Asian Journal of Empirical Research

journal homepage: http://aessweb.com/journal-detail.php?id=5004

IMPACT OF INTEGRATED URBAN HOUSING DEVELOPMENT PROGRAM ON HOUSEHOLD POVERTY ALLEVIATION: ADAMA CITY, OROMIA REGIONAL NATIONAL STATE, ETHIOPIA

Jema Haji[1]
Mohammed Aman[2]
Abdela Gebo[3]

ABSTRACT

In this paper, we investigate the impact of the integrated urban housing development program on poverty alleviation using household's consumption expenditure as a proxy. For this, primary household level data were collected from 240 randomly selected households, 120 from participants while 120 from non-participants, during the 2011 fiscal year, in Adama city of the Oromia National Regional State, Ethiopia. Using a propensity score matching model, the difference in total consumption expenditure between households who participate and those who do not were evaluated. Besides, the poverty incidence curve and rank in distribution differences was also tested using poverty incidence curve by stochastic dominance. Accordingly, the poverty incidence curve of participant households, at every point, lie below the curve of the non-participants indicating participants were less poor than non-participants. The empirical result of the matching showed that participant households in the integrated urban housing development program have significantly higher consumption expenditure per adult equivalent than the non-participant households. Among the factors assumed to affect the participation of the households in the program, formal years of schooling, work status, birth place and asset ownership have a positive and significant effect. While, sex of the household and prior job, being student and self-employed, have a negative and significant effect. This implies that, empowering women and giving more technical training will induce their participation in the housing development program and hence on household poverty alleviation.

[1](Associate professor of Agricultural Economics) College of Agriculture and Environmental Sciences School of Agricultural Economics and Agribusiness Haramaya University, Ethiopia**Email:**jemmahaji@gmail.com

[2](Lecturer of Agricultural Economics) College of Agriculture and Environmental Sciences School of Agricultural Economics and Agribusiness Haramaya University, Ethiopia **Email**: mamiye2012@gmail.com

[3]Adama City Municipality Adama, Ethiopia, **Email:**abdi_nefo@yahoo.com

Key Words: Integrated urban housing development program, urban poverty. Consumption expenditure, propensity score matching, Adama city, Oromia, Ethiopia.

INTRODUCTION

According to the United Nations (UN, 2011) report the world population is expected to increase by 2.3 billion, from 7.0 to 9.3 billion between 2011 and 2050. During the same period, the urban population is expected to have an additional 2.6 billion inhabitants, from 3.6 to 6.3 billion. This imply that, the urban areas of the world are expected to absorb almost all the population growth expected over the next four decades while drawing in some of the rural population. And hence, the world rural population is projected to start decreasing in about a decade and there will likely be 0.3 billion fewer rural inhabitants in 2050 than 2011. In two decades (2010-2030), the percentage of the world urban population will reach 60% representing almost five billion people. This massive rise in the level of urbanization is most visible in the growth of the biggest cities. For instance, in 1950 only New York City was classified as a '*mega city*' with more than ten million inhabitants. In 1975, the number of mega cities increased to three while in 2000 the number reached 17. In the year 2025, the expected number of mega cities will be 26, some of them attaining the status with more than twenty million inhabitants. It is worthwhile to indicate the uneven geographical distribution of mega cities in the world i.e. growth in number and size was concentrated almost entirely in the '*global south*'. Accordingly, among 19 mega cities in 2010, 13 are situated in the global south of Africa, Asia and Latin America. Another important fact is that these mega cities are home only to 4% of the world's population. While in contrast, the small and intermediate cities, with up to five million inhabitants, will continue to absorb most of the global urban population over the coming decades (UN-HABITAT, 2006, 2007, 2010). It is worthwhile to indicate where the largest share of population increase will occur. Accordingly, most of the population growth expected in urban areas will be concentrated in the cities and towns of the less developed countries. For instance, Asia is projected to have an increase in urban population of 1.4 billion followed by Africa 0.9 billion and Latin America and the Caribbean 0.2 billion, respectively (Satterthwaite, 2007).

Ethiopia is one of the developing sub-Saharan countries located at the Horn of Africa covering a total area of 445,000 sq. miles and about 73.9 million populations with annual growth rate of 2.6%. The countries population density was estimated to be 64 persons per kilometer square (CSA, 2007). The latest figures indicated that the countries total population was estimated to be 93,815,993 (93.81 million) by the year 2012 with annual population growth rate of 3.179% (2011 estimates). On the other side, Ethiopia is one of the least urbanized but most populous countries in Africa, where about 83.8 % of its population live in rural areas. Despite this, the country is experiencing an average urban population growth rate of 5 % per annum while reaching even 8 % in some urban areas. This made the country, one of the African countries, in which high rate of urbanization is going on (Solomon, 2005). The higher growth rate of urbanization in Africa has been associated

with diverse and multi faceted urban problems such as housing shortages; inadequate and mal-functioning infrastructure and services that resulted environmental problems of waste management; crimes and related social problems; traffic and transportation management problems; and unsustainable physical and economic development. In other words, the role of urban areas, that are expected to bring sustained development through expended and/or continued economic growth, is undermined in Africa (Omoakin, 2012).

The urbanization process is faced with many challenges of sub-standard housing, overcrowding of households, inadequate and unreliable infrastructure and services in developing countries. For instance, a growing number of urban dwellers have limited access to acceptable and adequate housing, transportation, water supply, health and education services in countries like Burkina Faso, Ethiopia, Kenya, Sierra Leone and Somalia, among others (Tibaijuka, 2009). In order to improve the urban housing conditions and the related poverty level, Ethiopia developed the integrated urban housing development program in major cities. Adama city, being center for other regional states and surrounding zones, is one of the places where above indicated problems are mostly prevailing. Hence, there is a need to estimate the impact of the program on the urban household's poverty level. This combined with limited research, in the country, regarding the role of integrated urban housing programs on poverty reduction basis the rationale for conducting this study. The general objective of this study was to assess the impact of integrated urban housing development program on household's poverty alleviation, using consumption expenditure as a proxy, in Adama city, Oromia Regional National State, Ethiopia.

METHODOLOGY OF THE STUDY

Description of the Study Area

This study was conducted in the city of Adama in Oromia National Regional State, Ethiopia. The city is located 99 km South East of the capital city, Addis Ababa at an altitude of 1600m above sea level. According to the 2007 census report, the total population of Adama city was 222, 023. Besides, the population growth rate of the city (5.4% per annum) was estimated to be higher than the national average (2.5% per annum) growth rate of urban population (CSA, 2007).

Sample Size and Sampling Procedure

Adama city constitute 18 decentralized localities called 'Kebeles'. Kebele refers to the lowest level of city administration. The city has twelve housing sites under the integrated urban housing development program and three sites with larger number of housing, and hence inhabitants, were purposively selected. From the three sites, a total of 4, 551 participant households were randomly selected (with share of were$P_1 = 346, P_2 = 1300\ and P_3 = 290$) and were represented by$P = 4551$. And using a formula adopted from (Padmalochan, 2006), 120 participant households were selected proportionally. The formula used was explained as follows:

Assume $n_1, n_2 and n_3$ as the number of expected samples to be proportionally selected from the population stratum of the three sites given by $p_1, p_2 and p_3$ and P as the total number of participant households in the three randomly selected sites. Then, number of households selected from each site was determined by $n_i = \left(\frac{n}{P}\right) * p_i$ where, $i = 1,2,3$. Accordingly, 9, 34 and 77 households were selected from the three sites i.e. 9+ 34+77= 120. Using similar formula given above, 120 non-participant households were selected from the same location but not under the program. This gives a total sample size of 240 households selected for this study.

Types and Sources of Data Collection

This study used both primary and secondary data to analyze the impact of the integrated urban housing development program on household poverty alleviation. The primary data, about the household's demographic and socio-economic features, were collected through interview with household heads, project managers and staffs using a semi-structured questionnaire. The secondary data were collected from governmental and non-governmental organizations; project office brochures and annual reports.

Methods of Data Analysis

This study used both descriptive statistical methods and econometric analysis to achieve its objectives. The former method helps to compare and contrast the participant and the non-participant household's characteristics with respect to major poverty indices of headcount index, poverty gap index and squared poverty gap index, among others. In other words, the study tests robustness of the observed changes in the household's poverty status using the stochastic dominance analysis i.e. robust the Foster-Greer-Thorbecke (FGT) index. Whereas, the econometric model called propensity score matching (PSM) was used to determine the impact of the program on the poverty alleviation or household's welfare, using per capita consumption expenditure as proxy. The rationale for using PSM for this study include: First, due to its non-parametric approach to the balancing of covariates between 'the treatment' (participants) and 'the control' (non-participants) group, it improves the ability of regression to generate accurate casual estimates and hence removes bias due to observable variables. Second, the conventional approach of assessing the impact of an intervention using with and without method has been hampered by a problem of missing data. As a result, the impact of an intervention program cannot be accurately estimated by simply comparing the outcomes of the treatment and the control groups. In this case, to assess the impact of a discrete treatment on an outcome, the PSM method developed by Rosenbaum and Rubin, (1983) is considered as one best alternative. Third, the PSM builds matched pairs of comparable users from the participated and the non-participated individuals that show similarity in terms of their observable characteristics.

Poverty Line or Threshold Level Identification

Measurement of poverty involves identifying or defining a poverty line that helps to determine the status of the participants and the non-participants with respect to this line. Despite the availability of numerous approaches for estimating poverty line, the Direct Calorie Intake (DCI); the Food Energy Intake (FEI) and the Cost of Basic Needs (CBN) approach are the most commonly used ones (Sen, 1976). These three approaches are different in the basis, they use to define the threshold or poverty line. Accordingly, the DCI uses a minimum requirement of 2200 kilocalories per day per person to be healthy as a reference to define the poverty line. So any household that meets this criterion can be considered as not in poverty while those below this line are called households in poverty. The FEI defines the poverty line using the level of per capita consumption at which people are expected to meet the 2200 kilocalories nutritional requirement. In other words, this method defines the threshold line by estimating the value of the per capita consumption at which every household is expected to fulfill their calorie requirement. The CBN accommodates estimating cost of direct calorie intake (food) and other basic non-food requirements. Among these, the CBN is the most commonly used one due to its consideration of basic non-food requirements while defining the threshold level.

One major challenge of poverty study results is sensitivity to the choice of the threshold or poverty line and poverty measure. Since the choice of approaches to define the line are at the disposal of the researcher, the results obtained are likely not robust. This implies, potentially different results could be obtained by choosing a different poverty line from same data or few conclusions will be drawn if poverty trends vary with approach used to define the poverty line or if the position of the poverty line is changed. As a result, this study used stochastic poverty dominance method to provide ranking of distributions in terms of poverty. The main advantage of this method is that results are not sensitive to the choice of poverty line. Rather, the stochastic dominance, in relation to poverty involves ranking of income/expenditure distributions, i.e. it examines whether one distribution has definitely more or less poverty than another over a range of potential poverty lines.

The FGT Poverty Index

To compare the poverty levels among users and non-users of the integrated urban housing development program, the three measures of poverty index developed by (Foster and Shorrock, 1988) was used to get exact poverty line. This helps to identify the number of households below and above the estimated poverty line. The poverty index was given by P_α and defined as follows:

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{m}\left(\frac{z-y}{z}\right)^\alpha$$

where;

$z -$ is the poverty line,

y_i - is the consumption expenditure for the individual I,

N - is the number of people in the population and
m - is number of people in poor households, and
α- is a parameter reflecting the weight placed on the very poorest individuals.

when $\alpha = 0$, the above equation gives the incidence of poverty that is also called the Head Count Ratio or simply Head Count Index. It is defined as the percentage of people falling below the poverty line. When $\alpha = 1$, the above equation gives the depth of the poverty called Poverty Gap Index. When $\alpha = 2$, the equation shows a measure called the severity of poverty index or squared poverty gap. It is worthwhile to mention that, when there is no exact poverty line the first order of stochastic dominance is preferable at this time (Kiriti-Ngangaand Mburu, 2007).

Empirical Model Specification

For this study, two groups of individual households were considered for impact analysis i.e. treatment group (participants) and control group (non-participants). The non-participants serve as a comparison group to evaluate the impact of the integrated urban housing program on the treated group. The comparison was made in terms of the level of consumption expenditure per adult equivalent. As a result, the average effect over treated (ATT) or impact of the program on the household's welfare could be accurately estimated.

Assume that $\boldsymbol{Y_i^1}$ and $\boldsymbol{Y_i^0}$ represent the consumption expenditure per adult equivalent for the treated and the control group respectively. The difference in outcome between the two groups can be expressed and hence obtained using the following equation: $\Delta_i = Y_i^1 - Y_i^0$. Where Y_i^1 is the outcome of the **i-th** treatment household and Y_i^0 the outcome of the **i-th** control household and Δ_i is the change in consumption expenditure per adult equivalent for the **i-th** household. The above equation can be expressed in casual effect notational form of $D_i = 1$ as a treatment variable taking the value of 1 if the individual household received the treatment and 0 otherwise. Then, the average treatment effect (ATE) of the **i-th** individual household can be written as: $ATE_i = E(Y_i^T|D = 1) - E(Y_i^C|D = 0)$. Where ATE is the effect of treatment per adult equivalent consumption expenditure; $E(Y_i^T|D = 1)$is the average outcome of individual household with treatment and $E(Y_i^C|D = 0)$is the average outcome of individual household without treatment. To measure the Average Effect of Treatment on the Treated (ATT) for the sample households of the survey used in this study, the above equation can be reformulated as: $ATT = E(Y_i^T - Y_i^C|D = 1) = E(Y_i^T|D = 1) - E(Y_i^C|D = 1)$.

Difficulty of simultaneously observing a household's outcome with and without treatment is one major challenge of impact estimation. In contrast, it is easy to observe the post-intervention outcome. This implies that, ATE estimation leads to a biased result because the treatment group could be different from the control group in other characteristics than treatment status. This problem is called '*fundamental problem of casual inferenc*e'. The remedy is to construct the unobserved outcome known as the '*counterfactual outcome*'. Besides, the effectiveness of

matching estimators as a feasible estimator for impact evaluation depends on two basic assumptions of conditional independence and the common support.

The conditional independence assumption states that, the treatment assignment condition on attributes $(\boldsymbol{D}|\boldsymbol{X_i})$ is independent of the post-program outcome $\left(\boldsymbol{Y_i^T} - \boldsymbol{Y_i^C}\right)$. And can be expressed as: $\left(\boldsymbol{Y_i^T} - \boldsymbol{Y_i^C}\right) \perp (\boldsymbol{D}|\boldsymbol{X_i})$. The drawback of this assumption is exclusion of the self–selection problem since it assumes that choosing to participate is purely random for similar individuals. Furthermore; as the number of conditioning variables $(\boldsymbol{X_i})$ increase, the degree of complexity to get identical households from the treatment and the control group becomes difficult. Hence, instead of matching households on the basis of $X's$, it is advisable to match them on the conditional probability of receiving the treatment given the values of $X's$ called '*propensity score*' expressed by: $\boldsymbol{P(X_i) = P_r(D_i = 1|X_i).}$ Where, $\boldsymbol{P_r}$refers to the probability; $\boldsymbol{D_i}$ is the logistic cumulative distribution of 1 if treated and 0 otherwise; $\boldsymbol{X_i}$is a vector of pre-treatment characteristics (Rosenbaum and Rubin, 1983).

The common support assumption, $0 < P\ (X) < 1$, states that the test of the balancing property is performed only for observations whose propensity score belongs to the common support region of the treated and the control groups propensity score. In other words, those individuals with propensity score outside the common support region would be excluded from treatment effect estimation. The limitation of this assumption is that, a match may not be found for every individual sample. This is because the common support condition ensures that individual's with same $X's$ values have a positive probability of being participant and non-participant as indicated by (Heckman and smith, 1999). Given the strength and weakness of the two assumptions, this study used propensity score matching to predict program participation by the household through a logit model. Accordingly, all variables that simultaneously affect participation in the program and consumption expenditure were included. Moreover; the nearest neighbor without replacement matching estimator was used to match participants with non-participants. The rationale for using this method is to minimize the distance between the matched control groups and the treatment group as indicated by (Smith and Todd, 2005).

Variable Selection and Definition of Variables

In this study, consumption expenditure was used as a proxy for household welfare level. Besides, the total value of both food and non-food consumption were considered. Given this outcome variable, the dependent and the explanatory variables used for the impact analysis based on their relevance and former study results were defined as follows along with their hypothesis.

The Dependent Variable

The dependent variable is participation in the integrated urban housing development program. This variable was considered as dummy with value of 1 if the household participated and 0 otherwise.

The Explanatory Variables

Formal years of schooling (Edc): This was a continuous variable measured in the years of formal schooling the household spent and hypothesized to have a positive relationship with the participation decision in the program. This is mainly because education is expected to increase the ability of individuals to participate in many activities to cope with problems and size opportunities.

Age of the respondent (Age): This was a continuous variable measured in years of the respondent. Some studies indicate a positive while others a negative relationship between age and participation decision of households in a given program. Hence, the sign of relationship was not determined in prior.

Family size (Fmsize): This was a continuous variable measured by the total number of family members living under the same roof. The sign of relationship with participation decision was not determined in prior due to both way relationships finding of former studies.

Sex of the respondent (Sex): This was a dummy variable with value of 1 if the respondent is male and 0 if female. Due to fewer opportunities by female to participate in construction related tasks and hence assembling wealth related to housing, this variable was hypothesized to have a positive relationship with the participation in the program.

Marital status of he respondent (M status): This was defined as a dummy variable with values of 1 if the household was married and 0 otherwise. This variable was hypothesized to have a positive relationship with the participation in the program because housing problem increase marital status.

Household relationship (Hhrshp): This variable was defined as dummy with values of 1 if the respondent is head of the household and 0 otherwise. The hypothesis was that being head of the household increases the chance of participation in economic development program than other members. Hence, this variable was assumed to have a positive relationship with participation.

Birth place (Bplace): This variable was measured as dummy with values of 1 if the respondent was born in Adama city, where the program operates, and 0 otherwise. The birth place was assumed to affect access to information about the program and hence participation. As a result, this variable was hypothesized to have a positive relationship with the participation.

Work status of the respondent (Wstatus): This was a dummy variable with values of 1 if the respondent has a permanent job and 0 otherwise. Most studies found that individuals that have a permanent job were more financially secured and stable than those employed in temporary or seasonal basis. And this variable was hypothesized to have a positive relationship with the participation.

Years of work experience (Workexp): This was a continuous variable measured in number of years of experience that the respondent has in certain job. Some literatures indicated that with more work experience individuals can have better opportunity to accumulate wealth and own a house. This variable was then hypothesized to have a positive relationship with the participation in the program.

Asset ownership (assowship): It was a continuous variable referring the asset owned by the household estimated in ETB. Many studies found that owning an asset has a positive implication for participation in a program and increased household expenditure. Hence it was hypothesized to have a positive relationship with participation.

Prior job (Pjob): It was a categorical variable that refers to job that the respondent have before participating in the program. Unemployment was taken as reference and measure 0, 1 for student, 2 self employ and 3 for unpaid work for family. It was expected that government employees were not allowed to participate in the program and priority was given for unemployed and graduates in this case.

Employ type (emptype): It was a categorical variable that shows the kind of join up, brand and nature of an organization that individual form to be involved into the program. The amalgamation in the form of small and micro enterprises was supposed to increase the level of participation and outcome.

RESULTS AND DISCUSSION

Demographic Characteristics of the Respondents

As far as the distribution of female and male respondents was concerned, in both groups the share of male dominates that of females. Accordingly, 101(84.2%) from participants and 99(82.5%) from non-participants were male. While, 19(15.8%) from participants and 21(17.5%) from non-participants were female.

Table-1. Sex distribution and mean age of the sample households

	Participants		Non-participants				
Mean age	28.7		28.2				
Sex					$\chi 2$	Total	
	N	%	N	%		N	%
Male	101	84.2	99	82.5		200	83.3
Female	19	15.8	21	17.5		40	16.7
Total	120	100	120	100	0.12	240	100

This gives a total of 200 male and 40 female respondents. Besides, the mean age of the participants was slightly higher than the non-participants i.e. twenty eight years and seven months for the former group and twenty eight years and two months for the latter group, respectively (Table-1). To estimate the impact of the integrated urban housing development program on the sample households, mean comparison was computed for both participants and non-participants. This comparison was made on the basis of the annual consumption expenditure of households on both food and non-food items. The result obtained indicate that, the mean annual consumption expenditure for food by the participants is ETB 10300 and ETB 73541for the non-participants. While the mean annual non-food consumption expenditure by the participants and the non-participants are ETB 76806 and ETB 43719, respectively. Furthermore; the integrated urban housing development program resulted significant impact on annual consumption expenditure of food and non-food items among participant households in the study area (Table-2).

Table- 2. Descriptive statistics of mean comparison between participants and non-participants

Variables	Participants				Non-participants				
	Min	Max	Mean	Std	Min	Max	Mean	Std	T-value
Family size	1	8	2.74	1.73	1	7	2.25	1.60	2.284**
Asset own	300	7720	9.44	12585.9	0	23500	2.17	3977.4	6.03***
Food consn.	277	2424	1.03	4476.0	1820	17003	7.35	3422.3	5.72***
Non-food consn.	114	7526	7.68	7194.2	300	15440	4.37	2923.5	4.66***
Total consn. exp	391	3757	1.72	6269.2	1200	32004	1.16	5814.6	7.16***

Note: *** and ** significant at 1% and 5% significance level respectively.

Impacts of the Program on the Household Poverty in the Study Area

First-order statistical dominance helps to compare the cumulative distribution functions of well being indicator, in this study case consumption expenditure, for consecutive years or for groups of households for which poverty comparisons are made. According to the authors, one distribution dominates another if the income or consumption distribution function for that year or that group lies above that of the year or other group at all levels of income or consumption. Taking x-axis for population proportion and y-axis for per capita consumption expenditure distribution, the result obtained indicates that the poverty level of participants in the integrated urban housing development program was lower than the non-participants. Here the graph is missed because of difficulty to identify in the lines unless colored. This result was inline with the study conducted in Kenya by (Mburu and Njuguna, 2007) using a stochastic dominance approach. Moreover; the second and third dominance were not computed because given the finding of the first order dominance, they holds in their order.

Empirical Results

Modeling the probability of being participant in the integrated urban housing development program is the first stage in the propensity score matching. Hence, variables that influence the likelihood of participating in the program are included. This is mainly because if a variable influences

participation but not outcome (consumption expenditure), there is no need to control for differences with respect to this variable between the two groups of households. Similarly, if the variable influences the outcome but not the likelihood of participation, there is no need again to control for that variable. While, a variable that affect neither of the two is unimportant. As a result, only those variables that affect both the treatment and the outcome are needed for the matching and were included in the model to derive the propensity score. In other words, the probability that a household participates in an integrated housing development program was estimated using a logistic regression which is a dummy value of 1 if the household participated and 0 otherwise. And, this was used as a predictor to compute an estimated propensity scores for all sample households. The results obtained were presented in Table-3.

Table- 3. Logistic regression of participation in the program by the households

Logit regression			Number of obs.= 180 LR Chi 2(13)= 88.54	
			Prob > Chi 2 = 0.0000	
Log likelihood= -70.30106 Dependent variable= participation IHDP			Pseudo R2= 0.3864	
Variables	Coef.	Std. Err	z	Sign
Constant	-4.1385	2.1653	-1.91	*
Sex (dummy)	-1.2239	0.7325	-1.67	*
Family size	0.0417	0.1534	0.27	
Household relationship	0.1175	0.6140	0.19	
Age	0.0595	0.0434	1.37	
Marital status	0.7979	0.5745	1.39	
Formal years of schooling	0.2068	0.0872	2.37	**
Years of work experience	0.2200	0.3387	0.65	
Work status of the respondent	1.2658	0.5319	2.38	**
Birth place (dummy)	0.9930	0.4500	2.21	**
Student	-2.1388	1.2752	-1.68	*
Self employed	-2.5028	1.2907	-1.94	*
Unpaid in family	-1.7181	1.3551	-1.27	
Asset ownership	0.0005	0.0001	4.57	***

Note: ***, ** and * significant at 1%, 5% and 10% significance level respectively.

The study result indicates that formal years of schooling, work status, birth place and asset ownership were significant and positively affecting participation. Whereas, sex and prior job (being student and being self-employed) were significant and negatively affect participation of a household in the program (Table-3). Traditionally, females could not pass the hardship of construction sector, which may hinder the level of willingness to participate in housing development program. So the result shows that it was statistically significant and has a negative impact on level of participation. This was given by the negative coefficient of se (-1.2239) and significant at 10% significance level. Job prior with a negative coefficients (-2.1388 for students) and (-2.5028, for self employed) was also found to be significant at 10% significance level. Job prior is a categorical variable where unemployment was taken as a reference group for students,

self employed and unpaid family labor. This result implies that being student or self employed will decrease the participation in the program (Table-3). Household's formal year of schooling was significant at 5 % significance level. This implies that being a graduate from technical and vocational education training (TVET) increases participation in the IDHP than other individuals. Education, construction in this study case, equip individuals with new technologies that are necessary for enhancing economic activities and hence, household's participation. While, work status, permanent or temporary employment of the household's, with a coefficient of (1.2658) was found to be significant at 5% significance level. This implies that, households who have permanent or temporary job have stability and security and hence positively influence participation of the household in the program. Asset ownership, financial and physical, of the household during the survey period was found to be significant at 1% significance level. Implying that, asset ownership initiates and increases the level of participation in the program i.e. indication of welfare.

Table- 4. Estimates of the integrated urban housing development program impact by PSM

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Cons expenditure	Un matched	17224.71	9398.03	7826.68	903.57	8.66
	ATT	16556.15	8964.97	7591.18	1856.66	4.09
Note: The S.E. for ATT does not take into account that the propensity score was estimated						
Psmatch2: treatment assignment	Psmatch2: Common support					
	Off support	On support	Total			
Untreated	0	60	60			
Treated	37	83	120			
Total	37	143	180			
0 failures and 7 success completely determined ; 60 missing values generated						

Finally, birth place of the household with a coefficient of (0.993) was significant at 10% significance level. This implies that, those households born in Adama city, where the housing development program is going on, have a better access to information and level of awareness than those born in other places and this influences level of participation in the program positively (Table -3). Along with identifying the factors affecting the participation of household's in the integrated urban housing development program, it is also important to estimate probability of their participation; matched observation of treated and un-treated; and average treatment effect over treated. PSM estimation, among others, is considered as vital to obtain these three estimates. Moreover; the average treatment effect over treated (ATT) was estimated using the nearest neighbor matching and the caliper method. Due to similar result obtained in the two methods, only one result was presented. Accordingly, the outcome variable, total consumption expenditure, of participants (16556 birr) was greater than the non-participants (8964). In percentage term, the difference becomes approximately 7.6% i.e. 7591 birr. Furthermore; the t-statistic results also

indicate that the average treatment effect over treated was statistically significant at 1% significance and positively influences the outcome variable (Table-4).

CONCLUSIONS AND RECOMMENDATIONS

Like most of the Sub-Saharan African countries, Ethiopia is experiencing a rapid urbanization process with its challenges and opportunities. Besides, there is limited number of literatures on the impact of urban housing development program on poverty alleviation. Hence, this paper aims to fill this gap by identifying the impacts of the integrated urban housing development program on household's poverty alleviation taking their consumption expenditure as a proxy for 240 households (120 participants and 120 non-participants) in Adama city of the Oromia National Regional State, Ethiopia. A panel data for these households was obtained during the survey period of 2011. A logit model was used to identify factors that affect the participation of households on the program. Besides, a propensity score matching was used to identify the impact of the integrated urban housing development program on the participant's consumption expenditure. The results obtained from the logistic regression indicate that, formal years of schooling, work status, birth place and asset ownership prior to the project by the household were positively and significantly affected participation of the households in the program. While, sex of the household and prior job, being student and self employed, were negatively and significantly affecting the participation of the households in the program. Moreover, the empirical result of the matching showed that participant households in the integrated urban housing development program have significantly higher consumption expenditure per adult equivalent than the non-participant households. Based on the results obtained, there is a need for empowering women and giving them more technical training to induce their participation in the housing development program and hence on household poverty alleviation.

REFERENCES

CSA (Central Statistics Authority), (2007) "Household Income, Consumption and Expenditure" Analytical Report, Statistical Bulletin 394, Addis Ababa, Ethiopia Ababa University, Addis Ababa.

Foster, J. E. and A. F. Shorrocks, (1988) "Poverty ordering" Econometrica, Vol. 56, No. 1, pp. 173-177.

Heckman, J. and J. Smith, (1999) "The Pre Program Earnings Dip and the Determinants of Participation in a Social program: Implications for Simple Program Evaluation Strategies" Economic Journal, Vol. 109, No. 457, pp. 313-348.

Kiriti-Nganaga, T.W. and N.F. Mburu, (2007) "Poverty in Kenya, 1994-1997" A stochastic dominance approach.

Omoakin, J. (2012) "Urbanization and future of cities in Africa: The emerging facts and challenges to planners" Global journal of human social science, Vol. 12, No. 77-12.

Omoakin, J. (2012) "Urbanization and Future of Cities in Africa: The Emerging Facts and Challenges to Planners" Global Journal of HUMAN SOCIAL SCIENCE, Vol. 12, No. 7, pp. 6-12.

Rosenbaum, P. and D. Rubin (1983) "The central role of the propensity score in observational studies for causal effects" Biometrika, Vol. 70, pp. 41-55.

Satterthwaite, D. (2007) "The transition to a predominantly urban world and its underpinnings "The international Institute for Environment and Development (IIED).human settlement discussion paper series: theme-urban change 4. www.iied.org/pubs/display.php?o=10550IIED.

Sem, A. K. (1976) "Poverty: An ordinal approach to measurement" Econometrica, Vol. 44, pp. 219-251.

Sen, A.K. (1985) "A Sociological Approach to the Measurement of Poverty" Oxford Economic Paper, Vol. 3, No. 4, pp. 669-676.

Smith, AF and E.P Todd (2005) "Does matching overcome LaLonde's critique of non-experimental estimators" Journal of Econometrics, Vol. 125, No. 1, pp. 305-353.

Solomon, Keffa (2005) "Housing Development as Instrument to Alleviate Urban Poverty (The Case of Addis Ababa)" International Conference for Integrated Urban Knowledge and Practice, Gothenburg, Sweden.

Tibaijuka, A. K. (2009) "Housing Finance Mechanisms in Zimbabwe, Nairobi" UN HABITAT Publications.

UN-HABITAT, (2006) "State of the World's Cities 2006/2007-the Millennium Development Goals and urban sustainability: 30 Years of Shaping the Habitat Agenda" UN-HABITAT/Earthscan, Nairobi, Kenya.

UN-HABITAT, (2007) "Global report on human settlements: enhancing urban safety and security" UN-HABITAT/Earthscan, Nairobi, Kenya.

UN-HABITAT, (2010) "Cities for all: bridging the urban divide" UN-HABITAT/Earthscan, Nairobi, Kenya.

United Nations, (2011) "World urbanization prospects: The 2011 revision" The UN Department of Economic and Social Affairs population division, New York.