonfarm. (Table)

Table 12. *Shows a difference between Host community and resettlers on their participation into various livelihood strategies.*

No	Strategy	Host community		Resettlers	
		frequency	Percent	Frequency	Percent
0	On farm	6	40.00	41	33.61
1	Off farm and non-farm	1	6.67	21	17.21
2	Off farm plus on farm	3	20.00	25	20.49
3	On farm plus off farm plus non-farm	3	20.00	18	14.75
4	On farm plus non-farm	2	13.33	17	13.93
5	Total	15	100.00	122	100.00

Source: calculated from my own survey data of 2018.

To sum up, resettlers household are more participate/engaged into off farm and nonfarm strategy than host and host community are more participate/engaged into on farm and on farm plus off farm plus nonfarm than resettlers household. But both are engaged equitably into off farm plus on farm and on farm plus nonfarm activities. This means, host communities are highly diversifying the livelihood strategies than resettlers household.

Generally implementation of resettlement programs into the destination plays effective role to diversify or to create new livelihood strategies for both household.

3.5. The Determinants of Participation Decision in Livelihood Strategies of Rural Household

MNL was used to identify the determinants of participation decision in livelihood strategies of rural

household. The model analysis used relying on farm alone engaged household as the base category for the others strategies engaged farmers and evaluates the other choices participation decision as the alternatives option (see Table 13). The overall model is significant at 1%, 5% and 10%. Therefore, in this study, only those variables, whose coefficients were statistically significant at less than or equal to 10% probability levels were discussed. Dependent ratio, Settlement (fragmentation) village with farm land, age of HH head, household's family Size, sex of household head, livestock holding, crop diversification index, irrigation land, number of oxen owned by household, total annual income from farm, frequency of extension contact, membership local association, access to credit, distance from the market, land size, use of improved agricultural inputs and household education were significant variables determining household's choice of livelihood strategies (see Table 13). But there were insignificant variables.

Table 13. *Multinomial logit model results to determine the participation of HH in livelihood strategies.*

Variable	Household livelihood strategies											
	Offfarm+nonfarm			Onfarm+off farm			Onfarm+offfarm+non-farm			Onfarm+non-farm		
	Coef	p-value	Marginal effect	Coef	p-value	Marginal effect	Coef	p-value	Marginal effect	Coef	p-value	Marginal effect
AGEHH	.0887	0.079*	.0017714	-.037	0.480	-.0001755	.1590	0.013**	.0008124	-.0402	0.308	-.0055834
FAMSIZ	-.083	0.778	-.0003862	1.161	0.003 ***	.0064644	-.527	0.094*	-.0023163	-.4245	0.136	-.0555184
DEPRT	.4760	0.543	.0054385	-2.265	0.030**	-.0129673	-2.63	0.047 **	-.0140767	1.351	0.084*	.1782894
SEX	1.419	0.310	-.0315938	10.614	0.005***	.077129	1.184	0.519	.0048765	-1.152	0.288	-.1820404
EDU	1.394	0.765	.0012889	-1.365	0.101	-.0076036	1.592	0.009***	.0075825	.4466	0.223	.0575826
LANDSIZE	2.046	0.083 *	-.044249	3.7259	0.004** *	.0182564	1.963	0.036 **	.0084625	1.796	0.013**	.2352158
TLU	.367	0.002***	.0072256	-.3687	0.099	-.0018911	-.229	0.344	-.0010912	-.0934	0.167	-.0127646
NUMOX	2.999	0.164	-.0592456	-3.273	0.006 ***	-.0177892	3.117	0.024**	0150553	1.020	0.157	.141869
IRRILA	.3846	0.811	.0149354	-3.785	0.014 **	-.015585	-9.68	0.017**	-.1368279	-1.799	0.179	-.1686204
CREDA	1.711	0.377	.0356738	-4.736	0.023 **	-.0346285	4.513	0.048**	.0640998	.6951	0.411	.0786835
INPUSE	-2.68	0.029**	-.066074	-3.104	0.013 **	-.0255878	-.463	0.704	.0006135	-2.104	0.034**	-.3131998
EXSER	-.0408	0.291	-.0006743	-.0280	0. 347	-.000122	-.063	0.095*	-.0002919	-.0242	0.274	-.0029607
DISMRAK	-.0747	0.057	-.0014563	-.0469	0.131	-.0002576	-.0195	0.449	-.0001071	.0238	0.207	.0033689
CRDI	.6256	0. 675	.0085135	5.7848	0.035 **	.0295746	-.0409	0.981	-.0011055	.9008	0.305	.1106824
FRAGM	2.313	0.081*	.0330683	4.2216	0.002***	.0193287	4.360	0.006***	.0191766	.8537	0.269	.089084
MEMIL	.360	0.818	.0061376	2.9979	0.040**	.0147462	-.3043	0.875	-.0017108	.0275	0.981	.0005173
INFONF	-.000	0.398	-1.15e-06	.00008	0.140	3.98e-07	.0000	0.674	1.07e-07	.0000	0.063*	.0000116
_cons	-1.40	0.592		-15.98	0.002		-13.70	0.011 **		-3.135	0.146	

Multinomial logistic regression Number of obs=137.
LR chi2 (68)=254.48.
Prob > chi2=0.0000 (***, ** and * are significant in 1%, 5% and 10% respectively).
Log likelihood=-84.655964 Pseudo R2=0.6005.
STRATEGY Coef. Std. Err. z P>z [95% Conf. Interval].
0 (on farm strategy)=(base outcome).

1. Age of household head*:* It unexpected results of multinomial logit shows that farmers' decision to participate in various livelihood strategy of rural household positively and significant at 5% and 10%. Holding other variables constant, when the age of household heads increase by one year relative to the base category relying on farm alone, the participation of household head simultaneous into off -farm plus nonfarm and combinations on-farm, off- farm and non-farm strategies increases by 0.18% and 0.081%, respectively. The possible reason is that elder farmers are well established and more experienced in agricultural production, more resistant to new ideas and information; they are more likely to be set in their ways and may not venture into new diversified activities. Additionally as the household head age are increase the family size are increase by natural human production and when new born household family's age are increase enough for the labour force, the household participation decision to these new strategies increase because of push factors (lack of farm land…) and pull factors (to find convenient strategies for his/her better life). This finding is similar to that of (Seid Sani Asfir, Fikru, 2016, 2012). it is contradict with the finding of studies (Yizengaw et al., 2015; Ambachew & Ermiyas, 2016; Aristide & Pia, 2018).
2. Family size*:* It was found to have a positive/negative and significant effect on the farmer's engagement into on- farm plus off-farm and farm, off- farm plus non-farm strategies at 1% and 10% probability level respectively. Ceteris paribus, one extra person in the household increases the participation of household into farm plus off-farm, and decreases the farmer's participation decision into farm, off- farm plus non-farm strategies by 0.64% and 0.23% respectively (Table 13). This could be due to the relation between larger family size and household labor in order to meet basic needs of the family relative to the benchmark alternative farm alone. Furthermore, large families are able to practice multiple activities, whereas smaller ones tend to practice only crop production with a livestock activity. If the many household members of

family size age are not enough for labour force the household heads focuses was only to the survive family by benchmark activities rather than participate into other strategies since participation in the nonfarm strategies needs income and the income got from benchmark activities not much enough to engage in others activities rather than survive the family members. This finding is similar to that of [45].

3. Household dependent ratio: dependent ratio as expected it was found to have negative and significant ($p<5$) effect on two strategies (off plus non-farm and on farm plus off farm plus nonfarm). But it has positive and significant effect to engage the farmers' decision into nonfarm plus on farm. Which means as rate of household dependent ratio increases by one unit the rural household participation into off plus non-farm and on farm plus off farm plus nonfarm strategies decreased in 1.29% and 1.48% respectively. And household decision to participate in non plus on farm activities increased by 17.82%. This means that, when the dependency ratio increase, the ability of rural household heads to choice others activities with first basic alternative strategies will be decrease because the household members are raised in unlabored force (child and old aged group) the households head effort and altitude are focused on alive the family by the first alternative rather than choice and participate in others activities. But those unlabored force participate in nonfarm activities such like small petty trade (butter, milk, sales small kilos of grains).
4. Sex of household: it has positive and significant effect on the participation of farmers into various livelihood strategies. This result denotes that the households headed by male are more probable to partake in off-farm activities. The probable intention is that male headed households have more propensities to increase their income by means of diverse strategies. In contrast, female headed households have extra household tasks in family managing. As observed in study area there is traditional culture lead gender disparity which creates male-headed households to have more chance to participate in off-farm activities. Men mobility to urban area in search of nonfarm activities is culturally accepted and most of the societies perceive it in a positive angle. When other variables keep constant, the probability of a household expanding into off-farm + on farm strategies increase by 7.7% in case of male head household. This finding is supported by and [2].
5. Education of household head: Education and training are important aspects in rural households as they contribute to the knowledge acquired by households which they can use and apply for improved livelihoods [8]. The study [8] went on to indicate that education has long been recognized as a central element in the socio-economic evolution of less developed countries. The education levels of the household heads were assessed for this sample and it has positive and significant effect on the decision of rural household to participate in various livelihood strategies. As the household education level are increased by one level the farmer's participation into the combinations of on farm, off farm and nonfarm activities increased by 0.75%. The greater percentage of the households that acquired formal education may result in an increase in the number of chances of participation into various livelihood strategies in the study area. Education increases chances of access to a number of different economic activities, either as a formal requirement for wage earning jobs or because it helps setting up and managing own small businesses. There is a positive relationship between education (number of years of learning) and decision of household to participate into livelihood strategy [55]. This finding is line with [35].
6. Land size: Land is the principal resource of human beings in general and the agrarian society in particular. Therefore, land use/land cover is thought as an important indicator of the state of natural capital resource base, consequently of the problems and/or possibilities of sustainable development. As expected it was found to have positive and significant (1%, 5%, 10%) effect on the decision of household participation into diversified livelihood strategies. The result indicates that farmers with large farm size are more likely to spread the livelihood strategies into non-farm and/or off farm than those farmers who have small land size. Large farm size helps farmers to cultivate and produce more, which in turn increases farm income and improves livelihood of a household. On the other hand, declining land sizes under population pressure may decline rural households to diversify their sources of income. That means, farmers having more land size not rely on crop production and livestock rearing only rather than to go for non-farm and off-farm because they are satisfied in basic necessity and earn good income that interesting to invest new technology. Besides on this, in the study are a existed that indigenous people (orom-duro/host community) households that have large hectares of farm land are more involved in livestock based farming (been keeping), share cropping (wage from agricultural land) and land rents (salary from agricultural land) activities and thereby intensifying their annual cash income. The models results indicated that, at citrus Paribas, As the hectares of farm land owned by household increased by one hectares the household decision to participation into off farm plus on farm, off farm plus nonfarm plus on farm and on farm and nonfarm activities increase by 1.825%, 0.846% and 23.52%. Respectively. The study was lined and supported by the study [4] and it contradict was with [37, 55].
7. TLU: Livestock holding in TLU is has positive and significant ($p<1\%$) effect to determine the farmer's participation decision into various livelihood strategies. In the study area, livestock are the source of cash income but the household rearing quantity is low because of tsetse fly of livestock disease. The large

livestock holding creates better opportunity to earn more income from livestock production. This means, households who obtained the required amount of cash from livestock may need to involve new investment in non/off-farm activities for more additional income because there are a basic starting income from livestock production whereas farmers with lower livestock holding may cannot participate to in various livelihood strategies (into off-farm and non-farm activities) because may not have capital for basic starting business. Multinomial logistic regression results indicated that when the rate of household TLU of livestock owner is increase by one unit the household participation into off farm plus nonfarm strategies are raised by 0.722%. this study similar with [45] and contradict with [4].

8. Number of oxen owned by household: as it expected Number of oxen owned by household has positive/negative and significant (1% and 5%) effect on the rural household determinant of participation decision in various livelihood strategies. For our country's people, oxen are the principal draught power. Farm ox is the basic means of production for both there settlers and host community. Owning farm oxen enables to produce more agricultural output for family consumption and sale when required in order to buy other goods and services. The farmers who have ox never give his/her land for share crop and rents because he/she has a plough machine ox. Besides on this, many oxen holding creates better opportunity to earn more income from crop production by cultivating many more farm land and sales it into cash. The econometrics regression result implies that when the numbers of oxen in the household own increase by one the household participation into off farm plus on farm activities is reduced by 1.77%. But the household participation into combinations off farm, on farm and nonfarm increase by 1.5%. As the number of oxen in the household own increase by one. The study is similar to [5].
9. Irrigation land: it was found to have negative and significant ($p<5\%$) effect on the decision of household participation into diversified livelihood strategies. Utilization of irrigation scheme whether it is modern or traditional could reduce the drawbacks of rain-fed farming system. Irrigation has a great contribution to increase productivity and enhances the income of the households as well. But in the study area, in opposite the household those have farm land under access of irrigation water are intensify and satisfied only on farm activities since the cultivated land under irrigation water production is enough to secure the livelihood. The stata results indicated that in constant of others variables, when the irrigation lands increase in hectares, the farmer's participation into off farm plus on farm and off farm plus on farm plus nonfarm strategies decreased by 1.55% and 13.68% respectively.
10. Credit access: it has positive and significant in the probability of less than 5%. Household access to credit more participants into farm plus off farm plus nonfarm activities than those household that not access to credit. The household access to credit is fewer participants on farm +off farm into on strategies than those household that not access to credit. From the sample the households those access to credit are 54 (39.42%) out of it 33 (61.11%) of households uses credit income to purchase modern agricultural inputs which means to increase the crops production this is intensifying on farm activities alone. if agricultural inputs use increase the production of households from the cultivated land, the farmers May satisfied on the farm alone only rather than participate into other activities. and 10 (18.5%) of it use credit access to buy and sales (trade) livestock and butter (petty trade). so those household are engaging other extra activities addition to benchmark (base outcome) activities. the results of multinomial logits regression is implies that when the other variable are constant, households decision to participation into on farm plus off farm and farm plus off farm plus nonfarm strategies decrease and increase by 3.46% and 6.4% respectively as households access to credit is increase by 1 percent. This finding is similar to [4] and Contradict with [45].
11. Use of improved agricultural inputs: Use of improved agricultural inputs contradict the expectation and it was found to have negative and significant ($p<5\%$) effect on the decision of household participation into different livelihood strategies. inspiration on the household choice of selecting the reduced strategies approaches into farm + off-farm and off farm + nonfarm strategies by shifting from it to farm alone. Study results denotes that the households with significant access to use of recent farm inputs are less probable accept farming with off-farming activities as a livelihood strategy than those who have no contact. The probable reason is that using current technology most possible increase the invention and efficiency of crops and livestock product, and this can support household to get admission to more food and produce more income to facilitate their family necessities and satisfied only on the base outcome (on farm) strategies rather than engage in other activities. In constant term of other variable, household decision to participate in different livelihood strategies (off + nonfarm and off+ on farm) decreased by 0.66% and 2.5% respectively, when the household percent access and use the improved agricultural inputs increase by 1%. This finding is supported and similar to [37].
12. Extension service provision: it is has negative and significant ($p<10\%$) effect on the rural household decision to participate in various livelihood strategies. From the model result, other things being constant, the marginal effect reveals that the probability of a household using farm + off farm + nonfarm activities

decrease by 0.029% for a unit increase in the frequency of extension contact relative to the base category (Table 13). The possible justification is that extension services are an important source of information on agronomic practices. The availability of better agricultural information and technical assistance on agricultural activities helps farmers to produce alternative crops; and to obtain higher production and income. So satisfied on farm alone only. This finding is similar [45, 3].

13. Distance from the market: it was found as expected have negative and significant ($p<10\%$) effect on livelihood strategies. Thus, the rural household head participation into off farm +nonfarm addition to agriculture are determined by the existing of infrastructure facilities of road, market and urban/town positively. The odds-ratio for the household heads is near the town, road and market indicates that, other things being constant the probabilities of the respondents to choose livelihood diversifications strategies. When it relatively compare with base outcome with those engaged in on farm alone, if the distance among household and market is increased by one km the farmers engagement (decision of participation) into off farm +nonfarm activities are shifts to on farm activities by 0.14%. The study is similar with [37, 55] and contradict with [2].
14. Fragmentation of settlement and farm land: it was found to have positive and significant ($p<1$) effect on the decision of household participation into diversified livelihood strategies. The village densely populated and near to households' farm land are more participants into various livelihood strategies. The villages are sparsely placed and far from the farm land are fewer participants into various livelihood strategies. This could be due to fragmentation and small size of holding of settler farmers, these in turn forces them to divert part of their labor force to off-farm and non-farm activities. Models results implies that when Fragmentation of settlement and to farm land (households those their village are close to each other and to their farm land) increase by 1%, the farmers participation in to on farm + off farm +nonfarm, off farm +nonfarm and off farm + on farm strategies increase by 1.91%, 3.3% and 1.93% respectively. It is consistent with [53, 2] and contradicts with [7].
15. Membership in local association: it was found as expected have positive and significant ($p<10\%$). Members to local association have a positive probability of shifting from on-farm activities to on farm + off-farm strategy. Farmers household participate in local memberships are give information about their life, one is experienced from the others one experience (share of information and experience) and in association members like cooperative union there are model farmers training program. In addition, cooperatives serve as a means of gaining off-farm and non- farm employment opportunities. In all membership in local association is a social capital that promotes sharing of knowledge, information, and experience, *etc.,* regarding the value of off farm and non- farm activities that helps them to improve their livelihood. Due to this, participation of farmers into different livelihood strategies is high for members of local membership. When the household participation into local membership association such like agricultural cooperative association, cooperative union and funeral cooperative association are increase by 1% the farmers participation into on farm + off farm activities increase by 1.4%. it is consistent to [28, 45].
16. Income from on farm activities: it was found as expected have positive and significant ($p<10\%$). The positive coefficient implies that households with large total household income from farm are more likely to diversify the livelihood strategies into non-farm and/or off-farm activities. The possible reason can be farm households with large total income can invest in alternative livelihood strategies, especially in non-farm activities and because households with large total income can easily meet their consumption as well as other family requirements and beyond that they go for demand pull livelihood outcomes The models result indicate that when the household farm income increase, the household participation into on farm + nonfarm activities increase by 0.016%, in citrus Paribas. This finding is supported by [55, 37].
17. Crop diversification index: it has found positive and significant ($p<5$). The household cultivate variety types of crops are more participate into livelihood strategies than the household those cultivate the same types of crops. In addition, as a gibbs and martin technique the higher index of crop diversification highly diversified the livelihood strategies and lower index diversified in small manner. The multinomial results realized that when the crop diversification index increases in a unit percents of the farmers/household participation into combinations of on farm, off farm and non-farm activities increase by 2.95%, as others variables are out of the game.

4. Summary, Conclusion and Recommendation

4.1. Summary

This study was conducted in Oromia People's Regional State particularly Chewaka resettlement district. It is one of the areas where the resettlement programme was undertaken.

The basic data used in this study were collected from household survey, focus group discussions, key informant, field observation and secondary data. Different methods were employed to analyze to determine the participation of households in various livelihood strategies. These methods vary from simple descriptive statistics to multinomial logit model.

The majority of the people were resettlers and small parts host community. In the study area, 137 sample household

was taken from five kebeles (demaksa, terkenfata, shimaltokke, cammen and mirgisa) to describe and compare the socioeconomic characteristics of resettlers and host community, perception of society to the environment and to analyze the determinants of participation in various livelihood strategies of rural household of Chewaka resettlement district.

Resettlers household have some betterment when compared with host community by getting health service, agricultural extension service, access to education and school, having labour force (based on mean age) and improving their income. But, both of the households have the same awareness on the environment. Among the sampled households, 91.3 percent of respondent responded that there is environmental change because of resettlement program while both households (settlers and host) have positive attitude for their environment in applying effort to conserve through terracing and reforestation by trees.

In addition, from the sample household survey, 34.31 percent engaged in on farm, 16.06 percent engaged in off farm plus nonfarm, 20.44 percent engaged in off farm plus on farm plus nonfarm, 15.33 percent off farm plus on farm and 13. 8 percent engaged in on farm plus nonfarm. This study was analysis some variable to identify the determinants of participation in livelihood strategies of rural household. So age of household, household dependent ratio, irrigation, distance from market, use of improved agricultural inputs and agricultural extension services have negative effect on the farmers (households) participation into different livelihood strategies and family size, sex of household head, household level of education, land size, TLU, access to credit, fragmentations of settlement and farm land, membership in local association, and income from on farm have to found positive effect on the farmers (households) participation into different livelihood strategies (of which have positive/negative effects).

At ultimate, in the comparison and description of household socio economic characteristics of resettlers and host community, the resettlers household live a better life than host community. Additionally, however the resettlements programs have negative affect on the environment it has positive effect to secure the livelihood of rural household community through creating new livelihood strategies.

4.2. Conclusion

The objective of this study was analyzing the determinants of participation in various livelihood strategies of rural household the case of chewaka resettlement district. Resettlement programs are planned and implemented aiming to bring the better livelihood options to the target people. The main reason of resettlement are land shortage, lack farm land, drought, lack of rain, land degradation and loss of employment. In light of this, the findings of the study indicated that resettlement had positive effect on demographic features, encourage and creation of livelihood which intern had significant effect on determinants of participation in different livelihood strategies of rural household. On farm activity is found to be a high role in economic activity and contributes 34.31% of the smallholder farm households' total annual household income in the study area. Thus, to improve the smallholder farm households income due attention should be given to agricultural intensification and commercialization of agricultural crops. In the study area majority (65.69%) of the sample households are participated in non/off-farm in various types of livelihood strategies to pursue their livelihood income. This indicates that in the study area, the agricultural crop production and livestock rearing alone without non/off-farm livelihood strategies is not enough to provide smallholder households income. The econometric analysis demonstrated that the smallholder farming households in the study area are likely to have a best alternative and great decision to participate in different types of livelihood strategies when they have access to credit, education, manage households in male, enough farmland, access to market, participate in local membership association, and rise in income from on farm activities to non-farm roles.

Generally resettlement program has positive effects on encourage the socioeconomic status of resettlers and host community and to create new livelihood strategies.

4.3. Recommendation

Due to the finding problem in the study results the following recommendations is suggested.

The resettlement program in the area studied has brought about improvements in life of the settlers and their host community households by bringing enabling opportunities for better livelihood options. However, the positive changes registered by farmers are found to be on the expense of natural resources. If the resettlement program is to be seen as development intervention, it has to ensure sustainability of livelihoods. To do so, higher concern should be given to the environmental issue and besides, there should be participatory natural resource management intervention, encouragement of agro-forestry practice and appropriate technology such as fuel saving stoves are recommended to be designed and disseminated to rural households.

1) Enhancing household knowledge and access to off-farm and non-farm as the engage into it by income that got from crops production specially for farmers have irrigation land and large hectares of land;
2) Improving rural households' livestock holding by giving due attention new livestock breeds, animal forage, providing a medicine treatment and vaccination for a seasonal disease and emphasizing on disease problems (tsetse fly);
3) Enhancing households' awareness about the role of participation in local membership association as it promotes access to social capital from which they can gain off/non-farm employment opportunities;
4) Improving frequency of extension visit, access to training, access to education and access to credit to increase farmers' intensification in farming (take part into others strategies within farming) to secure the

livelihood. Because more extension visit and training ensures that farmers have the information on different agronomic practices for decision making; and access of education and access to credit enhances their participation into different livelihood strategies.

Generally, resettlement programs implementation have positive effects for affected community and plays a great role to create new livelihood strategies, it should be for sustainable livelihood development. To do so, higher concern should be given to the environmental issue and both agricultural intensification and non/off farm strategies should be strengthened to raise farmers' participation positively (good manner) into various livelihood strategy**.**

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