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POVERTY ANALYSIS OF CHILDREN IN CHILD HEADED HOUSEHOLDS IN ADDIS ABABA¹

Getnet Alemu²

Abstract

This study attempts to analyse the economic and social situation of children living in child-headed households using a poverty analysis framework. The study used family of indexes developed by Foster, Greer and Thorbecke (1984) commonly known as FGT measures to measure aggregate poverty and micro-econometric method to uncover the various determinants of poverty status of children in child-headed households. Quantitative method (Household survey) was used to generate information. From the descriptive statistics we found out that the average monthly per capita income is about half of the poverty line and the average level of consumption is also by far below the poverty line. We found out that about 77.3% of the total CHHs are below the absolute poverty line. This figure is far below from the national urban average poverty level, reflecting the miserable living standard of CHHs. The difference in level of income and consumption between male-headed and female-headed households is very high. Close to 90% of female CHHs are living below the poverty line while the percentage for male CHHs is 59%. Gender differential is obvious in CHHs, indicating that female child headship leads to low level of welfare.

From the regression result we found out that sex, size of household and age are determinants of child poverty. Male CHHs are less exposed to poverty compared to females. Household size increases the probability of falling into poverty, while its square reduced the probability of falling into poverty indicating the presence of economies of scale at the household level. The age of the head shows that the risk of poverty increases as age increases but at a decreasing rate as indicated by the coefficient on its squared variable. Likewise, increase in mean household age statistically is likely to worsen poverty.

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² Institute of Development Studies, Addis Ababa University.

1. Introduction

Children in Ethiopia constitute about 52% of the Ethiopian population (MoLSA, 2004:6). The figure clearly indicates that the future of the country rests on its children. Ethiopian children should, thus, be provided with better standards of life in larger freedom without discrimination of any kind, such as sex, language, religion, social origin or social and property status. They should also be progressively provided with access to education and need to have the highest attainable standard of health on the basis of equal opportunity for all. To this end, the Government of Ethiopia has ratified a number of conventions, declarations and charters.³ This shows the Government's commitment to the welfare of all the children in the country.

Despite this unequivocal commitment of the government to its children, Ethiopian children have been found to be vulnerable to various problems. While a great number of them belong to poor families who have no access to education, health, etc. some others are unattended. They are either abandoned by their parents or separated from their parents due to various reasons. There are also children who are orphans. In relation to this, the Ethiopia's National Plan of Action for Children (ENPAC) document acknowledges that about 3 million children in the country are, in one form or another, deprived of their family environment. The Plan for Accelerated and Sustained Development to End Poverty (PASDEP) document also states 'out of the total number of children under age 18, about 12% are found to have lost at least one parent, comprising 8% that are orphaned of their father, 3% orphaned of their mother, and 1.3 % orphaned by both parents. ... the proportion of children orphaned by both parents is higher in Addis Ababa than other regions' (MoFED, 2006:30). This makes the absolute number of children orphaned of both parents to be over 0.5 million.

³ The UN Convention on the Rights of the Child (CRC), the African Charter on the Rights and Welfare of the Child (ACRWC), Universal Declaration of Human Rights (UDHR), the International Covenant on Civil and Political Rights (ICCPR), the International Covenant on Economic, Social and Cultural Rights (ICESCR), the Convention on the Elimination of all forms of Discrimination Against Women (CEDAW), the African Charter on Human and Peoples Rights (ACHPR), and two conventions of International Labour Organisation (ILO) (1973 of the Minimum Age Convention and the 1999 Convention on the Worst Forms of Child labour).

The public concern given to the grave situation of children abandoned by or separated from their parents, children without sufficient family support, and children living in child-headed households (here after, CHHs) is not commensurate to the problem. The need to critically see the social and economic conditions of children living in CHHs is, therefore, imperative.

The main objective of this study is, thus, to analyse the socio-economic condition of children living in CHHs. Added to that, the study aims to examine why children are forced to lead this kind of life.

Studies examining children's life, survival, and development in an environment where there is no parental support are practically non-existent. While the emergence of CHHs has been very apparent, there are disturbingly no dataset on the prevalence of these households even in Addis Ababa, leave alone in other administrative regions.⁴ The current study, thus, hopes to advance our knowledge on the socio-economic conditions of CHHs in Ethiopia and contribute to the debate in the literature.

The rest of this paper is organised as follows. Section 2 looks into methodological issues. Section 3 gives a descriptive analysis of the survey results in terms of demographic profile and education and health conditions of children in CHHs. Section 4 provides a synthesis of the analysis and discussion presented in the preceding sections in terms of poverty profile on the basis of the poverty indices and regression analysis. Concluding remarks are provided in section 5.

⁴ This lack of data is in fact rightly captured by the UN Committee on the Rights of the Child, under item 18, in its Concluding Observations of 29 September 2006 on the report submitted to it by the Ethiopian Government in relation to implementation of the CRC. Part of the concluding observation reads, "The Committee notes with concern the lack of data on areas including domestic adoption, street children, children involved in armed conflicts, children without parental care, children involved in the justice system, sexually abused and trafficked children".

2. Methodology of the study and methods of data collections

2.1. Methodological issues

The study employs descriptive and analytical methods to analyse poverty profile of CHHs. While a simple household budget analysis method is employed to discuss the income and expenditure patterns of CHHs, family of indexes developed by Foster, Greer and Thorbecke (1984) is employed to measure aggregate poverty which commonly known as FGT measures. The study also used micro-econometric method to uncover the various determinants of poverty status of CHHs.

The study used quantitative method to generate the required information. A detailed and well-structured household level questionnaire that measures the level of consumption, income, demographic characteristics, and other variables is utilized. Effort was made to measure consumption and income at an item level so as to capture a disaggregated level of consumption and income. This approach is believed to be important to minimize a common problem of measurement errors in survey exercises.

In least developed countries like Ethiopia, measuring income level is very difficult and researchers usually use consumption expenditure to proxy income. In our study, we tried to capture the level of income from different sources. These sources include: salary or wages from formal employment, remittance, friends, income earning assets, aid, etc.

2.1. Some notes about the processes and challenges of data collection

Consultation with NGOs working on Orphan and Vulnerable Children (OVC) revealed that there is no dataset on CHH in all the sub-cities of Addis Ababa. Since all the organisations consulted are found to have the list of children they support irrespective of vulnerability status, they were approached to identify CHHs from all other children in their record. All organisations working on OVC were approached for this purpose. After some taxing exercise, we managed to get a list of about 118 CHHs.

While the survey was being carried out, it was found that some of the children were not child-headed. A few of them could not be traced. Finally, we managed to get 72 CHHs for the survey. In the process of carrying out the survey, 20 questionnaires were found to have some technical problems out of which 4 were automatically discarded. New questionnaires were used to collect data on the rest of the 16 CHHs for the second time. Still, it was 14 of the new questionnaires which were found to be useable. Eventually, it was from 66 CHHs that the quantitative primary data on income and expenditure pattern were generated.

3. Demographic and social situation of children

3.1. Demographic features

The 66 CHHs surveyed in this study consist of 130 household members of which 73 are girls (56.2%) and 57 are boys (43.8%). As can be observed from Table 1, the average household size is 1.97 ranging from 1 to 6. The second row of the table tells us an interesting gender differential story. It reveals that there are considerably more girl CHHs with larger size of households than those headed by boys.

Table 1: Household size and relative incidence of female-headed child households

Sex	Frequency	Average household size	Minimum	Maximum	% share of CHHs
Female-headed	39	2.1	1	6	59.1
Male-headed	27	1.7	1	5	40.9
Total	66	1.97	1	6	100.0

Source: Author's calculation from survey data.

In terms of ethnicity, the CHH members are composed of 5 different ethnic groups, the Amhara forming the single most important category (73%) followed by the Oromo which accounts for 15.4%.

Table 2: Ethnic composition of household members

	Frequency	Percent
Amhara	95	73.1
Gurage	5	3.8
Kembata	3	2.3
Oromo	20	15.4
Tigre	7	5.4
Total	130	100.0

Source: Same as Table 1.

With regard to religion, Christianity is the dominant one. While Christianity accounts for 99.2%, Orthodox Christianity forms the single most important category within this group (88.4%). There is only one Muslim child who is also the head of single household.

There are various factors that led children to be heads and members of CHHs. The survey shows that poverty, child abuse by parents, and being orphan to be the major reasons for this. The responses given by respondent when asked how they have become the member of CHHs are summarised in the following table.

Table 3: Reasons why current child became member of CHHs

Reasons	Whole sample		Male		Female	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Orphan	118	90.8	50	87.7	68	93.2
Non-Orphan: left parents or chased by parents	12	9.2	7	12.3	5	6.8
Total	130	100	57	100	73	100

Source: Same as Table 1.

As may be observed from the table above, 90.8% of the respondents say that they have become members because they happened to be orphans and this is in agreement with the stories reported by participants of the nine case studies discussed in section 4: all nine households said they had their new role for being orphans. Like the case studies, the survey revealed that there is some kind of transition period between the death of parents and formation of CHHs. It was found that children are often cared for initially by a relative and it is usually a death of a

care giver that would eventually lead to establishing to CHHs. Most of these caregivers have been found to live with the orphaned children for less than a year before their death. CHHs are then established after death of relatives. On the other hand, the survey results show that there are instances whereby children (9 children - 6.9% of the total observation) leave their parents' houses either expelled by their parents or leaving their parents on their own accord. A more revealing data, however, is that what we see in the last columns of the table: there are considerably more female children that are orphan than male children.

Children were also asked to identify the causes of their parental death. As presented in Table 4 below, 44 children do not know the causes of the death of their parents. This is mainly because they lost their parents in their early childhood age. Among reasons well identified by the respondents HIV/AIDS accounts for 20%. Others types of disease make up 32.7%. There is, however, every likelihood that a considerable proportion of other types of diseases could be HIV/AIDS related. Given the stigma and discrimination particularly in the 1990s, parents might have not disclosed to their children that they were HIV positive. Nor would their respondents would be comfortable to reveal this information in a survey questionnaire even if they knew about it.

Table 4: Causes for the death of parents

Causes	Mother		Father	
	Frequency	Percent	Frequency	Percent
HIV/AIDS	22	20.0	22	20.0
Other	36	32.7	36	32.7
Accident	8	7.3	8	7.3
I don't know	44	40.0	44	40.0
Total	110	100	110	100

Source: Same as Table 1.

5.1. Education and health conditions

The access to education and health facilities is one of the reflections of the level of socio-economic development of a country. CHH members like any other children

have full right for access to education and health care facilities and the government has already committed to protect and promote this right. With that in mind, the survey sought to know the status of the respondents on this regard.

In terms of education the findings of the survey is very encouraging. As can be observed from the table below, 95.4% of the children are able to read and write. This percentage is considerably higher than the country average figure. Nearly half of the children are enrolled in primary school, while 32.4% are enrolled in first cycle secondary school.

Table 5: Highest grade of schooling of individuals

	Frequency	Percent
Read and write: Yes	124	95.4
Read and write: No	6	4.6
First cycle primary (1-4)	10	9.3
Second cycle primary (5-8)	42	38.9
First cycle secondary (9-10)	35	32.4
Second cycle secondary (11-12)	13	12.0
Vocational	7	6.5
Other	1	0.9
Total	108	100

Source: Same as Table 1.

Out of the total number of children surveyed, it is only 16.2% who are not attending school for various reasons.⁵ According to the respondents, the most prevalent reasons given for not attending school are: health problems, school expenses, and the need to work for payment to support other members of the household. More specifically, among those who do not go to school, while 28.6% say that they have been unable to get to school because they are not able to afford to pay school expenses, 19.1% of them ascribe their failure to go to schools to ill health (see Table 6).

⁵ It should be noted that 5 children are less than 7 years old.

Table 6: Reason for not attending school

	Frequency	Percent
Cannot afford school expenses	6	28.6
Engaged in other activity to support members of the household	2	9.5
Because of bad health	4	19.0
Other	9	42.9
Total	21	100

Source: Same as Table 1.

As regards to health, children were asked whether they suffer from illness or injury in the last four weeks, where they sought treatment, and if they had reasons for not visiting health facility, if there is any. Their responses are presented in Table 7a-b.

Table 7a: Illness incidence and visits to health facilities

	Suffered from any illness		Visit health Facilities		Places where treatment was sought for			
	Yes	No	Yes	No	Hospital	Health centre	Clinic	Traditional
Frequency	21	109	12	9	3	7	1	1
Percent	16.2	83.8	57.1	42.9	25.0	58.3	8.3	8.3

Table 7b: Reason for not visiting health facility

Reasons	Frequency	Percent
Illness was not serious	1	11.1
No money	7	77.8
Other	1	11.1
Total	9	100

Source: Same as Table 1.

As can be observed from the tables, 16.2% of the total children (12 female and 9 male) reported experiencing illness in the reference period. Of those who experienced illness, only 11 children visit health facilities and whereas 10 of them visited government owned health facilities, only one of them went to a private

health facility. While nine of the children did not at all visit any kind of health facility, a child reported he had visit traditional health facility (holly water, locally known as *tsebel*). Not surprisingly, lack of money was given as a major reason for not going to health facilities.

4. Income, expenditure, and poverty profile of CHHs

4.1. Methodology and tools of analysis

(i) Method of analysis

One of the main reasons of collecting household survey data is the measurement and understanding of living standard. At the least, such measurement requires data on consumption, income, household size, and prices (Deaton 1997). In our study, a detailed and well-structured household level questionnaire that measures the level of consumption, income, demographic characteristics, and other variables is utilized. Effort was made to measure consumption and income at an item level so as to capture a disaggregated level of consumption and income. This approach is believed to be important to minimize a common problem of measurement errors in survey exercises. The standard apparatus of welfare economics and welfare measurement concerns the well being of individuals. Nevertheless, a good deal of our data has to be gathered from household level.

Another important issue in household budget survey is the choice of a recall period. When households are asked to report their income or expenditure, a choice has to be made about the reference or reporting period. Depending on the purpose of the survey and the variable/s to be measured, the recall period may vary from asking households to recall expenditures for a day to their last year consumption. Many budget survey handbooks suggest that the most commonly adopted recall period for consumption and a frequently purchased item is a period of between a week to a month since such a duration minimizes measurement errors that may result from memory tremble. With that in mind, the recall period we used in the present survey is, thus, one week or seven days.

(ii) Measuring consumption and income

Consumption is an important variable in household level analysis of budget, welfare or living standards. Total consumption can be measured in different ways. However, some individual items of expenditure are of interest in their own right because their consumption is of direct interest - health care, education, food, especially nutrient-rich foods such as milk, so that the pattern of demand has implications for different stakeholders. To utilize this feature of disaggregated measure of consumption and minimizing errors of aggregation, consumption is measured at an item level. The other concern of measuring consumption is expenditure on consumption and the quantity consumed. Households have different sources, such as own purchase, in kind gift from others, aid, etc. However, the amount of consumption is a combination of these different sources and respondents are asked to report the value of the consumption items consumed during the last seven days. The value of consumption of a certain item is aggregated to obtain the total level of consumption at the household level. The weekly level of consumption can easily be converted into a month or annum for convenience and comparison.

Another important issue that should be accounted was the problem of seasonality in consumption pattern. This problem is especially critical if one tries to measure during abnormal seasons or occasions such as holidays, where consumption patterns are usually inflated. With an aim of avoiding such possible inflation of consumption, the present survey was conducted by avoiding those seasons.

Income is often a more sensitive topic than expenditure/consumption is. Accurate estimates of income also requires knowledge of assets and their returns, a topic that is always likely to be difficult, and where respondents often have incentive to understate (Deaton 1997). The same problem is observed in our survey, where the average level of expenditure/consumption is greater than what the household gets from any sources. Since our intent is on household budget analysis, we are only interested to know the reported sources of income, not their level.

4.2 Income and expenditure patterns

4.2.1. Household budget allocation

(i) Consumption budget pattern

As noted earlier, the primary interest of this study is to understand the consumption level and the demand pattern of households headed by children. The value of consumption of each household is measured on a weekly recall basis and Table 8 presents the average consumption per month per capita of our sample.

Table 8: Mean level of consumption per capita (in Birr), food share and non-food share of total consumption by sex of the head (in %)

Households	Mean Consumption Per capita per month	Median Consumption Per capita per month	Food share	Non-food share
Whole	219.4	172.9	60.0	40.0
Male CHH	240.8	244.7	59.5	40.5
Female CHH	204.5	157.1	60.3	39.7

Source: Same as Table 1.

As can be read from the table, the average level of consumption per capita per month for the whole sample is about Birr 219. Disaggregated by sex of head of the household, male-headed households have larger level of nominal consumption, where the mean consumption per capita per month is Birr 240.8 for male-headed households and Birr 204.5 for the female-headed households. However, unlike the median, mean is very sensitive for extreme values. In fact the difference in level of consumption between male-headed and female-headed households is very high when we consider the median value. In this regard, one can imagine that female child headship leads to low level of welfare.

When we look at the demand pattern of consumption in the household, on average, the whole CHHs allocate 60% of their consumption to food items while the rest 40% is allocated to non-food purchases. Food items constitutes cereals, pulses, spices and cooking oil, milk, milk products, meat, fish, egg, bread, pasta, macaroni, vegetables, fruits, soft drinks, and stimulants. Non-food item basket, on the other hand, comprises education, local transport, water and electric bills, clothes,

household consumables (matches, gasoline, charcoal, etc), health, house rent, etc. Of interest by their own right, the share of these items in the total household budget is important. It reveals the demand pattern deemed to be important for policy implication and intervention.

The pattern of expenditure share among the food items is presented in Table 9

Disaggregating the food basket into its various items has important implication not only for the understanding of demand pattern but also for studying the nutritional status of children. As shown in the table clearly, the highest share of food budget (45.3%) goes to the consumption of cereals. This pattern is due to different factors: household preference, level of prices, seasonality, etc. However, the literature from least developing countries like Ethiopia attributes such kind of pattern to poverty and low purchasing power. Studies reveal that poor households purchase less nutritious foodstuffs and cannot afford to include high nutritious food items like meat, milk, and the like in their daily menu.

Table 9: Share of food items in total food consumption⁶

Food items	Whole sample	Male CHHs	Female CHHs
Cereals	0.453	0.457	0.45
Pulses	0.102	0.113	0.096
Spices and cooking oil	0.225	0.228	0.223
Milk and milk products	0.005	0.002	0.007
Meat, egg, fish	0.009	0.013	0.006
Bread, pasta, etc	0.065	0.066	0.064
Vegetables	0.038	0.028	0.044
Fruits	0.009	0.01	0.009
Drinks and stimulants	0.051	0.05	0.052
Total	0.957	0.966	0.951

Source: Same as Table 1.

The evidence from Table 9 implies that malnutrition remains a widespread problem in CHHs. The implication is far reaching. According to voluminous literature on child malnutrition, nutrition is an important dimension of child welfare, where the long-term productivity and growth of the child is determined by early childhood feed.

⁶ Sum of the share of the different foodstuffs is less than unity for the fact that there are some households who consume prepared food.

The second more important food basket next to cereals are spices and cooking oil that serve as food flavours. Pulses, which are relatively nutritious than cereals represent only around 10% of the food budget of CHHs. Other items, which are known for their high protein, fat and vitamin contents like milk and milk products, meat, egg, fish, vegetables constitute only a marginal proportion. In fact, the proportion of all these items accounts about 5% of food budget. An intervention that aims at buttressing the calorie intake of CHHs should target at increasing the consumption of these items.

While scrutinizing the pattern of demand for food items at the household level is important, non-food items are equally vital in studying welfare of the CHHs. Table 4.3 shows the share of non-food items in total value of household consumption. The share of educational expenditure, which constitutes school fees and other educational expenses, in total consumption is very small accounting less than 1% of the total household budget (total consumption) implying the very low share that education has in CHH. That is the case despite of the fact child education is an important parcel of human capital. At the same time, it is worth noting the low budget share of education can partly be attributable to the fact that most public primary schools have do not charge school fees or most of the educational materials are covered by NGOs sponsoring children. And that explains as to why that a great majority (83.1%) of respondents described their primary occupation as “student”.

Table 10: Share of non- food items in total value of consumption

Non-food items	Whole sample	Male CHHs	Female CHHs
Education	0.006	0.012	0.001
Local transport	0.025	0.03	0.02
Water and electric bill	0.069	0.074	0.066
Clothes	0.026	0.01	0.037
Household consumables	0.118	0.122	0.115
Health	0.038	0.024	0.047
House Rent	0.064	0.073	0.057
Non-food	0.40	0.405	0.397

Source: Same as Table 1.

The major basket of non-food consumption item that constitutes 12% of the total consumption budget is household consumables. These items are things like matches, batteries, candles, charcoal, firewood, kerosene, soap, etc. Combined, water, electricity bill and house rent account for about 13% of consumption. The low share of rent is attributed to the fact that 80.3% of the households have rented from kebele, where the rent is usually small compared to the private tenancy. Health expenses account for about 3.7%, 2.4% and 4.7% of the whole sample, male child-headed and female CHHs, respectively. The observed pattern reflect that female CHHs spend more of their budget on health care than male CHHs implying that reproductive health and general medical assistance matters more to female CHHs than to their male counterparts.

(ii) Income levels and sources

Another important, but difficult to measure, variable in welfare economics is household income level. In least developed countries like Ethiopia in particular, measuring income level is very difficult and researchers usually use consumption expenditure to proxy income. In our study, we tried to capture the level of income from different sources. These sources include: salary or wages, remittance, income earning assets, aid, etc. The average monthly per capita income is about Birr 157.5, while the median is Birr 140. Likewise the level of consumption, the mean and median level of income per capita of male child-headed is higher than that of female CHHs. One can also observe the presence of downward bias in income report by comparing the level of per capita income and per capita consumption, where the former is less than the latter one (see Table 11).

Table 11: Level of income per capita per month and income shares (%)

Households	Mean	Median	Share from employment salary	Share form petty trading	Share from other sources
Whole sample	157.5	140	19.0	2.9	78.1
Male CHHs	193.2	168	20.2	3.1	76.7
Female CHHs	132.9	129	18.2	2.7	79.1

Source: Same as Table 1.

We classified the different sources of income into employment income, petty trading income, and income from other sources (see Table 11). All income from remittance, friends, and relatives, NGOs, and other sources are categorized under other sources. Not surprisingly, the share of income from other sources is about 78.1% of the total household income. Income from employment constitutes only 19% of the total income. Since most households are headed by children aged ≤ 18 years and their primary occupation is student, they cannot generate income through employment or other activities. They primarily resort to aid from formal sources like NGOs and informal sources. Further taxonomy of other income sources is made to identify the major source of income. Parts and participles of other income are shown in Table 12. The majority of households' source of income is from NGOs. We can see that, the majorities are supported by NGOs.

Table 12: Decomposition of other sources of income

Items	Frequency	Percentage
Non-resident household member	2	2.0
Relatives	14	13.7
Friends	2	2.0
NGOs	78	76.5
Other	6	5.9
Total	102	100.0

Source: Same as Table 1.

4.3. Poverty profile of CHHs

4.3.1. Measurement of poverty⁷

The important part in most of poverty analysis is identification of the poor, which necessitate the poverty line to be determined given the appropriate measure of welfare. Poverty line is understood as a level of standard of living below which a household is considered as being in poverty. There are a number of approaches to determine the poverty line (welfare approach and non-welfare approach such as direct caloric intake, food-energy intake, and cost of basic need methods). In the

⁷ For different definitions, concepts and measurements of poverty see WB (2000), Ravallion and Huppi (1989), Ravallion and Bidani (1994), Ravallion (1994), and Sen (1979, 1983, and 1985).

cost of basic needs approach, developed by Ravallion and Bidani (1994), for instance, a basket of goods for which basic food requirements will be met is defined. The cost of this basket of goods at market price becomes the food poverty line. Then an allowance for non-food goods is added on the food poverty line to obtain the total poverty line.

However, due to absence of market price to value the basket of consumption commodities for the determination of the poverty line, we used an internationally comparable and the most commonly applied absolute poverty line that is sufficient for an individual to survive. The absolute poverty line is 1USD per day per capita and this is used as yardstick measuring poverty in the current study. Once the appropriate poverty line is determined, the next important step is to obtain the aggregate measures of poverty. The common aggregate measures of poverty indices are summary measures defined over mean income or consumption, the relevant poverty line, and the parameters characterizing the underlying income distribution (Bigsten et al. 1999). The most commonly applied measures, which are adopted for this study, are the family of indexes developed by Foster, Greer and Thorbecke 1984. These indices possess desirable properties for poverty comparison and are commonly known as FGT measures given by;

$$p_{\alpha} = \frac{1}{n} \sum_{i=1}^q \left[\frac{(z - x_i)}{z} \right]^{\alpha}; \alpha = 0, 1, 2$$

Where x_i is income or consumption expenditure of household i , z is the poverty line, n is size of population and q is the number of poor. p_0 measures the incidence of poverty and tells us only the proportion of the population that are poor. p_1 , on the other hand, measures the depth of poverty, how much on the average the poor fall below the poverty line. Finally, p_2 is a measure of poverty by weighting the situation of the poor by the square of the shortfall of their income or expenditure from the poverty line (Mekonnen 1999).

4.3.2. Poverty profile of CHHs

In this section, we briefly present the poverty profile of CHHs on the basis of the poverty indices briefly discussed above. Based on our definition of the poverty line, 30USD per month per individual, households who have less than this level of consumption per capita per month are considered poor.⁸ As shown in Table 13 (see the details in Annex 1:1.1-1.3), 95% confidence interval of the head count index is between 66.89% and 87.65%. The normalized poverty gap index (p_1) is 33%. It shows the percentage of total consumption needed to bring the entire CHHs to the poverty line. The squared poverty gap or severity of poverty is about 18%.⁹

Table 13: Summary measures of poverty

	Whole sample	Male child-headed	Female child-headed
Head count poverty (P_0)	77.27%	59.26%	89.74%
Poverty gap (P_1)	33.11%	25.42%	38.43%
Squared poverty gap (P_2)	18.28%	15.02%	20.53%

Source: Same as Table 1.

Two important features stand out from the above table. The first feature is that an overwhelming majority of children are living below the poverty line. Put more specifically, 77.3% of the total CHHs are below the absolute poverty line. This figure is far below from the national urban average poverty level, reflecting the miserable living standard of CHHs.

The second most important feature is that the head count poverty rate is considerably higher for female CHHs than male CHHs. Close to 90% of female CHHs are living below the poverty line while the percentage for male CHHs is 59%. Gender differential is obvious in CHHs, where female-headed households are disadvantageous and live in absolute poverty.

⁸ We used 1USD=Birr 10.466 (2009 rate), which gives us a poverty line of Birr 314 per capita per month.

⁹ This figure should not be compared with the national poverty figure as the poverty line is determined differently.

4.4. Determinants of poverty of CHHs

4.4.1. The model

From the descriptive result, we understand that the majority of the households are below the absolute poverty line. In the poverty literature there are different ways of analyzing poverty dynamics, each with their desirable properties and shortcomings.

Using simple regression models, we can uncover the various determinants of poverty status of the sampled CHHs. The dependent variable is poverty status of the household, P_i , which take the value of 1 if the household is poor and zero otherwise. The models can be represented by the following equation:

$$P_i^* = \beta x_i + \varepsilon_i$$

$$Pr ob(p_i = 1 | x_i) = F(\beta x_i + \varepsilon_i)$$

Where, P_i^* is the underlying response variable determining the latent poverty process, P_i is the poverty status of household i , x_i is a vector of exogenous determinants of household poverty status, β parameters to be estimated and ε_i is the error term. F is the probability function, which can take different forms depending on the assumption on the distribution of the error term. If it is assumed to be normally distributed, the econometric model will take the probit model or if we assume to be logistically distributed, the model will be estimated using logit estimation.

The right hand side regressors included into the estimation are size of the of household and its squared value, sex of the head, age and its squared value of the head, mean age in the household, occupation of the household head (dummy variable taking 1 if student and zero otherwise), location dummies where *Arada* and *Yeka* are entered into the regression and all other *Kifileketemas* are considered as base. Dummy variables capturing asset status inherited from parents are classified into two: productive assets and durable assets, taking unit value if there is any productive/durable assets left by parents and zero, otherwise. Dummy indicating

whether the child is a victim of any abuse, location of residence, occupation and level of education of parents are included.

4.4.2. Discussion of results

Regression results from Stata are presented below in Table 14 (a-c) for Probit, Logit and Linear Probability models, respectively. We have corrected for the common problem of heteroscedasticity using White-Huber robust regression option. Since the size and variability of our sample is small, the results could not be claimed to be representative. As can be shown in Table 14 (a-c), household size increases the probability of falling into poverty, while its square reduced the probability of falling into poverty indicating the presence of economies of scale at the household level. The probability value of z indicates that both coefficients are statistically significant (at 5% in the probit model). Akin to the descriptive statistics, the regression result shows that male CHHs are less exposed to poverty compared to females. The coefficient on age of the head on the other hand shows that the risk of poverty increases as age increases but at a decreasing rate as indicated by the coefficient on its squared variable. Likewise, increase in mean household age statistically is likely to worsen poverty. Moreover, households headed by student child have lower probability of falling into poverty. This could be due to the fact that these children are sponsored by NGOs who not only cover their school fees but also some part of their consumption.

Table 14(a): Determinants of poverty of CHH: Probit Model

Probit regression	Number of obs = 66
	Wald chi2(22) = 28.89
	Prob > chi2 = 0.1479
Log pseudolikelihood = -16.077914	Pseudo R2 = 0.5455

poor	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
House_size	21.63504	9.165871	2.36	0.018	3.670265 39.59982
House_sizesqr	-2.98878	1.271627	-2.35	0.019	-5.481122 -.4964373
Sex_head	-2.081301	1.247242	-1.67	0.095	-4.52585 .3632479
Age_head	74.76863	33.6857	2.22	0.026	8.745874 140.7914
Age_headsqr	-2.412891	1.087544	-2.22	0.027	-4.544438 -.2813444
Mean_Age	2.717024	1.148833	2.37	0.018	.4653524 4.968695
Student	-8.308363	3.732834	2.23	0.026	15.62458 -.9921419
Arada	.6523297	1.635627	0.40	0.690	2.553441 3.8581
Yeka	.5409005	.9900807	0.55	0.585	-1.399622 2.481423
Prod'v_asset	-6.969231	2.883426	-2.42	0.016	-12.62064 -1.317821
Durable_asset	-5.588642	2.349881	-2.38	0.017	-10.19432 -.9829594
Abused	-.9651789	1.2143	-0.79	0.427	-3.345163 1.414805
Pvt_tenure	3.354147	1.990801	1.68	0.092	-.547751 7.256045
Mother_uran	2.682058	2.717927	0.99	0.324	2.644981 8.009097
Father_uran	-4.023199	2.477605	-1.62	0.104	-8.879215 .8328177
Mother_civil	-10.16843	5.01085	-2.03	0.042	-19.98952 -.3473473
Mom_domestic	-1.811166	1.469333	-1.23	0.218	-4.691005 1.068673
Mom_housewife	-3.885707	2.312063	-1.68	0.093	-8.417267 .6458537
Dad_pvtsector	1.669439	1.364578	1.22	0.221	-1.005085 4.343964
Dad_civil	4.504842	2.796245	1.61	0.107	-.9756985 9.985382
Mom_literate	-4.962132	2.501169	-1.98	0.047	-9.864334 -.0599302
Dad_literate	7.416888	3.523204	2.11	0.035	.5115359 14.32224
constant	-626.1522	278.9669	-2.24	0.025	-1172.917 -79.3871

Note: Standard errors are corrected using White-Huber robust regression.

Table 14 (b): Determinants of poverty of CHH: Logit Model

Logistic regression Number of obs = 66
Wald chi2(22) = 23.10
Prob > chi2 = 0.3960
 Log pseudolikelihood = -16.194943 Pseudo R2 = 0.5422

poor	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
House_size	36.11661	18.27304	1.98	0.048	.3021083 71.93111
House_sizesqr	-5.001603	2.547974	-1.96	0.050	-9.995541 -.0076654
Sex_head	-3.559056	2.39344	1.49	0.137	-8.250112 1.132001
Age_head	125.5696	65.58912	1.91	0.056	-2.982717 254.1219
Age_headsqr	-4.05187	2.117494	-1.91	0.056	-8.202081 .0983418
Mean_Age	4.531044	2.23092	2.03	0.042	.1585222 8.903566
Student	-13.95919	7.219724	-1.93	0.053	-28.10959 .1912058
Arada	.9548636	2.762628	0.35	0.730	-4.459788 6.369515
Yeka	.8873376	1.594074	0.56	0.578	-2.23699 4.011665
Prod'v_asset	-11.60761	5.429525	-2.14	0.033	-22.24928 -.9659349
Durable_asset	-9.321564	4.439491	-2.10	0.036	-18.02281 -.6203212
Abused	-1.606815	2.625648	-0.61	0.541	-6.75299 3.53936
Pvt_tenure	5.462737	3.43514	1.59	0.112	-1.270014 12.19549
Mother_uran	4.570735	5.166845	0.88	0.376	-5.556095 14.69757
Father_uran	-6.811851	5.062083	-1.35	0.178	-16.73335 3.10965
Mother_civil	-17.10288	9.97504	-1.71	0.086	-36.6536 2.447837
Mom_domestic	-2.948396	2.428379	-1.21	0.225	-7.707932 1.81114
Mom_housewife	-6.593315	4.410183	-1.50	0.135	-15.23712 2.050486
Dad_pvtsector	2.898352	2.667357	1.09	0.277	-2.329571 8.126275
Dad_civil	7.601025	5.659151	1.34	0.179	-3.490706 18.69276
Mom_literate	-8.227563	5.185874	-1.59	0.113	-18.39169 1.936563
Dad_literate	12.40505	6.828009	1.82	0.069	-.9776042 25.7877
constant	-1050.925	545.1096	-1.93	0.054	-2119.32 17.47033

Table 14 (c): - Determinants of poverty of CHH: Linear Probability Model

Linear regression		Number of obs = 66			
		F(22, 43)	= 2.00		
		Prob > F	= 0.0256		
		R-squared	= 0.3737		
		Root MSE	= .41087		
poor	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
House_size	.3336691	.2284564	1.46	0.151	-.1270573 .7943954
House_sizesqr	-.0471003	.0394771	-1.19	0.239	-.1267133 .0325128
Sex_head	-.2341293	.1305799	-1.79	0.080	-.4974688 .0292102
Age_head	1.800602	1.3533	1.33	0.190	-.9287308 4.529934
Age_headsqr	-.056021	.04176	-1.34	0.187	-.1402447 .0282013
Mean_Age	.011566	.0439078	0.26	0.793	-.0769824 .1001144
Student	-.0838334	.1502977	-0.56	0.580	-.3869377 .2192709
Arada	-.1593349	.1485717	-1.07	0.290	-.4589583 .1402885
Yeka	-.0641037	.184436	-0.35	0.730	-.4360543 .307847
Prod'v_asset	-.1024818	.2739631	-0.37	0.710	-.654981 .4500175
Durable_asset	-.2269859	.1465803	-1.55	0.129	-.5225933 .0686215
Abused	-.0544187	.1618102	-0.34	0.738	-.3807401 .2719027
Pvt_tenure	.2145039	.1610914	1.33	0.190	-.1103679 .5393757
Mother_uran	.2491324	.2841683	0.88	0.386	-.3239476 .8222123
Father_uran	.0445522	.2556574	0.17	0.862	-.4710302 .5601345
Mother_civil	-.0509466	.2572145	-0.20	0.844	-.5696691 .4677759
Mom_domestic	-.0458221	.1218886	-0.38	0.709	-.2916338 .1999896
Mom_housewive	.0191093	.1570982	0.12	0.904	-.2977095 .3359281
Dad_pvtsector	-.0785967	.1405537	-0.56	0.579	-.3620503 .2048569
Dad_civil	-.0759313	.1612753	-0.47	0.640	-.4011739 .2493113
Mom_literate	-.0113778	.1280438	-0.09	0.930	-.2696027 .246847
Dad_literate	.1720625	.11174	1.54	0.131	-.0532828 .3974077
constant	-14.211	10.83899	-1.31	0.197	-36.0699 .647895

The coefficients on both location variables, where the majority of the sampled households reside (*Arada* and *Yeka*) are positive but not statistically significant in all the three models. On the other hand, location of resident of parents, especially when father used to live in urban area seems to lower risk of poverty of CHHs.

Education level of mother has significant impact in reducing the probability of falling into poverty.

Owning one or more productive and durable assets from parents has been found to reduce the probability of falling into poverty, which is indicated by the negative and statistically significant coefficients on two appropriate models in the table below. These assets, productive assets like house, livestock, and the like in particular, are found to be important since they have the capacity of generating income for the household. Reinforcing the result, households living in rented houses from private tenure have higher risk of falling into poverty. Reported cases of child abuse have, however, found to have no relation with the status of poverty of the child.

6. Concluding remarks

The data generated through household survey revealed that more than three-fourth of the total CHHs live below the absolute poverty line. Gender differential is evident in CHHs, where female-headed households are at a disadvantage. Gender differential is evident in CHHs, where female-headed households are at a disadvantage both in level of income and consumption. Close to 90% of female CHHs are living below the poverty line while the percentage for male CHHs is only 59%.

The main determinants of child poverty are found to be sex, size of household and age. Household size increases the probability of falling into poverty, while its square reduced the probability of falling into poverty indicating the presence of economies of scale at the household level. The age of the head shows that the risk of poverty increases as age increases but at a decreasing rate as indicated by the coefficient on its squared variable. Likewise, increase in mean household age statistically is likely to worsen poverty.

While the emergence of CHHs is very apparent, there are disturbingly no dataset on the prevalence of these households even in Addis Ababa, leave alone in other regional states. Without adequate data nobody knows the degree of the problem and the right package for intervention. Given the importance of children, both in volume and future of the country, the government needs to develop a mechanism for developing data base for orphan and vulnerable children in general and children living in CHHs in particular.

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Annex 1: Poverty measures**1.1: FGT measures of poverty for the whole sample.**

Poverty measures for the variable cons_mpc: consumption per capita per month

Survey mean estimation

pweight: <none>	Number of obs	=	66
Strata: <one>	Number of strata	=	1
PSU: <observations>	Number of PSUs	=	66
	Population size	=	66

	Mean	Estimate	Std. Err.	[95% Conf. Interval]	Deff
p0		.7727273	.0519793	.6689175 .876537	1
p1		.3310922	.0335473	.2640936 .3980908	1
p2		.1827745	.0245522	.1337403 .2318087	1

1.2: FGT measures of poverty for male CHHs.

Survey mean estimation

pweight: <none>	Number of obs	=	27
Strata: <one>	Number of strata	=	1
PSU: <observations>	Number of PSUs	=	27
	Population size	=	27

	Mean	Estimate	Std. Err.	[95% Conf. Interval]	Deff
p0		.5925926	.096362	.3945176 .7906676	1
p1		.2542163	.0573786	.1362729 .3721598	1
p2		.1502259	.0412485	.0654383 .2350135	1

1.3: FGT measures of poverty for female CHHs.

Survey mean estimation

pweight: <none>	Number of obs	=	39
Strata: <one>	Number of strata	=	1
PSU: <observations>	Number of PSUs	=	39
	Population size	=	39

	Mean	Estimate	Std. Err.	[95% Conf. Interval]	Deff
p0		.8974359	.0492161	.797803 .9970688	1
p1		.3843139	.0389368	.3054904 .4631374	1
p2		.2053081	.030106	.1443617 .2662546	1

Source: Author's calculation from survey data using STATA statistical software.

