# The Impact of Smallholder Resettlement Perception on Food Poverty in South Western Ethiopia By

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Received: 08/11/2013 Revised: 22/12/2013 Accepted: 02/01/2014 The Impact of Smallholder Resettlement Perception on Food Poverty in South Western Ethiopia \*Amsalu Mitiku and Wendimu Legesse

## ABSTRACT

This study examined the impact resettlement program on smallholder farmers' food poverty in Limu- Seka district, south western Ethiopia. Both primary and secondary data were used for the study. Primary data used were generated from a farm survey involving 280 farmers randomly selected using a multi-stage sampling technique. Analytical tools used include descriptive, Foster-Greer-Thorbecke (FGT) index and logit model. The finding revealed that 46 % of the smallholder farmers were food poor. The finding of this study showed that resettlement program has no effect on smallholder farmers' food poverty level. However, the results of the logit model showed that sex, age, family size in AE, education level resetllers, and distance from resettlement center to nearest market were significant variables that affect smallholder farmers' food poverty. The study suggests that designing smallholder farmers' food poverty reduction of the resettles require the consideration of the above factors.

Key words: Food Poverty, Resettlement program, Resettles and Smallholder farmers.

## INTRODUCTION

Ethiopia is one of the poorest countries in the world and according to 2007 census, the population of the country is around 74 million (CSA, 2008a). The proportion of the total population living in poverty is 44% and its per capita income is about US\$ 160. This is less than Sub-Saharan African countries average of US\$ 500 (World Bank, 2006). Majority of the population's livelihood depends on agriculture which accounts for half of the GDP, 60% of the exports, and 80% of the national employment (CSA, 2008b).

Agriculture is the backbone of the economy even though its performance is not much satisfactory to meet the needs of the society. There are different factors that explain the low performance of this sector. These include: land degradation, small farm size, land fragmentation, low input supply, unexpected drought and high population pressure (FDRE, 2003). As a result, for a long time the country was unable to improve the livelihood conditions of most of the citizens. In 2000, for instance, 16.6 million people faced serious food shortage (FDRE, 2002; Webb, 1994). As a result, the demand for food aid has increased from period to period. Therefore, to overcome all these problems and to improve the food security condition of the poor, different developmental strategies have been designed by the governments of the country. Among these strategies, resettlement program has been regarded as one of the rural development policy option in enhancing the living condition of the poor from vulnerable area (Yntiso, 2004). Research evidence suggests, however, that many such initiatives have not brought positive results. Broadly, there are two arguments as to why resettlement often fails to improve the situation of the people concerned. Some argue that it is an inherently complex process which is difficult to predict, thus making it impossible to avoid at least some negative consequences. Others, on the contrary, say that the failure of resettlement results simply from failure to adhere to effective and efficient frameworks for planning and implementation (Tadesse, 2007). However, most resettlement programs undertaken in Ethiopia especially during the Derge regime was characterized by different problems and ended up abruptly leaving the settled people facing the risk of more impoverished rather than improving their livelihood (Yntiso, 2004). Similarly, the FDRE government has implemented this program in different regions of the country as a means to reduce poverty. Nevertheless the current resettlement program is intra-regional and on voluntary basis unlike the Derge regime, the outcome of the program in improving the livelihood of the resettles has not been as expected due to different factors. In this regard, different studies have been done on various issues of the country's resettlement program. These empirical studies, however, showed that majority of the current intera-regional resettlement programs were not much successful in improving the food security condition of the settlers even though the degree varies from place to place (Rahmato, 2004). So, studies should be conducted at disaggregate level to examine the real impact of the program on food security condition of the settlers and to identify its challenges. So far there is limited research undertaken to elicit these problems using cross sectional data to assess the impact of the resettlement program on the food poverty condition in Limmu Seka wereda of Oromia region. This study, therefore, attempts to fill this gap by conducting an empirical study on the impact of smallholder resettlement program on food poverty condition in Limmu Seka Woreda/district. The objective of the study was to assess the impact of the resettlement program on the settler's food poverty in Limmu seka district of Oromia region, in Ethiopia.

# MATERIAL AND METHODS

### **Description of the Study Area**

The study was conducted at Limmu Seka district which is found at Jimma Zone administration of Oromia National Regional State in Ethiopia .The district or *woreda* is located at about 457 km to the South West of the capital city of Ethiopia, Addis Ababa, and about 110 km North of the Zonal capital town Jimma. Geographically, the district is lies between latitude of 8004 N-80561N and 360401E-370131E longitude (CSA, 2008). The *woreda* have four resettlement sites (Deneba, Maribo ,Gamta-Tokkuma, and Carii Alga) selected by the Oromia regional government in the year 2003/04.The was located in the lowland area. The average distance of the resettlement schemes from the woreda town Atinago is about 44 km away (FDRE, 2008).

## Sampling Size and Sampling Method

The study was applied a simplified formula as Equation (1)

$$n = \frac{N}{1 + N(e)^2}$$
(1)

Where: *n* is the sample size; *N* is the population size and *e* is the level of precision provided by Yemane (1967) to determine the required sample size at 95% confident level and 90% level of

Yemane (1967) to determine the required sample size at 95% confident level and 90% level of precision.

Data for the study were generated from a farm survey of 280 farmers selected by multistage stage sampling procedure. In the first stage, Limu seka district was purposively selected from Jimma zone of oromia region, in Ethiopia. In the second stage, four Peasant Associations (PA), or *kebeles*, was selected purposively from resettlement areas of the *Woreda*. In third stage, the sample was stratified within each Peasant Associations (PA) to ensure that a representative number of female were included. In fourth stage, a probability proportional to sample size sampling procedure was employed to select total of 280 sample farm households (70 households per PA). Finally, the households were systematically selected from the fresh list of households within the PA made during the survey.

## Method of Data Analysis

The sample data collected were organized, coded, entered in to STATA software package version 12 and analyzed by descriptive statistics and econometric analysis, respectively.

## i) Descriptive statistics

This method of data analysis refers to the use of ratios, percentages, means, and standard deviations in the process of analyzing the data collected for the purpose of this study.

## ii) Foster, Greer and Thorbecke (FGT) index

Foster, Greer and Thorbecke (FGT) index was used in measuring the impact of the resettlement program on the rural households' food poverty condition of the settlers in Limmu seka district. The FGT measure (Foster *et al.* 1984) is given as

 $FGT(\alpha) = \left(\frac{1}{n}\right) \sum_{i=1}^{q} \left[\frac{(c-y)}{c}\right]^{\alpha} ....(2)$ and  $P(\alpha) \ge 0$  for Y < c

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#### Where:

P( $\alpha$ )=Weighted poverty index; n=Total number of households; q=Number of households; Y= per adult food consumption expenditure; c=Poverty line1;  $\alpha$  = 0= head count ratio2;  $\alpha$  = 1= Poverty gap3; and  $\alpha$  = 2= squared poverty gap4 respectively (Hoddinott, 2001)

#### iii) Logit model

The Logit was employed to study the impact resettlement program on household food poverty condition. The dependent variable was the household food poverty status (HPS), which was taking a value of 1 if the households were food poor; 0 otherwise. The information, which identifies the poor from non-poor, was obtained by comparing poverty line. A household below this threshold is said to be poor ( $Z_i$ =1), otherwise non-poor ( $Z_i$ =0). The Logit model was specified as (Gujarati, 1995):

 $Y_{i} = \alpha_{o} + \alpha_{1}X_{1} + \alpha_{2}X_{2} + \alpha_{3}X_{3} + \alpha_{4}X_{4} + \alpha_{5}X_{5} + \alpha_{6}X_{6} + \alpha_{7}X_{7} + \alpha_{9}X_{8} + \beta_{1}D_{1} + \beta_{2}D_{2} + \beta_{3}D_{3} + \beta_{4}D_{4} + \beta_{5}D_{5} + R_{i}D_{6} + U_{i}$ (3)

#### Where:

- Yi= Household food poverty status (1= food poor, 0 = otherwise)
- X1= Age of household head (year)
- X2= Number of family size (AE)
- X3= Distance from settlement center to nearest market place (km)
- X4= Cultivated land size (ha)
- X5= Livestock owned (TLU)
- X6= Annual income from agriculture per AE (ETB);
- X7= Annual income from other than agriculture (ETB)
- D1= Sex of household head (male = 1, female = 0);
- D2= Education of household head (literate = 1, illiterate = 0)
- D3= Access to credit in previous year (yes = 1, no = 0)
- D4= Access to extension services in previous year (yes = 1, no = 0)
- D5= Perceived effect of resettlement program
- U<sub>i</sub> = Error term

<sup>1</sup> In this study poverty line was estimated based on the cost of 2,200 kcal per day per adult food consumption with an allowance for essential non-food items. The food poverty, non-food poverty and total poverty lines used were 2692, 2805 and 5622 birr at local average prices, respectively applied to real per adult household consumption expenditure in order to calculate head count, poverty gap and squared poverty gap indices. (MoFED, 2012)

<sup>2</sup> Head count ratio describes the percentage of sampled households whose per capita income or consumption is below the poverty line 3 The poverty gap measure how far the poor, on average, are below below poverty line

<sup>4</sup> Squared poverty gap is a measure closely related to severity of poverty gap but giving those further away from the poverty line a higher weight in aggregation than those closer to poverty line.

## **RESULTS AND DISCUSSION**

#### Demographic and Socio-economic Characteristics of the Households

Descriptive statistics of variables used in the regression analysis are given in Table 1. The result from the data revealed that food poverty was 0.46. This implies that 46 % of smallholder farmers were poor in the study area. Sex of smallholder farmers was hypothesized to be one of the variables that make a difference on the level of food poverty. The finding showed that 67 % of the smallholder farmers (settlers) involved in sample were male headed and the rest 33 % were female headed. Similarly, their education level indicated about 47 % was literate and the rest 53 % were illiterate. The finding also revealed that about 20% of the smallholder farmers perceived that resettlement program reduces their food poverty condition. Similarly, the mean family size and age of the smallholder farmers or settlers were 7.14 and 45.59, respectively. The average annual income generated from agriculture was ETB 5427. The mean cultivated land size of settlers was 0.92 ha. The average livestock owned by the smallholder farmers were 7.16. The average distance from settlement center to nearest market place was found to be 23 km in the study area. Moreover, classification of households based on access to institutional services showed that about 40 % and 85 % of smallholder farmers had access to credit and extension services, respectively.

			U		
Variables	Ν	Minimum	Maximum	Mean	SD
Smallholder poverty condition					
(1= food poor , 0 =otherwise)	280	0.00	1.00	0.46	0.50
Sex of household head					
(male =1, female = 0);	280	0.00	1.00	0.67	0.47
Age of household head (year)	280	24.00	87.00	45.39	13.58
Number of family size (AE)	280	1.70	16.50	7.14	2.95
Education of household head					
(literate = 1, illiterate = 0)	280	0.00	1.00	0.47	0.50
Annual income from agriculture (ETB)	280	540	16940	5427	2574
Access to non-agricultural farm5					
(yes = 1, no = 0)	280	0.00	1.00	0.50	0.50
Total livestock owned (TLU)	262	0.39	40.53	7.16	5.61
Access to credit previous year					
(yes = 1, no = 0)	280	0.00	1.00	0.40	0.49
Distance from settlement center					
to nearest market place (km)	280	2.63	90.00	23.49	15.09
Access to extension services					
(yes = 1, no = 0)	269	0.00	1.00	0.85	0.36
Resettlement program					
reduce on poverty (yes = 1, no = 0)	280	0.00	1.00	0.20	0.40

#### Table 1. Descriptive statistics of variables used in the regression analysis.

Source: Own survey (2013)

5 Implies off-farm or non-farm income from agriculture

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### The Impacts of Smallholder Resettlement Program on Settlers Food Poverty Condition

The logit regression was performed to identify the impact of resettlement program perception on smallholder farmers' on food poverty implemented by government. The estimates of the logit model have been presented in Table 2. The results of the existence of serious problem of multicollinearity among the hypothesized explanatory variables showed that values of VIF for each of the continuous variables were found to be less than ten hence, there is no a multicollinearity problem among all the hypothesized continuous variables included in the model. The result of Contingency Coefficient (C) revealed that there was no a serious problem of association among discrete explanatory variables as the contingency coefficients did not exceed 0.75. Therefore, all the hypothesized dummy variables were included in the logistic regression model. The result of the logit model on the impact of resettlement program on smallholder farmers' food poverty showed that it does not affect the food poverty condition of settlers due to the non-significance of the coefficients of perception of smallholder farmers about resettlement program in the logit model. However, it has a negative coefficient of showing a negative relationship to poverty situation of smallholder farmers or settlers.

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Variables in the Equation	В	S.E.	Sig.	Exp(B)
Sex of household head (male = 1, female = 0)	-1.114	0.324	0.001**	0.328
Age of household head (year)	-0.031	0.012	0.011**	0.970
Number of family size (AE)	0.167	0.051	0.001**	1.182
Education of household head				
(literate = 1, illiterate = 0)	-0.973	0.310	0.002**	0.378
Annual income from agriculture (ETB)	0.000	0.000	0.461	1.000
Access to non-agricultural farm (yes = 1, no = 0)	-0.323	0.298	0.278	0.724
Cultivated land size (ha)	-0.186	0.178	0.294	0.830
Total livestock owned (TLU)	-0.034	0.029	0.242	0.967
OXEN	-0.126	0.166	0.446	0.881
Access to credit previous year (yes = 1, no = 0)	-0.492	0.307	0.110	0.612
Distance from settlement center to nearest				
market place (km)	0.018	0.010	0.093*	1.018
Access to extension services (yes = 1, no = 0)	0.383	0.445	0.389	1.467
Resettlement program reduce poverty				
(yes = 1, no = 0)	-0.235	0.362	0.516	0.791
Constant	1.115	0.931	0.231	3.051

Table 2. Estimate of logit regression model for the impact of smallholder resettlement
program on settler's food poverty.

Source: Model outputs or results based on survey data (2013) Note: \*\*\*, \*\*, and \* denote a 1%, 5% and 10% level of significance, respectively

The results in Table 2 also showed that male-headed households were negatively related to the probability of being poor. The possible explanation for the negative relationship indicates that male headed households have higher potential of crop production efficiency advantages; access to market information and incomes than the female-headed households. This result indicates that male-headed households were less likely to poor than female-headed households. Similarly, the sign of the coefficient of change in age of the household head showed a negative relationship with poverty and significant at 5 % probability level. This means that an increase in the age of the household head decrease the likelihood of the household to become poor. This is possible because farmers get more and more experience in their farming operation, climatic knowledge of their area, accumulate wealth and use better planning than the younger ones. Hence, they have less likely to be poor. The household family size in AE was significant at 5 % probability level and has positive association with the smallholder food poverty. This is in agreement with the hypothesis that the family size is likely to play a role in determining the state of smallholder farmers' food poverty. This clearly shows the importance of controlling population growth in the area (Mitiku et al., 2012 and Mitiku et al., 2013). In addition, education level of smallholder farmers was negatively and significantly related to the probability of being poor. The possible explanation for the negative relationship indicates that literate households have better skills, better access to information and ability to process information than illiterate households. Distance from settlement center to nearest market place (km) is positively and significantly related to the probability of being poor. The positive relationship is explained by the fact that households that have proximity to market and other public infrastructure may create opportunities of more income by providing off/non-farm employment and access to transportation facilities, market information. On the other hand, further distance to nearest market detract farmers from crop inputs and outputs market participation and also increasing marketing costs.

## CONCLUSIONS

The study revealed that 46 % of the households were not able to meet the daily recommended caloric requirement or below food poverty line. The maximum likelihood estimates of the logit model showed that the impact of resettlement program on settler food poverty revealed that resettlement program does not affect the smallholder food poverty due to the non-significance of the resettlement program. The general conclusion of this study is that, resettlement program has a negative relationship with food poverty or probability of being poor. In addition, the finding of this study shows the major factors affecting food poverty of resettles are sex of resettles; age of resettles (year), education level of resettles; family size in AE, and distance from settlement center to nearest market place (km) in the study area. Based on the findings, the following policy recommendations are forwarded.

• Smallholder farmer should be assisted to improve their productivity on ecologically sound and sustainable basis.

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- All necessary financial support should be allocated to improve and upgrade the existing infrastructures-such as roads, health centers and schools.
- Resettlement should be designed with a specific category of smallholder in mind, and should be restricted to the same or similar agro-ecology, as far as possible.
- Additionally a strategic policies should be implemented for improve the food security awareness among the resettles.

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