THE IMPACT OF RESETTLEMENT PROGRAM ON THE INCOME OF HOUSEHOLDS IN GUTO GIDA WOREDA, EAST WOLLEGA ZONE, OROMIA REGIONAL STATE, ETHIOPIA.

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ABSTRACT

The study evaluated the impact of resettlement program on the households' income in Guto Gida Woreda of East Wollega Zone Oromia, Ethiopia. Some of the resettlement schemes around the world failed, while some others were successful. The objective of the study was to identify facators that cause resettlement and evaluate the impact of resettlement on the household's annual income in study area.The study was based on cross-sectional data collected from a sample of 140 households (81 were program participants and 59 were non-program participants) using purposive and stratified random sampling techniques. Descriptive statistics and econometric models were employed to analyze the data. The Logit model indicated education status of the households, availability of credit access, availability of agricultural inputs, land farm size holding by household, farm income of household were negatively and significantly related to program participation while shocks, livestock holding by household, access of extension service, and total asset of household were positively affect and significantly associated with program participants. Propensity score matching shows, that the average annual income of resettlement program participants more than income of non participant by 19,162.6463ETB. Based on the findings, the study suggests that strengthening the encouragement of resettlement program have crucial role towards improving the income of households in the study area. Finally, the policy implication of the study is that income sources diversification, incorporated development program, practical based extension service delivery, access to credit service for the purchase of agricultural inputs and its preparations are needs policy attention.
Key Words: Resettlement Programme, Propensity score matching, Household's income, Guto Gida Woreda.

1. INTRODUCTION

Resettlement is a population movement planned directly by the government or private developers, where an area is chosen in order to resettle the population (Sherbinin*et al*., 2010). If, resettlement is effectively used, it is a vital to realize these entire notions, and to proactively plan

for resettlement as part of equipped protection approach (UNHCR, 2012). The effect of resettlement is more on women than men (Bisht, 2009, Terminski 2013). The resettled households have restricted options to rebuild their livelihoods (Wilmsen et al. 2011 and 2015) Ogwang et al. 2018b).

Many African governments to respond to the mismatch of Population numbers and environmental conditions, inter alia, to cope with landscapes that could not sufficiently care for their inhabitants have employed resettlement (Tilt B, 2016).

The other way of resettlement scheme would be implemented through centrally planned coordination of the government policy intervention. This was really practiced in Ethiopia at different administrative regimes where the areas were selected by resettlement administering authorities, without consultation of the host communities and assessment of the area (Adugna M. 2012). On the other hand, a change in any one of these assets may result in a difference in the income assets of the settlers either positively or negatively (Zeleke,T., 2014,P 36).

As several researchers have tried to assess the resettlement schemes and identified practical evidences on factors affecting success or failure of resettlement programs, some of the resettlement schemes around the world failed, while some others were successful. This is due to the proper planning, site selection, size of land allocated to settlers, land tenure and farming systems, management and administration. (Woldeselassie, 2014, Gebregzihabher, 2014).In China, studies found that resettlement is associated with a range of negative impacts on communities, such as reduced land holdings (Tilt, B.; Gerkey, D, 2016), reduced access to natural resources and ecological services (Wilmsen, B.; Webber, M.;2015 and Yuefang, D. 2011), declined household incomes (Sikka, G.; Mathur, V, 2015).Besides, McDonald et al. (2018) investigated different villages after resettlement and found that some villages have higher incomes than others. Most existing literature on resettlement in developing regions, including Africa, has focused on the general effects (Quetulio-Navarra et al. 2014; Kyomugasho 2016: Ogwang et al. 2018a). A major cause of resettlement in Africa is the exploitation and transportation of raw materials and the creation or expansion of conservation areas. During the 1970s and 80s, the most drought stricken areas were limited to northern Ethiopia, especially Wallo and Tigray. Previous studies found that resettlement have negative impacts on the socio-economic conditions of the local regions (FAO, 2016). For instance, Desalegn (2018) identified that resettlement would cause disruption by causing impoverishment of host communities, destruction of productive assets, and disruption of the social fabric. Dwivedi (2017) added that resettlement could result in asset and job losses, the breakdown of the social and food security, credit, labor exchanges, networks, social capital and kinship ties. In addition, Heggelund (2010) found that the resettlement in Three Gorges Project displaced local people to dissimilar places, which caused their social networks to become disconnected and also led to potential variation with the new host community. Studies by Kassahun and Shiferaw (2017) shows that relocation was said to have preserve the life and was a dark spot in the settlement history of the country.

The suffering brought by displacement and resettlement makes it hard for the women to adapt in the new environment (Terminski 2013). A study by Ogwang et al. (2018b) in the Albertine region of Uganda indicated that shortage of land and exploitation of the cash from compensation on treaties and freedom by men led to family collapse. The resettled households have limited options to reconstruct their livelihoods (Wilmsen et al. 2011). A study by Yankson et al. (2018) indicated that several challenges such as water scarcity, decreased access to forest products such as charcoal and firewood, and reduced access to fertile soils constrain the coping strategies of resettled communities. Hence, this researches that assess the impact of resettlement on the income of settler population is expected to play an important role in filling the existing knowledge gap, in terms of understanding the impact of resettlement on the income of settler population on lives of resettled people in their demographic factors economic factors and social capital. As the best knowledge of the researcher has checked that other researchers have not conducted studies on this title in Guto Gida Woreda, East Wollega Zone Oromia Regional state of Western Ethiopia. Therefore, this research contributes to fill the gap in the literature in this regard. So the research goal is to respond the following research questions:

1. Did resettlement affect the income level of the households? If yes, by what amount (positively or negatively?)
2. What are the major challenges faced to settler households in the study area?
3. What are the impact of the resettlement programme on the household's annual income?

Resettlement at the international level

Resettlement is a lifeline open to some of the world's most vulnerable refugees (InaStrøm, 2017). According to the WBED report, transportation was the cause of 24.6 percent of resettlement projects between financed by World Bank and active in 1993. We have therefore only random data on the scale of displacement accompanying the most spectacular projects of this kind (Terminski, 2013). Resettlement is recognized today as a vital instrument of international protection, integral to comprehensive protection and durable solutions strategies(UNHCR, 2011, 2017). In 2010, a massive earthquake in Haiti displaced over 1.5 million people. By 2012, more than 100,000 transitional shelters had been built across Haiti and 420,000 individuals had resettled in the United States of America. Extreme weather events in 2015 and 2016 further affected food access and agricultural production (NMUN.NY, 2016).

Resettlement in Africa

In Africa, resettlement is a serious matter of current as well as future concern. Africa's share of displaced people has been exceptionally high (Ohta and Gebre 2005). In some cases, local congestion was so serious that people were no longer able to produce enough food to feed their families and had to be assisted with food by the government (Mwiza, 2010). Resource

redistribution is also another factor for displacement. The contested land reform and resettlement programme of Zimbabwe and Namibia is a typical example (Chimhowu and Hulme 2006).

Resettlement in Ethiopia

During the mid-1980s, the Ethiopian government relocated about 600,000 people from drought-affected and over-populated regions to different resettlement sites, namely, Metekel, Metema, Assosa, Gambella, and Kefa, located in the western and southwestern parts. Of the total figure, over 82,000 people moved to Metekel area (also called Pawe or Beles area), Western Ethiopia, originally inhabited by the Gumz shifting cultivators (Yntiso, 2002). Resettlement under the Imperial regime: The major objective of the plan was not food insecurity and famine as they were principal causes in the later government rather to relive population pressures in the highlands (Desalegn, 2003b). Nevertheless, these were habitually small in size, informal in nature, and were mainly designed to achieve specific and limited objectives (Berhane 2003). Resettlement under the Derge: Thebasic rational to design the policy of the Derg in relation to resettlements was the defective estimate of unutilized and underutilized land resources found particularly in the southwestern parts, and south of Ethiopia. Consequently, between 1975 to 1984 following the 1975 land reform proclamation, the resettlement authority (RA) and the relief and rehabilitation commission (RRC) jointly lunched the first phase planned resettlement programmes and thereby resettled 110,090 persons in 88 different sites (Mengistu, 2005). The rational for this programme was that existing arrangement of dispersed settlements made it difficult to provide social services and to use resources efficiently (Kassahun 2000 and Desalegn 2003b).Planned resettlement gained currency and gathered momentum after the initiation of the innovative process in 1974 (Berhane 2003). Resettlement under the EPRDF:The basic assumptions behind the current resettlement programme remain similar to those made during previous periods (Imperial and Derg regime). Official declaration, voluntary resettlement is view as a main and essential factor of endeavours aimed at addressing the paramount problem of food insecurity in Ethiopia (GFDRE 2001).

Cause of the resettlement in Ethiopia

The official objective of resettlement plans in Ethiopia, both in the past and current regimes, as stated in various documents, was to prevent famine or attain food security) by moving people from drought-prone and overloaded areas to lightly populated regions and unoccupied virgin lands (Yntiso 2002).Resettlement programmes in Ethiopia are taken as part of rural development strategy(Alula Pankrust, 2004). The rapid population growth particularly in rural areas has decreased the size of land holding leading to landlessness and deterioration of the environment which were considered as causes of migration and resettlement (Ahmed Mohammed, 2005).Due

to a long history of improper land use the soil in these regions unwisely used infertile and in capable of supporting productive capacity of the land (Asrat Tadese, 2009).

Functions of Resettlement

States are not obliged to accept refugees for resettlement, but rather voluntarily offer resettlement places as a tangible expression of international solidarity (UNHCR, 2014).The current resettlement program is narrowly focusing on shifting of people from the densely populated to sparsely populated areas of high potential agricultural land. Farmers continue to practice the unsustainable system of production in virgin lands thus presenting grave consequences creating catastrophic environmental conditions. Following the resettlement program there is considerable damage to the natural vegetation of the study area. Large areas are cleared of their vegetation for crop production, to build homesteads and to acquire fuel wood (Haile, 2007).

Conceptual and Analytical Framework

To know the concepts of key issues of the study and analytical framework is extremely significant. In this chapter, it is endeavour to give the importance to unusual issues that are raised in this study and what analytical framework was followed for investigation. There are varied types of approaches and logical frameworks to study income of the settler peoples. In this paper sustainable income, approach is used as guiding framework. The framework consists of different mechanism, which is interrelated to each other being one factor dependent on the other factor. The major components of the framework are the context (trends, shock, local cultural practice and seasonality, landless, jobless, homeless, poor infrastructure, shortage of food, famine, drought, erratic rain falls poor soil fertility and etc that affecting income or livelihoods), income assets (human, social, financial, natural and physical assets), mediating institutions, livelihood strategies (farming, off farm, and nonfarm activities) (Genanew, A. 2011).

Figure 1: Conceptual Framework.
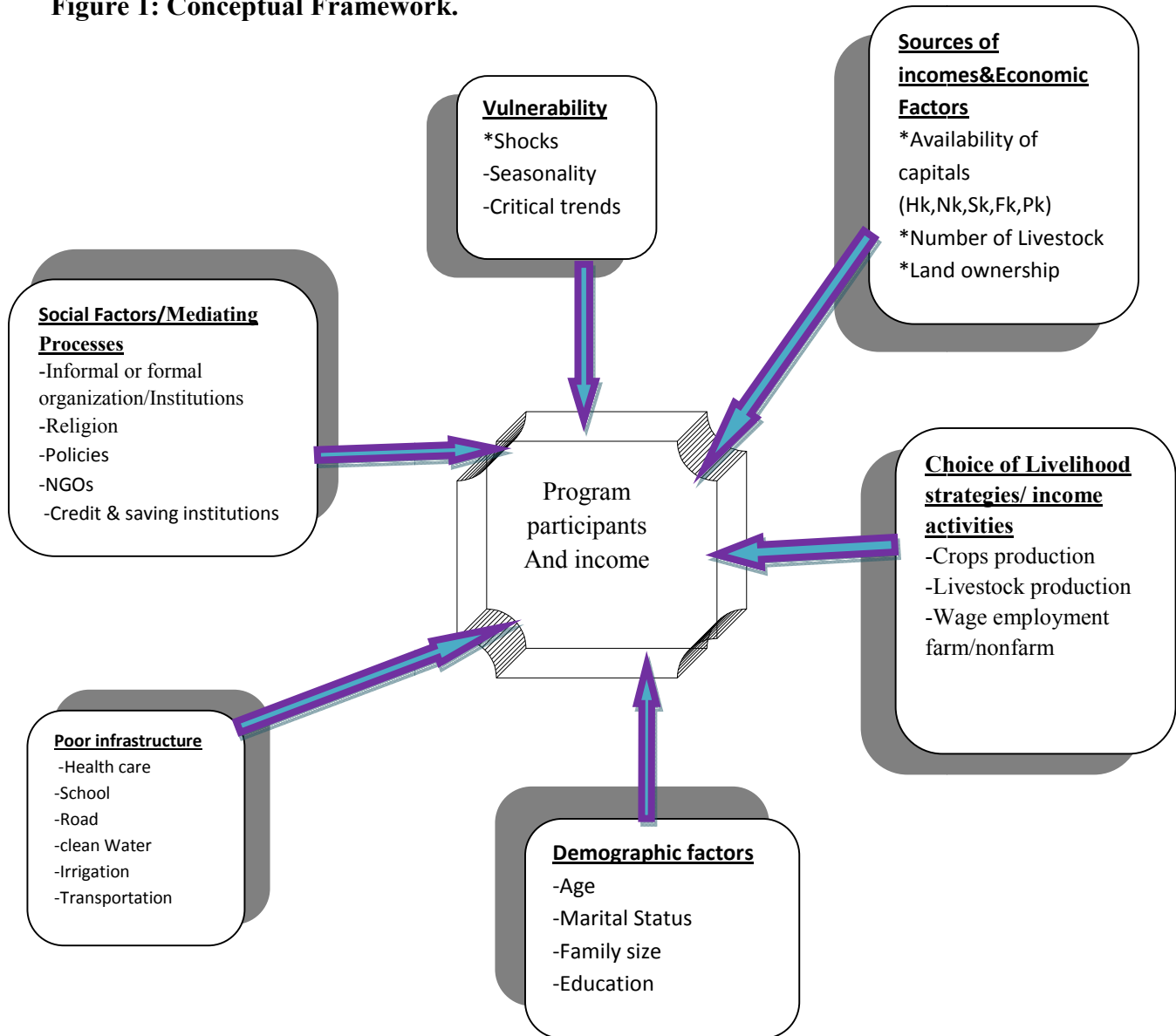
Source: Adopted From Different Literatures (2020)

2. METHODOLOGY

The researcher was used qualitative and quantitative data and cross-sectional design. The data had been collected using open ended and closed ended questionnaires. For the analysis of the data both descriptive and econometric analyses was employed. The sampling frame for this study was rural resettled and non settled households that are living in lowland/kola. The study was employed different sampling techniques to select the representative samples due to obtain both residents. Guto Gida Woreda has 23 kebeles of which 20 was rural and three (3) were Town

kebeles having resettlement dwellers. Firstly, the Guto Gida Woreda was purposively selected. In addition to this, three kebeles which had settler's and non-settler's populations namely, Madda Jalala, Gadisa Oda and Kenafi had been selected from 23 kebeles of the Woreda purposively and by simple random sampling. The selection of these kebeles are due to the majority of the households dwellers are new resettlers, which were settled in 1995EC/2003GC coming from Western Harargeh and the origin populations were less than these settlers. The total populations survive in the selected kebeles were 13145. The sample frame of the settlers and non-settlers from the three kebeles were13,142 from these (5764)settler populations and (7378)original populations of which 2657 male and 4721 female non-settlers and 2567 male and 3197 settlers). From the total population 13142of the three kebeles 5,224 are male and 7,918 female. Thirdly, adequate Respondent households had been selected from both settlers and non-settlers by using systematic Random sampling techniques from selected kebeles. Hence, **140 households** had selected randomly for the study from these sample kebeles including both male and female-headed households (Source: Guto Gida Woreda office, 2020).

Methods of Data Analysis

The study was employed both descriptive statistics and Econometric model. Statistical descriptions like table, graph, frequency descriptive, inferential statistical methods and percentages, Logit model and Propensity Score Matching method (PSM) were employed for analyzing and interpreting the data.

Conventionally, linear regression analysis was widely used in most economic and social investigation because of availability of simple computer packages, as well as ease of interpreting the results. However, according to Amemiya(1981), Maddala(1997) and Gujarati(2004) the linear probability model has an obvious defect in that the estimated probability values can lie outside the normal 0-1range and that it models the probability of Y=1as being linear: $Pr(Y=1|X)=\beta_0 +\beta_1 X$. If we were to use an OLS regression line, we would get some straight line- perhaps at high values of X we would get values of Yabove1and for low values of X we would get values of Y below 0. Nevertheless, a probability cannotbelessthan0orgreaterthan1.This nonsensical feature is an inevitable consequence of the linear regression model. Thus, the predicted probability should remain within the [0, 1] bounds, i.e. $0 \leq Pr(y = 1|x) \leq 1$ due to bound between [0, 1] for all X. This requires a nonlinear functional form for the probability such as "S-curve".

Econometric Model Specification

The study was affected by the independent variables such as demographic factors, social factors, Economic factors, and sources of income factors, household education, and factors causes' resettlement. The major pillars of this model are individuals, treatment and potential outcomes.

The treated households were from the resettlement programme participants and the control group will from the non-participants for comparison. In order to overcome the problem Propensity score matching method will be applied for impact evaluation in the absence of baseline survey data. Imbens (2000) and Lechner (2001) when leaving the binary treatment case the choice of multinomial logit is quite easier to analyze dichotomous variables and approaches relatively preferable mathematical performance to estimate. In the cause of binary treatment the treatment indication D_i equals 1 if individual i received treatment and 0 otherwise. The potential outcomes were then defined as $Y_i(D_i)$ for each individual i, where i =1…, N and N denoted the total population. The treatment effect for an individual i was written as:

$$T = Y(1) - Y(0)$$

A logit model would be used to estimate propensity scores using a composite of pre-intervention characteristics of the sample households (Rosenbaum and Rubin,1983) and matching was then performed using propensity scores of each observation. In estimating the logit model, the dependent variable was resettlement programme participation, which took the value of 1 if a household participate in resettlement and 0 otherwise. The specification of the logit model was as follows:

We begin from the linear probability model of the form:

$$P(y = 1/xi) = Zi = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + --- + \beta_k x_k ----------(1)$$

$Pi = \dfrac{1}{1+e^{-zi}}$ **is simplified to:**

$$Pi = \dfrac{e^{zi}}{1+e^{zi}} \text{--(2)}$$

Where, Pi is the probability that the ith households will participate in resettlement, z_i -is a linear function of 'n' explanatory variables (x) and will be expressed as:

$$Zi = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + --- + \beta_k x_k + Ui ----------------(3)$$

Where, β_0 -intercept, β_i - regression coefficients to estimate, U_i – is an error term.

$1 - Pi = \dfrac{1}{1+e^{-zi}}$ **is simplified to:**

$$1 - Pi = \dfrac{1}{1+e^{zi}} \text{--(4)}$$

Where 1 – Pi is the probability that a household belongs to the non-programme participant.

$\dfrac{Pi}{1-Pi} = \left(\dfrac{1+e^{zi}}{1+e^{-zi}}\right) = e^{zi}$ or

Or $\left(\dfrac{Pi}{1-Pi}\right) = \left(\dfrac{e^{zi}}{1+e^{-zi}}\right) = e^{\left(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + --- + \beta_k x_k\right)} ------(5)$

This is known as Odds ratio. Taking the natural logarithm of the Odds ratio, the logit model is:

$$Li = \ln\left[\dfrac{Pi}{1 - Pi}\right] = \ln e^{\left(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + --- + \beta_k x_k\right)} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + --- + \beta_k x_k \ldots (6)$$

Where x_1, x_2, --------, x_k are demographic, social and Economic factors that cause resettlement which will be included in the above econometric model.

Evaluation the impact of resettlement on income of settler population

Propensity scores and PSM

Prior to analyzing the impact of resettlement program by employ PSM matching algorithms, logit regression model is used as a necessity to identify the program participant's annual income in order to understand the importance of resettlement program. As indicted in the former sections the dependent variable in this model is a twofold variable indicating whether the household head is resettlement program participant or non-participant. The model is estimated with STATA software using the propensity score-matching algorithm developed by Leuven and Sianesi (2003). Propensity score matching (PSM) build a statistical evaluation group that is based on a model of the probability of participating in the treatment, using observed characteristics. Program participants are then matched on the basis of this probability, or propensity score, to nonparticipants of the program. The average treatment effect of the program is then deliberate as the mean distinction in outcomes across these two groups. The validity of PSM depends on two circumstances: (a) conditional independence (namely, that unseen factors do not affect participation) and (b) sizable common support or overlap in propensity scores across the participant and nonparticipant samples (Shahidur R. Khandker, Gayatri B. Koolwal & Hussain A. Samad, 2010).

Relocated people suffer from the loss of farmland, forestland, houses and other properties, which may then reduce their income (Wang, P, 2013, Tilt and Gerkey 2016). McDonald et al. (2018) found resettlement could have positive impacts on maintaining and raising the income level of the resettled community. Galipeau et al. (2013) compared the distinction between a resettled community and a non-resettled community in term of income and landholding, showing that resettled communities have a higher income level.

The establishment of this counterfactual often creates problems where before intervention situation remains missing. Impact through this outcome variable was obtained by matching an ideal comparative group (non-settler farmers) to the treatment group (settler farmers) based on propensity scores (P-scores) of X. X was the set of observable characteristics that determine settlement participation. By so doing, the selectivity bias was largely eliminated.

Equation 1 below presented the basic evaluation problem comparing outcomes *Y* across treated and non-treated individuals *i*:

$$Y_i = \alpha X_i + \beta T_i + \varepsilon_i \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

Here, T is a dummy equal to 1 for those who participate in resettlement program and 0 for those who do not participate in the program. X was set of other observed characteristics that determine participation in resettlement and 'ε' is an error term reflecting unobserved characteristics that also affect Y. To develop the PSM model, let Y_i be the outcome variable of household i, such that Y_{1i} and Y_{0i} denote household outcomes with and without participating in resettlment, respectively. A dummy variable T_i denotes rettlement participation by household *i*, where $T_i = 1$

if the household had participated in resettlement and, $T_0 = 0$, otherwise. The outcome observed for household i, Y_i was defined by the switching regression (Quandt, 1972).

$$Y_i = T_i Y_{1i} + (1-T_i)Y_{0i} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(2)$$

The impact of resettlement on income of settler i's is given by;

$$\Delta_i Y_i = Y_{1i} - Y_{0i} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3)$$

Where, $\Delta_i Y_i$ denotes the change in the outcome variable of farmer i, resulting from participation in resettlement. A farmer cannot be both ways, therefore, at any time, either Y_{1i} (resettling farmer) or Y_{0i} (non-resettling famer) is observed for that farmer. This gives rise to the selectivity bias problem (Heckman et al., 1997). The most commonly used evaluation parameters are averages (Heckman et al., 1997), i.e., using the average treatment effect, (ATE) and the average treatment effect on the treated (ATT). For this study, ATT was used to estimate the impact of rettlement on income of settler population and it was represented as follows:

$$ATT = \{E(\Delta_i|I_i=1)\} = E\{Y_{1i} - Y_{0i}|I_i=1\} = E\{Y_{1i}|I_i=1\} - E\{Y_{0i}|I_i=1\} \dots\dots\dots\dots (4)$$

From equation (4), $E\{Y_{0i}|I_i=1\}$ was the missed data representing the outcomes of non-resettling group. The outcomes of non-resettling farmers could rewritten as:

$$E\{\Delta_i|I_i=1\} = E\{Y_{1i}|I_i=1\} - E\{Y_{0i}|I_i=1\} \dots\dots\dots\dots\dots\dots\dots\dots (5)$$

However, a bias of the magnitude indicated in equation (6) below results when non-resettling farmers were selected for comparison with settling farmers, without controlled for the non-random resettlement assignment (Namara, 2014).

$$Bias = E\{\Delta_i|I_i=1\} + \{E[Y_{0i}|I_i=1] - E[Y_{0i}|I_i=0]\} \dots\dots\dots\dots\dots\dots\dots\dots (6)$$

Finally, up on establishing common support for the resettler farmers, the ATT of resettlement on settlers' income can then be estimated using the following equation:

$$ATT = \left[E(\Delta_i|I_i = 1) = \frac{1}{I_i} \sum (Y_{0i})I_i = \frac{1}{I_i} \sum \Delta_i I_i \dots\dots\dots\dots\dots\dots\dots(7) \right.$$

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Table 1: Summary of Variables included in the models

S/n	Variable		Units of measurement	Expected Sign
1	Progptn	participation in resettlement Programme	Dummy (Program participant=1, not participant=0)	
2	Totinc	Total annual income(outcome variable)	Continuous: Measured in Birr or total annual income in birr.	
3	Gen	Gender of household	Dummy: 1 if male, 0 otherwise	-ve
4	Age	Age of house hold head	Continuous Measured in year	+ve/-ve
5	Educ	Educated household	Dummy: 1 if Literate , 0 Otherwise (Illiterate)	+ve
6	Famsize	Family size of household	Continuous	+ve/-ve
7	Farmsize	Farm size	Continuous in hectare	+ve/-ve
8	Shoc	Shocks	Dummy, 1(if there is drought & famine), 0 otherwise (shortage of land)	-ve
9	Nfarminc	Total Non-farm income	Continuous: measured in br.	+ve
10	Farminc	Total farm income	Continuous in Ku or Kg	+ve
11	Craa	Credit access	Dummy (No=0 , Yes =1)	+ve
12	Extns	Extension service	Dummy (access=1, no access=0)	+ve
13	Acoirrin	Access of irrigation	Dummy 1 If irrigation access, 0 if no access	+ve
14	Dismark	Distance to market	Continuous: Walk hours	-ve/+ve
15	Livestock	Livestock holding	Continuous measured in TLU	+ve
16	Tot asset	Total household asset	Continuous Measured in br/number/hectare	+ve
17	Agrinp	Access of agricultural input	Dummy: 1 if access to agri. input, 0 otherwise.	+ve/-ve

Source: Own Estimation, 2020.

3. RESULT AND DISCUSSION

Descriptive Analysis of Sample Households' Characteristics

The results of descriptive analyses were presented in the form of mean, mean difference, standard deviation, frequency distributions and percentage. The descriptive statistics was runned to observe the distribution of the independent variables. The socio-demographic, socio-economic and institutional characteristics of the respondents' household heads were analyzed. The sample

under consideration consists of 140 households. Of the total, sample respondents 81 (57.86%) were participants of the program and 59 (42.14%) were non-participants of the program. Chi-square ($\chi 2$) and t – statistics tests were used to identify whether the explanatory variables are statistically significant or not significant. The t-test was used to test the significance of the mean value of continuous variables of the two groups of participants and non-participants and chi-square ($\chi 2$) was used to test the significance of the mean value of the potential discrete (dummy) explanatory variables. Generally, in this section socio-demographic characteristic of sample households such as gender of household heads, age of household heads and total family size; economic characteristics of sample households such as livestock holding, farm land size and inputs of production used;   households characteristics or attributes such as education status of household heads and accessibility to information; institutional characteristics such as availability of extension services and credit services characteristics of sample households and distance of household residence from nearest to water source, nearest to health, nearest to school and nearest market center for discrete as well as continuous variables were analyzed.

Households' Socio-Economic Characteristics

Households' farmland size holding: The average mean of land holding of the surveyed households equal to 3.69 ha with a minimum of 2and a maximum of 12 ha. This figure is larger than the average national figure, which is 1.2ha (CSA, 2008) indicating the existence of relatively higher land holdings in the study area. Even though this figure is over than the national average, there exists a high gap among farmers based on their farmland holdings. The average mean of land size for program participants and non-participants were 5.54 and 2.35 respectively with the mean difference of 3.197. This implies that mass of resettlement program participant farmers had small land size. However, they were economically active age groups while host households or non-program participant farmers had large land size. Land size here consists of both cultivable and non-cultivable lands owned by the household farmers. Non-cultivable lands are mostly used for grazing and other purposes. The main source of labour for crop production in the study area is family labour due to they have excess productive force as the researcher was observed the study area. The average family size of the surveyed farm households equals to 8.06. This is slightly higher than the national average of 6 members (CSA, 2008).

Households' Livestock Holding: This reveals the total livestock the farmers own in tropical livestock unit. It is a proxy variable for the wealth position of the farmers. The study area was known by mixed crop- livestock farming. Average livestock owned in TLU by each farm household equals to 7.79. The minimum and maximum livestock owned is 1 and 20, respectively. The draught power used for different farming activities was taken as major source of production in the study area. The household farmers with higher number of oxen would be

more confident to produce more crop grains rather than counterparts because they had one of the most important factors of production, which creates confidence in hearts of the household's farmer for crops production. This was mainly because one with higher number of oxen could finish farming activities efficiently on time. The result of FGD and field observation by the researcher were indicates that most of the household heads undertook beef farming activities in the study area. Majority of farmer households attained their income from mixed farming (like beef cattle rearing for commercialization and production, rarely dairy farming, grain crop production and others). The average number of livestock owned by each farmer was equal to 7.79 in TLU with standard error of 0.245and a 95% confidence interval of [7.308   8.278].

Household heads access to Agricultural input (agrinp): Regarding to agricultural inputs from the total sampled households 85(60.71%) access to agricultural inputs while 55 (39.29) farmers were not access to agricultural inputs. The mean difference between those gained agricultural inputs in the program participation and non-participation were 0.27. Generally, the null hypothesis' was rejected, due to our variable, access to agricultural input was more important in our study.

Institutional Factors: From the total 140 farm households 83 (59.29%) households had been credit access while the remaining 57 (40.71 %) households did not have access to credit. The mean difference between program participants and non-participants on credit access was 0.56. It is statistically significant at a significance level 1%, 5% and 10% [2.624, 1.761, and 1.345] respectively. Therefore Ho: is rejected. It means that our variable was important in our study. Of the total respondents, 105 (75%) households had access to extension while the rest 35 (25%) did not have access to extension. The average mean of credit access of those participating in resettlement program were 0.73 while non-program participants mean average of access to credit were 0.78. Usually, the null hypothesis' was rejected, due to our variables (access to credit, and access to extension services) were more vital in our study.

Hypothesis testing and econometric model results

1. Hypothesis Testing

Table 2: Summary results of LR test of hypotheses for the aforementioned results

Null hypothesis	Calculated LR ratio	Critical LR at 5% level	Decision rule
$\beta_1 = \beta_2 = \ldots \beta_{14} = 0$	139.66	6.57	Reject Ho
$\delta_1 = \delta_2 = 0$	8.36	0.013	Reject Ho
$\beta_1 = \beta_2 = \ldots = \beta_6 = 0$	34.56	1.635	Reject Ho

Source: Own computation from survey data (2020)

Results of Logit model for resettlement program participation decision of the sample households

As already mentioned, this study employed the logit model to estimate and conclude the parameters of the determinants of farmers' resettlement program participation decision in the study area. The frequency distribution of resettlement program participation reveals that out of the 140 total sampled households, 81 households (57.86%) were participants in the program while the remaining 59 (42.14 %) were non-participants of resettlement program. Thus, the result expose that more than half of the sampled respondents were program participants.

Table 3: Estimates of Maximum-likelihood logit model on the determinants of resettlement program participation.

Progptn	Coef.	Std. Err.	Z	P>z	[95% Conf.Interval]	
Gen	-.1659368	1.805019	-0.09	0.927	-3.703709	3.371835
Educ	-2.098819	.9166884	-2.29	0.022**	-3.895496	-.3021432
Craa	-1.884239	1.010618	-1.86	0.062*	-3.865014	.0965356
Extns	2.453423	1.123667	2.18	0.029**	.2510768	4.65577
Agrinp	-1.697162	.86886	-1.95	0.051*	-3.400097	.0057718
Shoc	3.157063	1.2286	2.57	0.010**	.7490517	5.565074
Famsize	.3221672	.2140418	1.51	0.132	-.097347	.7416813
Age	-.0125211	.0564392	-0.22	0.824	-.1231399	.0980976
Dismark	-.0623245	.0576121	-1.08	0.279	-.1752422	.0505932
Livestock	.3418422	.1365745	2.50	0.012**	.0741612	.6095233
Farmsize	-1.26825	.3594521	-3.53	0.000***	-1.972763	-.5637372
Nfarminc	3.50e-06	9.65e-06	0.36	0.717	-.0000154	.0000224
Farminc	-.0000226	7.93e-06	-2.85	0.004***	-.0000382	-7.08e-06
Totasset	.0000279	.0000117	2.38	0.017**	4.95e-06	.0000508
Constant	.1390963	3.129724	0.04	0.965	-5.99505	6.273242

Logit Regression

			Number of observation	140.000
Mean of dependent Var.	0.579		LR chi2(14)	139.67
SD of dependent Var.	0.496		Prob> chi2	0.0000
Log likelihood	-95.304848		Pseudo R2	0.7328

***p<0.01, ** p<0.05, * p<0.1

Source: Own computation from survey data using stata14.2 (2020)

***, ** and * shows significance at 1%, 5% and 10% significance levels, respectively.

Out of the total 14 explanatory variables, 9 variables of which 5 were dummies and 4 continues variables were found to be significantly creating variation on the probability of farmers' resettlement program participation.

The coefficients of gender of household head, age of household heads in years, family size of household heads in number, distance from market in kilometres and non-farm income were not statistically significant at all 1%, 5% and 10% significance levels implying that they were less important in affecting the probability of participation in resettlement program.

Nevertheless, under logit model coefficient of the variable have no direct interpretation; as a result, we can use Marginal effect. Logit is all about prediction for interpretation and hence, we must find predicted probabilities to interpret the significant variables. Therefore, interpretation can be derived from the marginal effects after logit.

Table 4: Estimation of Marginal effects after logit regression

Marginal effects after logit

y = Pr (progptn) (predict)

= 0.76763364

Variable	dy/dx	Std. Err.	z	P>z	[95% C.I.]		X-bar/mean
gen*	-.0283911	.29758	-0.10	0.924	-.611638	.554856	.957143
educ*	-.3821786	.14572	-2.62	0.009	-.667778	-.096579	.457143
craa*	-.3045143	.15859	-1.92	0.055	-.615346	.006317	.592857
extns*	.5150614	.20673	2.49	0.013	.109879	.920244	.75
agrinp*	-.2734329	.13802	-1.98	0.048	-.543953	-.002913	.607143
shoc*	.4686937	.12067	3.88	0.000	.232194	.705193	.392857
Famsize	.0574657	.04044	1.42	0.155	-.021805	.136736	8.06429
Age	-.0022334	.01015	-0.22	0.826	-.02213	.017663	45.3857
Dismark	-.011117	.00989	-1.12	0.261	-.030497	.008263	17.6214
livest~k	.0609752	.02561	2.38	0.017	.010785	.111165	7.79286
Farmsize	-.2262206	.07985	-2.83	0.005	-.382727	-.069714	3.69286
Nfarminc	6.24e-07	.00000	0.37	0.711	-2.7e-06	3.9e-06	22201.4
Farminc	-4.03e-06	.00000	-3.25	0.001	-6.5e-06	-1.6e-06	124758
Totasset	4.98e-06	.00000	2.29	0.022	7.1e-07	9.2e-06	181864

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Source: Own computation from survey data using stata (2020)

Interpretation of Significant Variables

Education status of household head (educ): The coefficient of this variable was significant at 5% level of significance and it is influencing resettlement program participation negatively. Our result was showed that educated household heads did not more involve in resettlement program. The marginal effect result shows that, negative sing which implies educated households had a lesser probability to involve in resettlement program. Educational attainment by the household

head could lead to awareness of the possible advantages of resettlement program in order to innovation of new site due to enhance household incomes.

This shows households with better educational background are less likely to involve in resettlement program rather than illiterate households. The marginal effect of the variable shows that keeping all other variables constant at their mean value, educated household heads have 38.2% times less probability of participation in resettlement program than those illiterate household heads. It is agreed by the finding of Vande Walle (2000) and Melaku (2014).

Credit access (craa): Farmers who have credit access are fewer participants in resettlement program. This is mainly because of the fact that even if their farm production is affected due to different factors they can start a business without participating in the resettlement program. Therefore, access to credit influences the farm households' participation in resettlement negatively. The study result also reveals that credit access is statistically significant at 10% level of significance and a change from no credit access to access decreases the probability of the decision to join resettlement program other things remain constant, households those had access to credit has30.45%less probability to participate in the programme than their counterpart. It is supported by Muez (2014) and Adugna, (2012).

Access to extension services (extns): access to extension service influences the farm households' participation in resettlement program is positively associated with household total income and statistically significant at 5% of probability level. This may indicate that in the study area, those households who get technical advice, training or those who participated on field demonstrations are well aware of the advantage of agricultural knowledge and willing to generate more production, in this manner improving the household annual income. This result was decided with Adugna, (2012) and Muez (2014). The marginal effect of the variable indicates that household access to extension service of the discrete effect change from 0 to 1 in access to extension service decrease the probability of participation in resettlement program by 51.51 percentage points than their counterparts others remain constant at their mean value.

Access to agricultural input (agrinp): Farmers who have access to agricultural input can increase their income rather than those who have no access agricultural inputs. So this implies that decrease the participation in resettlement program as compared to those who do not have access. Those who have access to agricultural input have the chance of producing more output. Therefore, access to agricultural input influences the farm households' probability of participation in resettlement program negatively. The study result also reveals that access to agricultural input is statistically significant at 10% level of significance and a change from no access to access agricultural input decreases the probability of the decision to join the program

by -27.34% higher than their counterparts, holding other variables constant. It is decided in by the finding of W.Zeweldet, al. (2015).

Shocks (shoc): The coefficient on the shocks (drought & famine) is significant at 5% level of significance with positive sign. It puts forward that a farmer who is facing challenges coming from drought and famine is more likely to participate in resettlement program as compared to those who are not facing drought and famine. The result indicates that being exposed to shocks (droughts and famine) increase the likelihood of household participation in the resettlement program by 46.87% than households not exposed to shocks. It is agreed by A. Arnall (2014).

Livestock: livestock holding, measured in tropical livestock unit, was found to have positive and significant effect at 5% level of significance on the probability to participate in resettlement program. The positive relationship indicates that households with larger livestock holding may migrate to new site to feeding his/her livestock's. Moreover the implication of the result was that livestock are an important source of income in rural areas to allow purchase of farm inputs that are needed to enhance farmer's production/income. Households who have huge number of livestock might consider their asset base as a mechanism of cover any threat associated with the participation of resettlement program. In the study area marginal effect of this variable shows that as the number of livestock in tropical livestock unit increases from its mean value by one unit, the chance to participate in resettlement program increase by 6.098% points, while keeping all covariates constant at their mean value. The evidence of this finding reflected in contrast to the idea that farmers who have enormous number of livestock are wealthier and have sufficient number of oxen to plough their field timely as a result of which they quickly decide to participate in the resettlement program. This is in line with the result of Asayehegnet, al. (2011) and Hadush (2014).

Farmland size in Hectare (farmsize): This is the total land size owned by each sampled household heads given in hectare. The result of this study showed that size of farmland has a negative significant effect at 1% level of significance on the probability of farmers' decision to participate in resettlement program. Farmer households that had large farm size did not participate in resettlement program since he/she has sufficient land used for mixed farming system both crop production and livestock rearing. The marginal effect of this variable reveals that, a marginal change in farm size from the average of 3.693hectare is associated with a 22.62% points decrease in program participation, keeping other variables constant at their mean average. This resultagainst the expectation supported by Asayehegn et al., (2011), as Asayehegn finding households having large cultivated land has more income but my finding were against this finding.

Farm income of Household (farminc): The result of this study shows farm income from different farming activates were also one of the variables that affect participation in resettlement program. The coefficient on farm income of the household's head is significant at 1% of significance level with negative sign. The marginal effect of this variable shows that as farm income from mixed farming source increases from mean value (124758.2) by one Birr, the probability of participation in resettlement program less by 4.03×10^{-6} percentage (-0.000403%) than their counter parts, while other variables were kept constant at their mean value. The result of this finding is in line with the findings of Jamal Haji & Mohammed Aman (2013).

Total asset owned by household (totasset): Household's total asset was found to have a positive effect on the program and significant influence on the probability of participation in resettlement program of the household heads. Total asset owned by sampled household obtained from different assets or capital sources such as: [human, social, financial, physical and natural] capitals. The FGD conducted there showed that human capital was one of the household assets. Some seasonal diseases affect the household's asset in study area. As the residence said that physical capital less in the study area, this indicates that some projects are infant stage as a researcher observed a study site. Example [New airport site and asphalt]. Financial and social resources were to some extent available, while natural capital like land resource was the abundant assets for each sampled households in the study site as the researcher discussed with respondents. This variable is statistically important at 5% level of significance. The marginal effect results showed that a one Birr increase in total asset of household heads from the average/mean 181,864increases the likelihood of participates in resettlement program by 4.98×10^{-6} percentage whereas other factors remaining constant.

The major challenge faced to Resettlement Program participants

Different challenges were faced to resettlement program participants and non-participants during resettlement program were intended. As the researcher was undertook FGD with the sampled household heads they were raised more ideas regarding to challenges problems faced to them. Especially those program participant households were talk different factors that challenged them to involve in the program. Those factors are shock (drought and famine), shortage of own land size in hectare, family size mean that over populated and joblessness while non program participants were talked problems like shortage of land size due to it shared for settler household and other social resources which is common for all societies. The major problem was famine, drought and shortage of farming land. Desalegn was stated that a lot of problems and challenges had characterized history of resettlement program in Ethiopia, especially the resettlement under taken during the *Derg* regime (Desalegn, 2003b).

Impact Evaluation

An impact evaluation is essentially a problem of missing data, because one cannot observe the outcomes of program participants had they not been beneficiaries. Without information on the counterfactual, the next best alternative is to compare outcomes of treated individuals or households with those of a comparison group that has not been treated. In doing so, one attempts to pick a comparison group that is very similar to the treated group, such that those who received treatment would have had outcomes similar to those in the comparison group in absence of treatment. Successful impact evaluations hinge on finding a good comparison group (Shahidur R. Khandker,Gayatri B. Koolwal & Hussain A. Samad, 2010).

Propensity scores

Prior to analyzing the impact of resettlement program by employ PSM matching algorithms, logit regression model was used as a necessity to identify the program participant's annual income in order to understand the importance of resettlement program. As indicted in the former sections the dependent variable in this model is a twofold variable indicating whether the household head was resettlement program participant or non-participant. The model was estimated with STATA 14.2 computing software using the propensity score-matching algorithm developed by Leuven and Sianesi (2003). The validity of PSM depends on two circumstances: (a) conditional independence (namely, that unseen factors do not affect program participation) and (b) sizable common support or overlap in propensity scores across the participant and nonparticipant samples (Shahidur R. Khandker,Gayatri B. Koolwal & Hussain A. Samad, 2010).

Evaluation of Impact of Resettlement on Income of Settler household by Propensity Score Matching

Under this, Propensity score use logit model to estimate the probability of each group i.e., resettlement participants and non-participants as a function of observable covariates. The result of propensity score matching of program participant and their counterpart was used to define the common support region. Supplementary, the quality of matching algorithms also identified in orientation to the propensity scores pseudo R^2 and significance level of each covariates. Table {4} shows the logit estimation results or marginal effect after logit of sample household head in the program were used to create propensity score.

The Pseudo R^2 which makes clear to how well the regressors explain the participation probability is 0.7328 for logit model is larger. A large pseudo-R^2 value shows that resettlement program participants' households do have some divergent individuality overall and automatically finding a good match between participants and non-participants households becomes less challenging. Depending on the propensity score-matching distribution of both resettlement program participants and non-program participants, the common support region was identified. As shown

on table {5} below the estimated propensity scores vary between 0.0442142 to 1 for the program participant and 1.36×10^{-15} to 0.908626 for non-participant.

The common support region is area, which lies between 0.0442142 up to 1, is larger than that of none program participant common support region [1.36×10^{-15} to 0.908626]. Therefore, household who estimated propensity score is less than 1.36×10^{-15} and larger than 0.908626 were surplus from common support region. So observations which lie outside this region are discarded from analysis. It is support by (Marco & Sabine Kopeinig, May, 2008). Thus, 56 households from program participant were out of the common support region while 25 household heads' were involved in common support region.

Table 5: Distribution of estimated Propensity Score matching.

Resettlement program	Sample size	Mean	Std. Dev.	Min	Max
Total observation	140	0.5791825	0.4341378	1.36×10^{-15}	1
Participants	81	0.9030572	0.1930847	0.0442142	1
Non-participants	59	0.1345411	0.229484	1.36×10^{-15}	0.908626

(Source: Own computation survey data, 2020)

Matching algorithms

According to Khandker et al (2010), comparing different matching methods results is one approach to check robustness of average treatment effect. Four matching algorithms (i.e., Nearest Neighbour matching, Radius matching, Calliper matching, and Kernel matching) were checked to choose the best matching methods. The choice of matching estimators was based on pseudo R^2, matching sample size; mean test referred to as to balance test and insignificancy of variables in analysis after PS matching.

Low pseudo R^2 value and large matched sample size is preferable. In order to accept the findings of PSM, it is suggested that the standardized mean difference needs to be at most 20% and the pseudo R^2 needs to be low after the matching process (Rosenbaum, 2005; Caliendo and Kopenig, 2008). In line with those authors, the researcher would be obtained the least amount of pseudo R^2 that was 5.5% and 80 number of matched observation.

Thus depending on the kernel matching criteria, kernel(0.5) was selected in which the mean difference of the two groups explanatory variables were significant, Pseudo R^2 is the lowest compared to other matching categories and finally balance 80 sample size.

Table 6: Performance of Propensity Score Matching Estimators

Matching estimator Sample size	Balancing test	Pseudo R2	Matched
Kernel matching			
0.01	7.6e+14*	1.000	65
0.1	126.5*	0.255	76
0.25	66.7*	0.078	80
0.5	**54.9***	**0.055**	**80**

(Source: Own computation survey data, 2020)

Testing the balance of propensity score and covariates

The common support or overlap condition assumes that units (sampled households') with the same covariate values have a positive probability of being both treated and untreated. As shown in table (7), the PS distributions appear with sufficient common support region that allows for matching. PSM require the fulfilment of the balancing property, i.e., the covariate means between participants and non-participants should be similar after matching. The aim of this is belonging to verify that treatment is independent of unit characteristics after conditioning on the observed covariates (Dagne and Fischer, 2015).

Table 7: Propensity Score Matching and Covariate balancing.

Variable	Samples	Mean Treated N=81	Control N=59	Reduction Bias %	t-test T	p>|t|
Gen	Before Matching [Unmatched]	.96296	1	-17.9	-1.75	0.081
	After Matching [Matched]	.94118	.98279	-20.2	-0.62	0.540
Educ	Before Matching [Unmatched]	.30864	.16049	31.4	2.25	0.026
	After Matching [Matched]	.58824	.42662	34.3	0.93	0.361
Craa	Before Matching [Unmatched]	.35802	.91358	-140.7	-8.94	0.000
	After Matching [Matched]	.47059	.50386	-8.4	-0.19	0.852
Extns	Before Matching [Unmatched]	.7284	.93827	-48.5	-3.71	0.000
	After Matching [Matched]	.58824	.71385	-29.0	-0.75	0.458
Agrinp	Before Matching [Unmatched]	.49383	.17284	68.7	4.58	0.000
	After Matching [Matched]	.64706	.4531	41.5	1.12	0.269
Shoc	Before Matching [Unmatched]	.64198	.76543	-32.9	-1.73	0.086
	After Matching [Matched]	.29412	.14581	39.5	1.03	0.311
Famsize	Before Matching [Unmatched]	8.8395	13	-154.9	-9.38	0.000
	After Matching [Matched]	7.8235	9.2754	-54.0	-1.22	0.230
Age	Before Matching [Unmatched]	46.185	60.395	-133.1	-8.89	0.000
	After Matching [Matched]	42.353	46.455	-38.4	-1.07	0.294
Dismark	Before Matching [Unmatched]	17.272	24.654	-95.3	-6.83	0.000
	After Matching [Matched]	18.588	17.914	8.7	0.24	0.813
Livstock	Before Matching [Unmatched]	8.4938	10.012	-53.4	-4.14	0.000
	After Matching [Matched]	7.4706	6.5769	31.4	0.91	0.371
Farmsize	Before Matching [Unmatched]	2.3457	4.642	-127.5	-14.08	0.000
	After Matching [Matched]	3.0294	3.5056	-26.4	-0.72	0.474
Nfarminc	Before Matching [Unmatched]	23173	2441.4	30.6	2.88	0.005
	After Matching [Matched]	11699	10353	2.0	0.15	0.881
Farminc	Before Matching [Unmatched]	1.3e+05	1.8e+05	-115.7	-7.11	0.000
	After Matching [Matched]	1.3e+05	1.4e+05	-31.3	-1.00	0.327
Totasset	Before Matching [Unmatched]	1.8e+05	1.4e+05	87.2	5.94	0.000
	After Matching [Matched]	1.7e+05	1.8+05	-15.4	-0.46	0.648

The whole balance indicators of covariates										T= Treated group C=Control group
Sample	No. of Observation			Ps R2	LR chi2	p>chi2	Mean Bias	Med Bias	B	R	%Var
	140	**T**	**C**								
Unmatched	64	64	0	0.717	158.1	0.000	75.4	68.7	206.9*	20.71*	44
Matched	76	17	59	0.255	12.02	0.678	25.4	29.0	126.5*	0.99	11

Source: Own computation from survey data, 2020

As shown in the table 7 above, matching reduce total bias, reduce pseudo R^2 from 0.717 before match to 0.255after match and any difference between the two groups covariates mean in the matched sampled has been reduced and after matching nine variables are significant as before matching and were balanced treated and control group.

Table 8: Impact of resettlement program participation decision on household income (ATT-Average treatment effect on treated)

Variable	Sample	Treated	Controls	Difference	S.E.	T stat
Totinc	Unmatched	133555.914	115582.22	17973.6932	6351.13923	2.83
	ATT	134445.476	115282.83	19162.6463	15933.3126	1.83

Source: Own computation from survey data, 2020

Average Treatment effect on the Treated (ATT) was estimated depending on Kernel (0.5). The Kernel (0.5) algorithm estimated the average annual income of the matched treated household farmers to be 1, 34,445.476ETB and of the matched control of household head farmers to be1, 33,555.914ETB. Hence, the ATT for that reason resettlement program participant was received 19, 162.6463ETB annual income. In summary, the empirical findings suggest that involvement of resettlement program participation is enhanced households' annual income for treated households in a significant way. This is supported with the finding results of Adugna (2012), Jamal Haji and Mohamed Aman (2013).

4. CONCLUSION S AND RECOMMENDATIONS

Conclusions

Resettlement is a recovery liberate to some of the world's most vulnerable displacement. From the research findings, it could be concluded that resettlement program is play a fundamental role in increase of household income in the study area due to resettled in favourable site. Farmers household have confirmed that they were benefit greatly from these resettlement program and they had been improved their income living standards. To sustain the positive impacts of the

program and to enable treated households make optimum resettlement participation. Purposely, expansion of new habitat and creating additional access of infrastructures and to obtain fertile/virgin land for agricultural productivity on a sustainable basis and thereby increase smallholder farmers' household annual income.

The logit regression shows that from the fourteen variables included in the analysis, nine of them were significantly affecting the households those participating in the programme. Shocks (drought and famine) and farm land size of household heads were the more susceptible for the programme participation. Household's heads in the study site were not more educated rather than they were performing agricultural and non agricultural tasks to achieving enough income for stay alive.

Generally resettlement programme in the study site attained a positive impact on the resettlement program participant households' annual income in improving livelihood like physical asset, natural asset and stipulation of social services like human health service by constructed health centre in the study site, health extension service at each Kebele, agricultural extension service, veterinary health post service at each Kebele, and as well as availability of all weather road connecting each rural Kebele of the study site and other resettlement sites in the study area. This study concluded that, participation in resettlement program had been a deep impact on improving the annual income of household farmers in the study site.

Recommendations

This study had been indicated that involvement in resettlement program enabled farmer households to increase their annual income. Even though, the detailed studies selection of non-program participants from original places is the best way for comparison as a control group. Regarding the impact of resettlement program on household income, the following main points needed to be considered as a possible policy implications forwarded in order to improve the goal of resettlement program for the rural households.

- ➢ The study showed that most of the farmers households' head in this study were depending on agricultural production or obtaining their income from faming activities rather than non-farm income due to low diversification of non -farm activity during comparison with farm income in study area. So it is better if local or regional government giving more attention to improve source of income for rural households.
- ➢ Farmers need modern agricultural inputs. However not adapting more utilization of all modern agricultural inputs such as improved seed varieties, improved animal breeds for milk, and meat and poultry production for egg, commercial fertilizer and different chemicals. The fact is that the farmers could not have enough money to buy all the required agricultural inputs on cash and lack of habit to use short-term credit from financial institutions in the last cropping seasons. So, it is necessary for the national and

regional policy makers to assess and find out ways in which farmers to get the tradition of use credit service for purchase of agricultural inputs in order to produce excess product for food achievement.

➢ Household head's education level was found to be negatively significant determinant of the resettlement program participation. This shows that educated households had enough potential to changing their environment as it is favorable to survive. Therefore, government will gives a great attention as the farmers should be educated by a means that fits with their living condition, such as adult education.

➢ Shocks is one of the main determinant cause of resettlements program participation as the researcher undertook analysis from sampled respondents in the study area; therefore, favorable environment should be improved by concerning body to enable farmers easily stabilize their surroundings to living.

➢ In each three study kebeles development agents were assigned for peasant association to give extension service. Those assigned DA's were only giving theoretical advice for the farmers which was not practically supported and show. It is obvious that extension service provision in training and practical demonstration of farmers has a great contribution to increase production and productivity of the farmers in order to improve their annual income. As a result, it is more important to redesign policy measures for farmers training centers (FTCs) as a practical training and demonstration center of research outputs support level as per the national level farmers training program to build up the producing capacity of the farmers to increase their income.

➢ Large cultivated land size in the study area were held by economically inactive households heads rather than economically active farmer households, so it is better if local government or other concerned body readjusting the farm land allocation.

➢ Livestock were the major source of income in the study area but the farmer households were little knowledge about livestock rearing and using modern technology like animal breeding system, it is better if concerning body make awareness regarding to how the farmers increase livestock rearing by the way of modern technology for enhance their annual income.

➢ During data collecting survey supervision, key informants interview and FGD final result, it was observed that the study area has a potential of commercialization farm land. To increase rural household farmer's annual income, it requires the local government, agriculture development office, development centre offices, the policy makers and other concerned parties has crucial role interest to aware and building the capacity of the farmers to use these potential resources effectively and efficiently.

➢ Generally, as the study showed that resettlement program is the vital alternative to overwhelm the shortage of income and the rural access of land for agricultural production by providing virgin or unutilized cultivable land and accessing necessary basic

infrastructural facilities within the intra-regions. Again to enhancing the households total fixed asset in the study area the concerned body would be take appropriate action to design incorporated development strategy by creating common feeling in wise utilization of the existing resources under sustainable way.

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