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Determinants of Urban Households Poverty in Major Cities of Ethiopia: (The case of Addis Ababa, Bahir Dar, Mekelle, Hawassa, Dire Dawa, and Adama)

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Abstract

This study assesses the determinants of urban household poverty in major cities of Ethiopia (in case of Addis Ababa, Dire Dawa, Hawassa, Bahir Dar, Adama and Mekelle). Based on the cost of basic needs approach; in 2004/05, 40.9% households in Addis Ababa, 32.4% households in Dire Dawa, 24.3% households in Adama ,27.5% households in Hawassa, 22.6% households in Bahir Dar, and 28.2% households in Mekelle were below poverty line. During 2010/11 survey Period, these figures were found to be 45.6%, 53%, 33.9%, 36.8%, 30% and 19.3% in case of Addis Ababa, Dire Dawa, Adama, Hawassa, Bahir Dar and Mekelle respectively. The result showed that head count index of poverty increases dramatically except Mekelle. Results based on logistic regression showed; household size was the only significant factor for households being poor in all cities in both survey periods. Educational level of households' head was also significant on both survey periods in case of Addis Ababa, Hawassa, and Mekelle and it was significant in the first survey period in case of Adama and Bahir Dar. Whereas, educational level of households was not significant contribution on households being poor or not in case of Dire Dawa in both survey periods. Results based on primary data, lack of good governance and rural-urban migration took the lion share on aggravating poverty in these cities.

Keywords: Poverty, Poverty measures, Cost of Basic needs approach, logistic regression.

1. Introduction

Poverty elimination has remained a major challenge right and lies at the core of Ethiopia's national development agenda to create a just and equitable society. Poverty reduction polices such as pro-poor economic growth and well-designed social transfers require careful measurement of poverty status. Given the limited resources, reliable estimation of poverty is the first step towards eradication of poverty as a basic input for design, implementation and monitoring of anti-

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poverty programs. According to central statistics agency's (CSA's) 2011, 17% of the total population of the country settled in urban areas. Although, theses level of urbanization was one of the least even as compared to the African average of 33%, the rate of urbanization of the country increased dramatically. Based on the 2007 CSA result roughly Addis Ababa and Dire Dawa alone constitute a third of the urban population of the country. On the other hand, poverty in the country is a long-standing problem (Bigsten, etal 2002). It manifests itself in a number of ways and this is attributed to multiple interrelated factors. These among others are attributed to the existence of insufficient source of income, lack of asset/skill, poor health status, poor educational level, very high infant mortality rate and congested housing condition (Getahun, 2002, cited in Tesfaye, 2005). These situations are also apparent in the urban areas of Ethiopia.

The goal of this study is to assess the extent and severity of poverty and to examine demographic, economic, administrative and other factors that affects whether households being poor or not and suggesting possible solutions in six major cities of Ethiopia. Understanding poverty in urban areas requires understanding of how these cities exist as arenas of complicated and conflicting economic processes that are both local and global (Hasan, 2002). A city might have good overall economic indicators that would not reflect the extent of depravation and marginality experienced by parts of its population. The variables (factors) and institutions that influence poverty in urban areas are different from those found in rural areas (PRSP 1999). Urban people face high costs for transport, education, housing, food, health and childcare and are thus more dependent on income. Differences in the provision and quality of basic 'public' services, lack of access to safe and secure housing and of poorer areas from urban governance are key factors to be taken into account for an understanding of urban poverty. Urban poverty analysis can facilitate the identification of 'key urban issues' through quantitative measures of urban poverty, and qualitative assessment of community priorities. Hence, questions that come in front of us are thus, what makes us still poor, who suffers most and how the government and communities manage it. The results in this study enable to have better understanding of the nature, dynamics and persistence of households' poverty status, support for human capabilities, action to tackle exclusion and inequality, strategic urbanization and migration and good governance.

2. Review of Related Literature

2.1 Concepts of Poverty

For many years poverty is often considered as lacking or deficiency of economic resources taking into account of the income shortcoming (Suleiman, et al, 2014). However, it is no longer objectively but exists in multi-dimensional nature (Narayan 2000). Conventional definition of poverty makes distinction between absolute poverty and relative poverty. The former relates to those who do not have sufficient income to afford a minimum level of nutrition and basic needs, the latter is concerned with position of the poor in relation to the rest of the society (Devas, 2004). According to the world Bank Development report (2001), a household is regarded as poor when it is deprived of basic livelihood resources-assets for

meeting basic needs (food, clothing, health and shelter) by engaging in viable activities pertinent to a situation when it has no capacity to withstand the shocks, no power to make decisions and have no say on government action. The concepts of poverty in the urban setting vary according to the approaches. The monetary approach (basic needs approach) defines poverty based on a materialistic on the assessment of fulfillment of basic consumption.

2.2 Measures of Poverty

First, one has to identify a poverty line; it is cutoff point separating the poor from the non-poor. There are three most commonly used measures of poverty; the head count ratio (Incidence of poverty), the poverty gap measure (depth of poverty), and Poverty severity (squared poverty gap). Incidence of poverty (headcount index) is the share of the population whose income or consumption is below the poverty line, that is, the share of the population that cannot afford to buy a basic basket of goods. Most authors especially for studies on poor countries use expenditure to measure poverty. Since expenditure is easier to track than income, which comes largely from self-employment self- employed people, daily wage laborers etc. On the other hand, income is only one of the elements that will allow consumption of goods; others include questions of access and availability. In urban economies with large informal sectors, income flows also may be erratic Meyer, and Sullivan (2003), Haughton and Khandker, (2009). Moreover, some surveys (consumption household's surveys) might not include income of households. For example, Ethiopian statistical agency 2010/11 consumption household's surveys did not include income of household's. The head count ratio gives the proportion of people who are poor that is computed using:

$$P_0 = \frac{q}{N}$$

where, q_i is the number of individuals identified as poor, N is the population size, and P_0 is the head count ratio, depth of poverty (poverty gap) estimates the total resources needed to bring all the poor to the level of the poverty line. It provides information regarding how far is consumption of poor households from below poverty line on average. The poverty gap measure provides an indication of the aggregate shortfall of the poor from the poverty line. That is:

$$P_1 = \frac{1}{N}\sum_{i=1}^{q}\frac{(Z - Y_i)}{Z} = \frac{1}{N}\left[q - \sum_{i=1}^{q}\frac{Y_i}{Z}\right]$$

$$= \frac{q}{N} - \sum_{i=1}^{q}\frac{Y_i}{NZ} = \frac{q}{N} - \frac{q.Y_p}{NZ} = \frac{q}{N}\left[1 - \frac{Y_p}{Z}\right] = P_0.I$$

where,

Y_i = Consumption expenditure or income of the i^{th} poor households

Z = poverty line; Y_p = mean consumption or income of the poor

I = mean depth of poverty as a proportion of poverty line

Thus, this index is the product of P_0, the incidence of poverty, and I, intensity of poverty which is insensitive to the number of individuals below the poverty line and to the transfer of income among the poor. But this index can be normalized to obtain the income gap ratio by expressing it as the percentage of shortfall of the average income of the poor from the poverty line. This is given by:

$$I = \frac{1}{q}\sum_{i=1}^{q}\left[\frac{(Z - Y_i)}{Z}\right] = \frac{PG}{qZ}$$

where, $PG = \sum_{i=1}^{q}(Z - Y_i)$ is the poverty gap, poverty severity takes into account not only the distance separating the poor from the poverty line (the poverty gap), but also the inequality among the poor.

3. The Methods

3.1. Data Source

The data used for this study are of two types i.e. primary and the secondary data sources. The secondary data sources used for this study is based on the 2004/05 and 2010/11 household consumption expenditure survey (HCES) conducted by the Central Statistics Agency (CSA).

3.2. Sampling Frame

The list of all households obtained from the 2007 Population and Housing Census was used as a frame to select the sample enumeration areas (EAs) in the rural and urban areas of the country. The frame from which sample households were selected was based on a fresh list of households taken at the beginning of the survey period in each of the selected EAs.

3.3 Sample Design

For the purpose of representative sample selection, the country was divided into four broad categories including rural category, major urban centers category, and medium and small size town's category. From major urban centers, all regional capitals (10 cities) and five other major urban centers that have relatively larger population size (totally 15 urban centers) were included. Each of the 14 urban center and 10 Sub cities of Addis Ababa administration a total of 24 urban domains are taken us a reporting level. In this category too, a stratified two stage cluster sample design was adopted to select the primary sampling units (the EAs). Sixteen households from each of the primary sampling units (EAs) in each reporting level were then selected.

According to CSA survey design report, HCE survey was designed to assess the level, extent and distribution of income dimension of poverty. It provides information on the level, distribution and pattern of household expenditure that can be used for analysis of changes in the living standard (poverty status) of households for various socioeconomic groups and geographical areas. It provides information on the consumption of food and non-food item, household expenditure, payments, receipts, and household characteristics such as family composition, education and occupation. The data design for assessing poverty situations; for analyzing changes in the households' living standard over time; and for monitoring and evaluation the impacts of socio-economic policies and programs on households' livelihood. The households are selected using probability proportional to size of population in each city with systematic sampling method. The total sample size from six cities is 5046 in 2004/05 and 5650 in 2010/11. From which Addis Ababa took the lion share, 3187 and 3741 households in two rounds respectively. Primary data is obtained from slums villages dwellers in each city mainly addressing why they are still being poor and possible remedies should be taken.120 households from Addis Ababa and 40 households from each regional capital were taken based the population size.

3.4 Construction of Poverty Line

Setting the poverty line is the starting point of any poverty analysis and often is the most contentious. The method of determining the poverty line can greatly influence poverty profiles, which are the key to the formulation of poverty reduction policies. According to Kakwani (Kakwani, 2001 cited by Haji.R, 2004), the relative approach is not appropriate to measure poverty, particularly in developing countries, since our concern in developing countries is more with the absolute standard of living, to ensure that nobody in the society should have a standard of living that is below the cost of buying a basket of essential items that allows one to meet the absolute thresholds of satisfying certain basic needs. A poverty measure based on a relative approach is, in fact, a measure of inequality and thus we should instead look at various measure of inequality. Under the relative approach, poverty is completely insensitive to economic growth if the inequality of income does not improve. The only way to reduce poverty will be to reduce inequality.

Thus, this study is based on the concept of absolute poverty applying cost of basic need (CBN) approach. This approach defines poverty lines as the cost that has to be incurred to attain bundle of goods which are considered sufficient to meet basic consumption needs. Two steps have to be undertaken in using this method.

1. The food poverty line, which is the cost sufficient to get consumption bundle adequate to meet the predetermined food energy requirement, has to be constructed.
2. Allowance for basic non-food consumption has to be made and the sum of food poverty line and allowance for non-food consumption will make up total poverty line.

The food poverty line is constructed as follows: The average quantities of food items that are frequently consumed by the lowest 50% of the expenditure distribution of the sample households are identified. Then this typical food bundles are converted into calorie consumption and then scaled up to meet the predetermined minimum nutritional requirement (2,200 cal) per day per adult. After the bundle of food items which provide the predetermined level of energy to normal physical activities are identified, the bundle of food items is valued at their prices that prevailed in the specific areas (cities) at the time of the survey. By doing so, we estimate the food poverty line. The subsequent step is usually to estimate the non-food component of the total poverty line. The most commonly used approach for drawing the non-food poverty line is based on the proportion expenditure devoted for food by a reference group population. The approach consists in multiplying the inverse of this coefficient by the cost of the food basket, such that the non-food basket is directly obtained from the consumption habits of the reference population. This methodology is based on the original work done by Mollie Orshansky (1965) when drawing the U.S. poverty line; it is sometimes referred to as the Orshansky multiplier. In practice, there are numerous options for applying the described methodology, including the following:

i) Use of a single value for total non-food expenditures or different values for each non-food category.
ii) Use of the same reference group for the selection of the food basket or a different reference group. The former option uses the non-food consumption habits of the reference group identified as satisfying their nutritional requirements. It is also possible to select another reference group for the construction of the non-food poverty line, such as households with a level of food expenditure close to the food poverty line.
iii) Use of a range of non-food poverty lines. Under this option, lower and upper bounds are calculated for the non-food poverty line, as explained in Ravallion (1998).

The lower bound is given by the expenditure on non-food items of households with a total expenditure approximately equal to the food poverty line. The upper bound is given by the expenditure on non-food items of households whose food expenditure approximately equal to the food poverty line. The most popular method for Orshansky (1965) is simply to go straight to an estimate of the total poverty line by dividing the food poverty line by the share of food in the total expenditures. The intuition behind this is as follows. The larger the food share in the total expenditure, the closer the food poverty line should be to the total poverty line. It is a problem analogous what the food basket should be for computing total poverty line. Popular practice varies, but often makes use of:

1. The average food shares of those households whose total expenditure equal to the food poverty line;
2. The average food share of those households whose food expenditures equal to the food Poverty line;
3. The average food share of a bottom proportion of the population (commonly households in the lower half of the expenditure distribution);

From the above alternatives, we can see that the total poverty line according to method (1) is smaller than other methods. It is obvious that those households whose total expenditure satisfies only food poverty line are more inclined on food expenditure, and the share of food is relatively large in such groups. Thus, dividing the food poverty line with such quantity is close to food poverty line. The food share of method (2) is larger than the other methods since those households who satisfy food poverty with only food expense have better income compared to those reference populations in method (1) and method (3). So, dividing food poverty line with the food shares of this population is greater than the value obtained applying share of foods in (1) and (3). The value obtained using method (3) is expected to be in between the others two methods. Therefore, due to the subjective nature of non-food poverty line, the method that we employed for setting of total poverty line should be decided among the above alternatives and taking in to account the consumption nature of the residences of the six cities using the information from the data on both survey periods.

3.5 Logistic Regression Model

This study utilizes the logit model to analyze poverty status of households in each city. This model is appropriate when the response variable is dichotomous (binary) or categorical. The specification of the logit model is:

$$E(Y_i \mid X_i) = \frac{1}{1 + e^{-X_i\beta}} = \frac{e^{X_i\beta}}{1 + e^{X_i\beta}} = F(X_i\beta)$$

Where: $E(Y_i \mid X_i) = P_i = prob(Y_i = 1/X_i)$ is the response probability, i.e., the probability that i^{th} household will be poor given the individual characteristics of the household X_i, and $F(.)$ is the logistic distribution function. The non-response probability is

$$P(Y_i = 0/X_i) = 1 - P_i = \frac{1}{\exp(X_i\beta)}$$

$$\Rightarrow \frac{P_i}{1-P_i} = \frac{\exp(X_i\beta) \big/ 1+\exp(X_i\beta)}{1 \big/ 1+\exp(X_i\beta)} = \exp(X_i\beta)$$

$$\Rightarrow \ln\left(\frac{P_i}{1-P_i}\right) = X_i\beta$$

The ratio: $\frac{P_i}{1-P_i}$ is called odds, and $\ln\left(\frac{P_i}{1-P_i}\right)$ is called log odds or logit, which acts as the dependent variable. The special features of this model are:

i) The mathematics of the model guarantees that probabilities estimated from the logit model will always lie within the logical bounds of 0 and 1.
ii) Unlike the linear probability model, the probability of being poor does not increase linearly for a unit change in the values of the explanatory variables. Rather the Probability approaches to zero at slower and slower rate, as the value of an explanatory variable gets smaller and smaller and the probability approaches 1 at a slower rate as the value of the explanatory variable gets larger and larger.

3.6. Statistical Inference

The logistic regression model helps to describe the effects of the predictors on a binary response. Statistical inference of the model parameters helps to judge the significance and magnitude of the effects. We can test the significance of the effects of X on the binary response with the set of hypotheses:

H_0: $\beta = 0$ (the probability of being poor is independent of X).

H_1: $\beta \neq 0$ (the probability of being poor depends on X).

For large sample size, the Wald statistics $(Z^2) = \left[\frac{\beta}{se(\beta)}\right]^2$ has a Chi-square distribution with one degree of freedom. However, the Wald statistics, which divides the parameter estimate by its standard error and then square, takes the right tail Chi-squared probability above the observed value as its P-value. A second method uses the likelihood function through the ratio of two maximizations:

i) The maximum over the possible parameter values that assume the null hypothesis.
ii) The maximum over the larger set of possible parameter values for the fitted model, permitting the null or the alternative hypothesis to be true.

Let L_1 denote the maximized value of the likelihood function for the fitted model and let L_0 denote the maximized value for the simpler model, representing the null hypothesis. For instance, when the linear predictor is $\alpha + \beta x$ and the null hypothesis is H_0: $\beta = 0$, L_1 is the likelihood function calculated at the (α, β) combination for which the data would have been most likely; L_0 is the likelihood function calculated at the α value for which the data would have been most likely when $\beta = 0$. Then L_1 is always at least as large as L_0, since L_0 refers to maximizing over a restricted set of the parameter values that yield L_1.The likelihood ratio test statistic equals:

$$-2\log\left(\frac{L_0}{L_1}\right) = -2[\log(L_0) - \log(L_1)]$$

For very large samples, the Wald and likelihood ratio have similar behavior. For sample sizes used in practice, the likelihood ratio test is usually more reliable than the Wald test. The goodness of fit of the logistic regression model can be assessed using a classification table.

4. Results and Discussions

4.1 Identifying Poverty Line and the Poor

i) Food poverty line: for this purpose, the first step is selecting the reference group or population. That is converting the households' size into adult equivalents, which is based on age, sex and their corresponding calorie requirements, which is given in Appendix. The recommended daily calorie requirement (intake) for an adult aged between 30 and 60 is 2,200 calories. This category is assumed to carry the weight equal to 1. The calorie requirement for different age groups and sexes are obtained by multiplying 2,200 with their corresponding weights to obtain the total calorie required within in the given household. Then the calorie requirement for all individuals within households was added and divided by 2,200 to represent the household size in terms of adult equivalents. The total expenditure (food expenditure sum + non- food expenditure sum) divided by the number of adult equivalent within households reflects the total consumption expenditure per adult equivalent for a particular household within a year. Based on this result households are arranged in ascending order. For setting the representative diet, first the average quantities of the various food items consumed by households in the lower half of the expenditure distribution during the survey period are estimated. Then food items in 20 food groups in 2004/05 and 17 foods groups 2010/11 are selected to set representative diet normally consumed by households in the lower half of the expenditure distribution. In the analysis, unit values for each food items were calculated by dividing total expenditure for each item by their corresponding total quantity.

This price compared with retail prices of each food items during survey period. This value refers to the price paid by the reference population for each food item. In this analysis, all food items consumed by the reference population are included. To find the mean value, which is the mean kilocalorie per kilogram (MKcal/kg) and the mean price per kilogram (Mprice/kg) for each food groups, the weighted mean is adopted since the quantity of each item, vary for each food groups. These means are calculated as follows:

$$\text{Mkcal/kg} = \sum_{i=1}^{n_i} P_i C_i \text{, and Mprice/kg} = \sum_{i=1}^{n_i} P_i PR_i$$

where,

P_i = the proportion of i^{th} food item from the total quantity for each food group.

C_i = Number of calories obtained from i^{th} food item per kilogram for each food group.

PR_i = the mean price of i^{th} food item per kilogram for each food group.

n_i = the number of food items for each food group.

The calorie share of each food group consumed by households in the lower half of the expenditure distribution is calculated by dividing the total calories obtained from each food groups with total calories of all food groups. And the share of calories needed to get 2200 calories per adult per day was adjusted based on the calorie share of each food group. Then the food poverty line per year per adult for each food groups is obtained by multiplying the price of calories needed to get 2200 calories for each food groups with 365 (number of days per year).

ii) Total poverty line: The subsequent step is estimating the non-food component of poverty line. Setting the total poverty line is not as objective as the food poverty line. However, the most popular method is division rule (Orshasky, 1965, Ravallion and Bidani, 1994). It is done by dividing the food poverty line by with the food shares of the reference population which better reflects the non-food expenditure patterns of households (reference population). Following these procedures, the food poverty line and total poverty line of Addis Ababa Dire Dawa and four regional capitals in 2004/5 and 2010/11 are given by the following tables.

Table 4.1: Food and total poverty line (2004/5)

Name of the City	Annual food poverty line(birr) per adult equivalent	Food share of lowest (50%) households	Annual total poverty line(birr) per adult equivalent	Poverty head count	Poverty gap (*PG*)
Addis Ababa	1115.67	0.53	2105.04	0.4082	0.1478
Diredawa	1173.02	0.6229	1883.15	0.3241	0.1020
Adama	1022.22	0.5722	1860.56	0.2425	0.0704
Hawassa	1064.61	0.5618	1895.00	0.2752	0.0962
Bahirdar	998.03	0.545	1831.25	0.2262	0.0712
Mekelle	1080.078	0.567	1904.90	0.2822	0.0860

Source: own calculation

Table 4.2: Food and total poverty line of households in major cities of Ethiopia (2010/11)

Cities	Annual food poverty line(birr) per adult equivalent	Food share of lowest (50%) households	Annual total poverty line(birr) per adult equivalent	Poverty head count	Poverty gap (*PG*)
Addis Ababa	4257.01	0.4495	9470.5450	0.4560	0.1013
Dire Dawa	4256.55	0.4562	9330.4471	0.5302	0.1687
Adama	4136.05	0.4617	8958.3063	0.3385	0.1071
Hawassa	4037.47	0.4630	8720.2376	0.3681	0.1216
Bahir Dar	3537.52	0.4173	8477.1627	0.3003	0.0744
Mekelle	4109.69	0.4631	8874.3036	0.1931	0.0548

Source: own calculation

The above tables showed that, in 2004/5 the poverty head count in Addis Ababa was the highest with 40.8 percent, indicating that almost 41percent of the residents in Addis Ababa were living below the poverty line. On the other hand, the poverty head count for Bahir Dar was found to be 22.6 percent. Similarly, the poverty gap in case of Addis Ababa residents were also highest compared to others regional capitals' and Dire Dawa, whereas average deviation of consumption of poor households from poverty line was lowest in case of Adama. Based on table 2, the highest head count and the poverty gap was shifted from Addis Ababa to Dire Dawa in 2010/11. Accordingly, the head count for Dire Dawa was found to be 53% implying 53 percent of the residents in Dire Dawa were living below the poverty line and hence fail to satisfy the minimum daily requirement. Similarly, the poverty gap for the same city was 0.17, meaning the city is required to allocate budget 17 percent of the poverty line times the number of poor below

poverty line to make nobody under the poverty line. In general, the entire poverty situation during the survey periods was critical in the cities. Both poverty indices (poverty head count and poverty gap) were increasing dramatically in 200/11 as compared to 2004/05 except Mekelle. The situation is worse in case of Dire Dawa and Addis Ababa, on the other hand, significant improvement has shown in case of Mekelle.

4.2 Bivariate Analysis

Preliminary test was done to determine whether the explanatory variables have statistically significant association with poverty status of households or not. For each one of the independent variables, a test of association was carried out using Pearson chi-square. The change in deviance is obtained by including a single independent variable in the logit model and comparing the change in deviance with reference to the intercept only model.

Table 4.3 Bivariate Association of selected variables and poverty status of households in 2004/5

Variables	Pearson Chi square	D.f	p-value
Household size	544.260	2	0.000
Sex	7.091	1	0.008
Age	103.162	1	0.000
Educational status	308.124	3	0.000
Marital Status	121.752	4	0.000
Employment status	42.442	4	0.000

Source: own calculation

Significant factors in determining poverty status of households in 2004/5 were thus, the household size, sex age educational status, and marital status and employment status. And these variables were selected for further analysis (multivariate analysis) in both survey periods for all study areas.

4.3 Multivariate Analysis

To determine factors that are significantly correlated with poverty status, the preliminary assessment was done using chi-square. Variables selected for multivariate analysis using logistic regression are those that are strongly associated with poverty status of the households. We applied stepwise selection method with 0.05 level of significance for entry and 0.1 level of significance for the removal of variables from the model. Household size (HFS), educational status of head (EDU), employment status of head (EMPLOY), sex (SEX), and marital status (MRS) are variables that passed this procedure for the final analysis.

4.3.1 Model Diagnostics

Any fitted model should be assessed and diagnosed for model adequacies and reliabilities. In this study, the likelihood ratio test was used for checking model adequacy.

Table 4.4 Final fitted model for logistic regression (Addis Ababa 2004/05)

	B	S.E.	Wald	df	Sig.	Exp(B)
HFS			386.770	2	.000	
HFS(1)	3.028	.173	307.005	1	.000	20.654
HFS(2)	1.633	.162	101.582	1	.000	5.120
Ref(1-2)	-	-	-	-	-	-
AGE(1)	-.001	.096	.000	1	.994	.999
EDU			152.869	3	.000	
EDU(1)	1.756	.223	62.188	1	.000	5.788
EDU(2)	1.733	.151	132.307	1	.000	5.657
EDU(3)	.789	.144	30.151	1	.000	2.200
Ref(HED)	-	-	-		-	-
EMPLOY			8.372	4	.079	
EMPLOY(1)	-.369	.250	2.176	1	.140	3.819
EMPLOY(2)	-.365	.251	2.120	1	.145	3.058
EMPLOY(3)	-.160	.252	.403	1	.525	3.374
EMPLOY(4)	-.102	.262	.153	1	.695	3.173
Ref(NGO)	-	-	-	-	-	-
MRS			7.870	3	.049	
MRS(1)	.014	.165	.008	1	.931	1.014
MRS(2)	-.391	.197	3.922	1	.048	.676
MRS(3)	-.201	.209	.933	1	.334	.818
Ref(Never)	-	-	-	-	-	-
Constant	-2.708	.369	53.738	1	.000	.067

Table 4.5 Final fitted model for logistic regression (Addis Ababa 2010/11)

	B	**S.E.**	**Wald**	**df**	**Sig.**	**Exp(B)**
AGE(1)	0.509	0.093	29.753	1	0	1.664
EDU			151.729	3	0	
EDU(1)	1.806	0.234	59.529	1	0	6.089
EDU (2)	1.478	0.127	135.386	1	0	4.384
EDU(3)	0.94	0.114	68.404	1	0	2.559
HFS			479.391	2	0	
HFS(1)	3.138	0.144	475.753	1	0	23.05
HFS(2)	1.898	0.115	270.958	1	0	6.672
EMPLOY			14.709	4	0.005	
EMPLOY(1)	0.561	0.25	5.04	1	0.025	1.753
EMPLOY(2)	0.67	0.245	7.47	1	0.006	1.955
EMPLOY(3)	0.693	0.246	7.932	1	0.005	2
EMPLOY(4)	0.9	0.254	12.519	1	0	2.46
INCOME(1)	0.324	0.155	4.359	1	0.037	1.383
RW(1)	0.073	0.221	0.109	1	0.741	1.076
MRS			3.564	3	0.313	
MRS(1)	-0.023	0.138	0.028	1	0.867	0.977
MRS(2)	0.094	0.168	0.315	1	0.575	1.099
MRS(3)	0.221	0.17	1.681	1	0.195	1.247
Constant	-3.93	0.348	127.293	1	0	0.02

The values of the likelihood ratio statistics for the constant model and for the fitted model were 3429.473 and 2190.163, respectively. The resulting model chi-square value is then 1239.31 (=4360.662-2190.163). This statistic is significant at the 1% level, indicating the good fit of the model. The classification power for the poverty status indicates that 1527 non-poor households and 1207 poor households are correctly classified. All in all, 73.1 % of households are correctly classified.

4.4 Interpretation of Results

The empirical result showed that all of the variables have the correct signs. The regression results confirm the indication from the bivariate analysis. The Wald statistics are large enough for most coefficients so that we can reject the null hypothesis $(\beta_j = 0)$ at the conventional levels of significance. The parameter estimate (estimated β coefficient) associated with an explanatory variable is an estimate of the change in the logit (log odds) caused by a unit change in that explanatory variable. It is probably easier to use the multiplicative form of the equation using exp (β) for the interpretation of results for the fitted model. The odd ratio (exp (β)) values greater than one indicates that the variables in the equation increase the odds of being poor. Mostly odd ratios are greater than one since the reference categories for each variable were taken as those which are likely less probable to be poor based on the information from the bivariate analysis. This is for the simplicity of interpretation. From Table, 4a and 4b we can see that the probability of being poor is high as family size increases. Households who have family size greater or equal to 6 are about 23 and 21 times more likely to be poor than those who have family size between 1 and 2 in 2004/05 and 2010/11 respectively.

If family members employed or able to generate income for them, increment of family size may not necessary (more likely) to be poor as such family members they can generate their own consumption source (even more).

In addition, households whose family size is between 3 and 5 are about 5 and 6 times more likely to be poor than those who have family size is between 1 and 2 in 2004/05 and 2010/11 respectively. The result shows that severity of poverty increases in parallel with increment of family size and the degree of influence increases from time to time. This result shows importance of family planning for the struggle against poverty. The result based on the educational status of household heads showed that households who are illiterate headed, are about 6 times more likely to be poor than households whose heads have higher education. At the same time, households from grade (1-6) qualified headed are about 6 times more likely to be poor than households who are higher education headed in 2004/05 and 4 times in 2010/11. Similarly, households from grade (7-12) qualified headed are about 2 times more likely to be poor than households who are higher education headed in 2004/05 and 3 times in 2010/11. The result obtained from employment categories is also impressive. It showed that households headed by unpaid family workers are about 4 times more likely to be poor than households whose heads worked in non-government organization in 2004/05 and it is 2 times in 2010/11. Moreover, private employed headed, self-employed headed and government or public employed headed households are about 3 times more likely to be poor than those who worked in non- government organization and it is 2 times in 2010/11.

Similarly, the probability of being poor is high as family size increases in Dire Dawa city administration and others regional capitals and severity of poverty increases in parallel with increment of family size and the degree of influence increases in the second survey period

(2010/11) as in case of Addis Ababa. At the same time, results based on the educational status of household heads showed that households who are less educated headed are more likely to be poor than households whose heads have higher education on both survey periods. However, the role of educational level on poverty status of households' decreases in the second survey period (2010/11) as compared to in 2004/5. Moreover, educational level of households' head didn't contribute whether households being poor or not on both survey periods in case of Dire Dawa City Administration.

5. Conclusions and policy Implications

Identifying the extent and factors that dominantly aggravate the poverty situation in major six cities of Ethiopia is the main objective of this analysis. In fact, identification of these factors, which are multidimensional and interrelated, is critical to come up with a concrete solution. However, it is difficult to bring a complete solution for the whole problem overnight, and prioritization of the variables (intervention areas) is important.

In general, the entire poverty situation during the survey periods was critical in the cities. The study indicates that allocating budget taking into account the depth of poverty in each city is recommended. According to the result, poverty head count dramatic increases as in 200/11 compared to 2004/05 except Mekelle. The situation is worse in case of Dire Dawa and Addis Ababa; on the other hand, significant improvement had shown in case of mekelle.

Household size is the most dominant factor for poverty status households in both survey periods. The result indicates that households with large family size are more likely to fall into the hard-core section of poverty easily than those who have less family size, and the degree of effect increases in 2010/11 compared that of 2004/05 in most cities. Thus, education about family planning should be provided by the concerned bodies.

The educational background of the heads of households is also one of the most important factors on poverty status households in most cities except Dire Dawa. Particularly college education has vital role in reducing poverty whereas the role of educational level decreases as oppose that of family size in the second survey period. In general, the results in the second survey period (2010/11) showed, life becomes worsen in major cities of Ethiopia. In other words, economic growth in Ethiopia does not address the problems of urban poor in the context in studied cities. Instead, urban residents exposed higher inflation of living costs, and they are forced to lead poorer quality of life. In other words, major correction should be taken by concerned bodies in addressing inclusive and pro-poor growth in major cities of Ethiopia.

Based the information obtained through primary data (interview) from slum villages dwellers of these cities indicate that; youths are hopeless enough due to local administrators practice. That is, limited employment opportunities and or job creation through microfinance had been worked through corruption. Obtaining job is related to some sort of relation (relatives,) with local administrators in order to be part of beneficiaries in the cities. Ethnic marginalization is also experienced in case of Dire Dawa, and Adama.

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