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The Impacts of HIV/AIDS on Livelihoods and Food Security in Rural Ethiopia: Results from household Survey in Four Regions

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Acronyms

AIDS	Acquired Immune Deficiency Syndrome
ANC	Anténatal Care
CFW	Cash for Work
CSI	Coping Strategies Index
DDS	Dietary Diversity Score
DFID	Department for International Development, UK
DHS	Demographic and Health Survey
DPPA	Disaster Preparedness and Prevention Agency
FANTA	Food and nutrition Technical Assistance
FFW	Food for Work
FHH	Female Headed households
HH	Household
HIV	Human Immunodeficiency Virus
HQ	Head Quarters
MHH	Male Headed households
PAE	Per Adult Equivalent
PLHIV	People Living with HIV
PSNP	Productive Safety net
SLF	Sustainable Livelihood Framework
SNNPR	Southern Nations, Nationalities and Peoples' Region
SPSS	Statistical Package for Social Sciences
TLU	Tropical Livestock Unit
WFP	World Food Programme
WHO	World Health Organization

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Executive Summary

According to UNAIDS 2007 epidemiology report, in 2007 alone, 1.7 million people died in Africa from HIV/AIDS. Of all deaths from HIV/AIDS globally, 76% are in Africa. The majority of Africans live in rural areas, where labor intensive agriculture is the mainstay of the economy. A lot has been said about the devastating effects HIV/AIDS could have on rural livelihoods in developing countries. At a 2005 Conference in Durban, South Africa, 54 papers were presented which showed different types of impact HIV/AIDS has on food and livelihood security¹. What this shows is that the impact is context specific. This study sets out to examine the effects of HIV/AIDS on food and livelihood security in rural Ethiopia.

The first HIV/AIDS case was detected in Ethiopia in 1984. Since then, ‘AIDS has claimed the lives of millions and has left behind hundreds of thousands of orphans’². The adult HIV prevalence rate for 2005 is estimated at 2.1% (7.8% urban, 1% rural). Though the rural rate is low, 84.5% of Ethiopia’s 77 million population live in rural areas. While there is a growing literature on HIV/AIDS in Ethiopia, the focus has been on the epidemiology side and on urban areas. Therefore, this study will fill some of the information gap and as such support better design of interventions.

The overall objective of the study is to explore the impacts of HIV/AIDS on household food and livelihood security in rural Ethiopia. The study uses a variant of the Sustainable Livelihood Framework (SLF) developed by the DFID to examine how HIV/AIDS affects the human, physical and financial assets of rural households. Different food security indicators are also examined to assess how HIV/AIDS affects house hold food security.

The study was conducted in September 2007 in four regions, namely, Tigray, Amhara, Oromiya and SNNPR. Three Woredas were selected from each region based on the level of vulnerability to food insecurity. The study was designed to have equal number of households affected by HIV/AIDS and those not affected. Identification and selection of affected/not affected households is described in the methodology section. A total of 1245 households (620 affected and 625 not affected households) were covered by the survey. In addition to household interviews, community focus group discussions were held in order to determine the severity of coping strategies used by households in each area.

FINDINGS

Mortality: A total of 223 deaths were reported from all surveyed households over the 12 months preceding the survey. Of these deaths, 90% took place in affected households. In terms of age structure 77% of the deceased were in the age group 15-54 years, which is the productive age group. In addition, a total of 724 people were reported to have been chronically ill in the 12 months prior to the survey, of which 88% were from affected households.

¹ International Conference on HIV/AIDS and Food and Nutrition Security: From Evidence to Action, Apr.14-16, 2005, Durban, South Africa

² Accelerated Access to HIV/AIDS Prevention, Care and Treatment in Ethiopia: Road Map 2007-2008/10, Ministry of Health –HAPCO, V 6

Effect on household structure: the study findings show that HIV/AIDS affected households have a much different house hold structure than the non-affected households. As can be expected, affected households have a higher number of widows and widowers (27% of affected households heads were widowed as opposed to 11% of non- affected). While 78% of the not-affected household heads were married only 56% affected households were married. Differences also include a higher dependency ratio in the affected households (higher number of dependants as compared to working age household members) and a much higher number of orphans. There were 555 single orphans in affected households as opposed to 188 in not affected households (almost a three fold difference); the number of double orphans was 66 in affected and 13 in not affected households. Households affected by HIV/AIDS have a much higher proportion of FHH. The percentage of FHH is 19% among non affected households as compared to 36% among affected households which is almost double that of the percentage for non affected households and the much higher than the 20% national average for rural areas as given in the 2005 DHS.

Labor Availability: the results indicate affected households have lesser number of able bodied adult labor. After reducing the number of chronically ill adults, male headed affected households had a mean adult labor of 1.08 while non affected households registered a mean of 2.02, almost double that of the affected. Female headed affected households fair badly with a mean adult labor of 0.51 while not affected FHH had a mean of 1.19. The study revealed affected households cultivated a lesser amount of land than the not affected; the affected households reported this is mainly due to labor shortage. Land size in rural Ethiopia are small and as such there might be surplus labor in general, but the study shows this is not necessarily true for households affected by AIDS, specially for FHH

Land: the study shows that on average affected households held less land (less by 0.15 hectares) than non affected households. This is a statistically significant difference but the reason for the difference is not very clear. The size of land owned in rural Ethiopia mainly depends on house hold size (for people living in the same area). Since the house hold size for affected and non affected is pretty similar and it is not legal to sell land, one would have expected the land size not to differ much. This is one point that can be investigated in the future in other studies. Moreover, non affected households rent in more land to cultivate while the affected rent out more. Even after the smaller amount of cultivable land at their disposal, more affected households than the non affected left land uncultivated. FHH own less land than MHH.

Thus, not affected households have more land and more labor to cultivate it when compared to affected households. MHH also have more land and labor than FHH.

Change in cropping pattern: about 19% of affected households and 18% of non affected households reported to have changed crop types compared to the last three years. While the percentage of households who changed crops are almost similar between the two groups, there is difference in reasons for change. Out of the affected households who reported changing crop types, 25% said labor shortage, illness and death of house hold members were the reason for changing crops. The percentage of non affected households who gave the same reasons is only 7%. By contrast a higher proportion of non affected households, 61% of those who reported crop changes stated the reason for

change was to increase cash earnings as compared to 45% of affected households who gave the same reason.

Income: The study shows that on average, affected households earned less income from various sources such as sale of crop and livestock and self employment. The difference in average annual income between the two groups amounted to 1000 birr. This is quite a big difference given that total income is very low. Both affected and non affected households secured loans, the average loan amount being almost the same. However, a higher proportion of affected households in comparison to the control group used the loan for food purchase, health emergency and to buy medicines.

Assets: At the time of the survey, a higher number of non affected households had various types of assets than affected households. While 60% of affected households reported to have ox- plough the corresponding percentage for non affected households is 52%, a significant difference at 0.01 level. Similarly, a higher number of non affected households reported owning radio, farm implements and jewelry. Moreover, a higher number of affected households sold assets in order to meet health and funeral costs. Of the 441 affected households with a chronically ill or deceased member, 40% said they sold assets (82% of whom reported selling productive assets) to meet health and funeral costs. The number of not affected households with chronically ill/deceased member is much lower to begin with. Out of 44 not affected households with a chronically ill/deceased member 29.5% said they sold assets to meet health and funeral costs.

Livestock – In rural Ethiopia livestock and livestock products are very important source of income and food. The study indicates that on average affected households own less livestock than non affected. While descriptive analysis revealed a difference of 1.6 TLU (Tropical Livestock Unit)⁴ between the two types of households, multivariate analysis, controlling for other factors, showed that the average livestock owned by affected households is less by 1.05 TLU compared to a TLU of 6 for non affected households. Multivariate analysis also showed the number of adult labor in the house hold significantly increases the TLU, where by TLU on average increases by 0.35 for an increase of one adult labor. Female Headed households had substantially lower TLU than Male Headed households.

Food Security status – two proxy measures of household food security were used to compare the food security status of affected and non affected households : the Food Consumption Score (FCS) and the Coping Strategy Index (CSI). The FCS is a composite index calculated using dietary diversity and meal frequency. The results show a higher percentage of affected households had poor consumption as compared to the non-affected.

The (CSI) is a tool that has been used in many African and Middle Eastern countries to measure household food insecurity. The CSI measures the strategies people employ to cope with food shortages. The tool is described in the body of the paper. The measures taken to address house hold food shortage include reducing the number of meals or quantity eaten in a day, eating less preferred food and sale of assets particularly productive assets. The results show that affected households use more severe coping strategies as compared to the control group. The study found a statistically significant association of being HIV/AIDS affected house hold with consumption related strategies

like reducing the quantity or number of meals eaten, and going the entire day without eating. For instance, the multivariate analysis revealed that affected households are 1.57 times more likely to reduce the quantity of food eaten per day and 1.47 times more likely to reduce the number of meals in a day. The coping strategies related to reduction of food intake are particularly dangerous for PLHIV as proper nutrition is critical for their health and survival. Also, by far more affected households sold productive assets in order to buy food and meet health costs. As such, affected households are more vulnerable to practice coping strategies that endanger their livelihoods. Single headed households also had up to five times more likelihood of employing consumption related coping strategies.

Recommendations

Many recommendations have been made in various conferences and papers to address the effects of HIV/AIDS on rural livelihoods and food security. The overall approach should be one of integrating HIV/AIDS issues into the core business of government and non government agencies. This will require analyzing not only the effects of HIV/AIDS in a particular context but how programs and policies can best address the effects. There are specific measures that can be taken with in an overall approach of integration with core development policies and activities. These include the following.

To address labor shortage faced by households, developing or promoting existing labor saving technologies and production will be very useful. Crops that require low labor input should also be checked for their nutritional value. Labor saving technologies include farming equipments such as lighter ploughs that can be used by women and youth, inter cropping, minimum tillage, bringing water close to the home and fire wood plots.

In most rural areas in Ethiopia women do not plough for cultural reasons. While promoting technologies like lighter ploughs, addressing the issue of gender roles is needed. How to best address the gender roles is a good example of mapping out the practical or operational side of the recommendations. It is also important to look into the ways communities already use to support each other in times of labor shortage. For example in Ethiopia, the 'Debo' is a traditional mechanism where community members help a household during peak agricultural activities. This can be adapted and strengthened to help the HIV/AIDS affected households who face labor shortage.

Regarding the schooling of children, support can be given to households whose children are absent from school. The appropriate form of school support needs to be worked out depending on the reason why the children are not going to school and depending on what form of assistance already exists.

To support households who suffer from loss of agricultural knowledge/skills, training of agricultural extension workers on the effects HIV/AIDS has on agricultural work specifically and on rural livelihoods in general is very crucial. Extension needs to be women/youth friendly. It is necessary for traditional extension work that is focused on male heads of household to be women and youth friendly as well as for extension workers to target the households who have lack the necessary knowledge and skills for productive activities on and off the farm.

In order to address the poor consumption experienced, particularly by PLHIV, diversifying income/food from less labor intensive activities is important. Assistance could be given to households to raise highly nutritious products like poultry, vegetables (home gardens) and small ruminants. When the resource is available, free food/cash assistance should be provided to enable households meet the nutritional requirements of their members. Also, the training of the rural health extension workers should include nutritional counseling to PLHIV so that they can assist in applying the appropriate dietary and nutrition related practices to mitigate the effects of the illness and medication.

In order to support households who deplete their assets to buy food, medicine or pay for funeral costs, the measures mentioned above in terms of direct food/cash support or credit for income generating activities will be appropriate. The credit need to be more flexible and tailor made to households affected by HIV/AIDS who may face labor shortage to work and pay back with in a specified time frame.

1. Introduction

1.1 Background

The literature on the relationship of HIV/AIDS and rural livelihoods in general and the relationship to food security in particular has been growing fast in recent years. There is also empirical evidence on HIV/AIDS *vis a vis* its impact on food security and livelihoods from small scale studies mainly in East and Southern Africa. The evidence on the relationship of HIV/AIDS to food security is diverse. Still, many food security related factors that are affected by HIV/AIDS are known from research. What the diversity of the evidence demands is, in order to design appropriate interventions, context specific examination of the extent to which HIV/AIDS affects various aspects of food security in a country and in specific areas within a country is needed.

There are a number of factors that make the nature and strength of the relationship between HIV/AIDS and food/livelihood security contextual. These include household demographics such as household size and composition, socio-cultural context of the community and households' access to resources.

The preparation of a multi sectoral strategy to address HIV/AIDS in Ethiopia is to be applauded. However, a lot remains to be done to understand and address the impact of HIV/AIDS on rural livelihoods. As more than 80% of the population lives in the rural areas this is very crucial. A bibliography by Converse *et al* shows that studies on HIV/AIDS in Ethiopia have primarily focused on epidemiological factors with limited work on socio-economic impact of HIV³. There are very few studies that look at the link between HIV/AIDS and food security /agriculture in rural Ethiopia. For example a 2004 ECA/UNDP/WFP study in 2 rural agrarian Woredas shows that HIV/AIDS has affected livelihood in the following ways: household structure has been affected in that more single households are found among the affected and HIV/AIDS affected households divert expenditure from farming systems to non –productive items, even selling productive assets. This Current study covers 12 Woredas in 4 regions in the country. As such, it will contribute a lot to fill the knowledge gaps.

The key variables affected by HIV/AIDS in the rural areas of developing countries include labor quantity and quality, assets, education, food consumption. These variables can be investigated using the Sustainable Livelihood Framework which is explained below.

1.2. Objectives

The general objective of this study is to explore the impacts of HIV/AIDS on households affected by HIV/AIDS in rural Ethiopia. Specifically, the study intends to:

- Examine how HIV/AIDS affects the human capital of rural households.
- Probe into the effect of HIV/AIDS on the physical capital of HIV/AIDS affected households.
- Explore the linkages between HIV/AIDS and financial capital of households.

- Investigate how HIV/AIDS changes the various aspects of food security status of households affected by HIV/AIDS.

1. 3. Methodology and Scope

1. 3.1 Analytic Framework

This study uses the Sustainable Livelihood Framework (SLF) to examine the impact of AIDS on the main components of the livelihoods in rural households. The Sustainable Livelihood Framework is an analytic tool developed by DFID. The Framework is based on the belief that ‘people require a range of assets to achieve positive livelihood outcomes’ (DFID, Sustainable Livelihoods Guidance Sheets). The essential range of assets is grouped into the following five categories: Human Capital, Financial Capital, Physical Capital, Social Capital and Natural Capital.

The hypothesis is that AIDS is a shock that impacts all classes of assets. Human capital is lost through chronic illness and death of prime age labor as well as loss of skills and knowledge transfer. Financial capital is undermined due to: i) increased health care & funerals expenditure, ii) reduced income (through loss of productivity), iii) decrease in assets ownership (assets are sold to make up for lost income). Social capital is damaged as structures at the house hold and community level are affected. Physical and natural capital are damaged through loss of labor which affects the ability to farm and maintain common property.

In addition to the Sustainable Livelihood Framework, the study considered some food security proxy indicators. These are the Food Consumption Score which combines information on meal frequency and dietary diversity and the Coping Strategy Index which has proven to be a good indicator of food security level.

1. 3.2 Data and Methods

1. 3.2.1 sample size determination

To calculate the sample size in each of the four regions for both the HIV/AIDS affected and non-affected, the following formula was used.

$$n_h = (z^2) (r) (1-r) (f) (k) / (p) (n) (e^2)$$

n_h is the parameter to be calculated and is the sample size in terms of number of households to be selected;

z is the statistic that defines the level of confidence desired;

r is an estimate of a key indicator to be measured by the survey;

f is the sample design effect, *deff*, assumed to be 2.0 (default value);

k is a multiplier to account for the anticipated rate of non-response;

p is the proportion of the total population accounted for by the target population and upon which the parameter, r , is based;

n is the average house hold size (number of persons per house hold);

e is the margin of error to be attained.

1.3.2.2 Sampling design

The survey was carried out in four regions, namely; Tigray, Amhara, Oromiya and SNNP. The Woredas in the regions were stratified into three categories according to the level of their chronic vulnerability to food insecurity using WFP's Chronic Vulnerability Index (CVI). The three categories are 1 = low chronic vulnerability, 2= moderate chronic vulnerability and 3= high chronic vulnerability. One Woreda was selected from each strata using simple random sampling method. From the total list of Kebeles in the selected Woredas, ten survey *Kebeles* were selected using probability proportional to size (PPS). Thus, each selected Kebeles is considered as cluster, without further dividing into blocks. The selection of the *Kebeles* can be mathematically expressed as:

$$P_{1i} = (a \cdot \text{MOS}_i) / (\sum \text{MOS}_i)$$

Where,

a = the number of *Kebeles* allocated for selection in each Woreda.

MOS_i = the number of people in the i^{th} *Kebele* in accordance to the population figure to be obtained from the Woreda administration

$\sum \text{MOS}_i$ = the total number of rural people in the Woreda.

At the next stage, the field supervisors had to communicate with officials, key informants (including health extension workers) in the selected Kebeles to identify HIV/AIDS affected households using filter questionnaire using WHO (2006) definitions. The informants were asked to list down the names of chronically ill or deceased people in their Kebele who showed/have been showing the following symptoms:

- Weight loss
- Fever for longer than 1 month (intermittent or continuous)
- Diarrhoea for more than 1 month intermittent or continuous)
- Persistent cough for longer than one month.
- General itchy skin rashes
- Recurrent herpes zoster (shingles).
- A thick, whitish coating of the tongue or sores in the mouth that come and go
- Chronic progressive and disseminated herpes simplex infection.
- Swollen glands anywhere in the body;

The first three symptoms were identified as major symptoms while the remaining six are minor symptoms. If a household has/had a chronically ill member /deceased member who show / was showing two or more major signs and one or more minor signs, it could be considered as HIV/AIDS affected household. If the number of major signs is below two and the number of minor signs below one, the household would be considered to be not affected by HIV/AIDS. Based on these criteria, the list of HIV/AIDS affected households in the Kebele could be prepared.

From this list, five to six HIV/AIDS affected households were selected from each selected *Kebele* using systematic random sampling technique. Without affecting the randomness, their immediate neighbors who are not affected were taken as matching control group sample.

1. 3.2.3 Questionnaire

After the questionnaire was drafted, a series of revisions were made incorporating comments from WFP HQ and CO staff. Further adjustments were also made after the pretest of the questionnaire. The English version of the questionnaire was finalized and translated into Amharic. In addition, a manual explaining the objectives, sampling methods, and the interpretation of each question was prepared in Amharic and distributed to the field supervisors and data collectors. The questionnaire has the following sections: demographics, education, KABP about HIV/AIDS, asset and livestock ownership, land use and production, food sources, water and sanitation, house hold division of labor, expenditure patterns, income sources, consumption and food frequency, shocks and food security, coping strategies, programme participation, ART enrollment and adherence, mortality and coping mechanisms for death or prolonged sickness related problems.

1. 3.2.4. Data Analysis

CsPro software was used for data entry. Then, the data were exported to SPSS format for cleaning and analysis. The analysis is mainly done at house hold level. The house hold is the locus of three important decisions: demographic, production and consumption. Its character of being a unit of decision concerning individual members' activities and their consumption (and hence their welfare) makes it a useful sample unit with an identifiable location in survey work (World Bank, 1990:38). In view of these advantages, the analysis in this paper is made mainly at the house hold level.

The rural house hold survey data are used to estimate the statistical relationship between various food and livelihood security indicators. Both bi-variate and multivariate analyses were employed. In the bi-variety analysis, cross tabulations and chi-square test were applied to examine the association between each of the independent variables and the dependent variables. The chi-square test in the bi-variety analysis does not consider confounding effects. Therefore, for multivariate analysis, multiple regression and logistic regression were used. The parameter estimates of the models helped to analyze the net effects of each of the independent variable, among which the variable explaining whether the house hold is affected by HIV/AIDS or not is included, on the various dependent variables. The basic models used in estimating the effects of various predictor variables on various dependent variables are presented at each section. While running the multivariate analysis, the observations from all the four regions were pooled not to lose efficiency because of restricted sample size.

1. 3.2.5 Scope

Although HIV/AIDS has a wave of impacts from the macro economic level to micro house hold level, we are focusing on house hold level impacts due to limited capacity. Within the house hold level analysis we look at the effect of HIV/AIDS on human, financial and physical capital as well as on food security. Also, though the relationship of HIV/AIDS and food security is bidirectional, we have limited the study to the impact of HIV/AIDS on food security in order to keep the study manageable.

1.4 HIV/AIDS in Ethiopia

The first two cases of HIV infection in Ethiopia were reported in 1986. Since then, the disease has spread at an alarming rate. Prevalence projections are mainly based on infection rates in antenatal clinic attendees. However, the proportions rural to urban ANC sentinel sites does not match the distribution of the general population. A combination of the increase in the number of sites (especially rural sites, which provided more representative data), use of more advanced statistical analyses, improved data management, and the possible impact of the various prevention programs resulted in a decline of the estimated adult HIV prevalence to 3.2% in 2005. A Demographic and Health Survey (DHS) was also conducted in 2005, and it concluded that 1.4% of Ethiopian adults age 15-49 years are infected with HIV (prevalence among women was nearly 1.9% while that among men was just under 0.9%)⁴.

Since the results of the two surveys varied due to their different methodologies, it was decided to use both sets of data to establish one common estimate for national reference. In May 2007, the ANC and DHS results were reconciled into a single-point estimate of 2.1% in 2006 with an estimated total of 929,699 PLHIV (549,900 female and 379,797 males) and a total of 891,190 AIDS orphans.

The data also indicates stabilizing urban prevalence with a rise in prevalence in rural areas. However, even with this lower estimate in prevalence and the stabilizing trends, it should be noted that the number of people affected by the AIDS epidemic in Ethiopia is comparably high, as the country has the second largest population in sub-Saharan Africa.

The group with the highest HIV prevalence in the country is women aged 15 to 24. Data from blood donors, visa applicants, and police and army recruits indicating that HIV prevalence among men peaks between ages 25 and 29 years. As the most affected groups are people in their prime productive and reproductive years, this has resulted in the loss of the country's human capital. Decreased labor productivity and increased health care expenditure due to AIDS have been documented in some industrial plants around Addis Ababa⁵.

The difference in HIV prevalence among males and females in Ethiopia (1.7% against 2.6% in 2007) demonstrated the higher vulnerability of Ethiopian women to HIV infection, a trend also witnessed in many African countries with generalized epidemics. The peak age range for AIDS cases is 20-29 years old for women and 25-34 years old for men, and the peak age range for new HIV infection is 15-24 for women and 20-29 for men. This is most likely due to women becoming sexually active at a younger age and with older and more experienced partners, which makes negotiation of safe sex more difficult.

The increasing number of AIDS orphans is among the manifestations of the social impacts of the disease—the disintegration of families and a tearing of the basic social fabric. The single point estimate exercise determined that there were a total of 656,058 children in Ethiopia in 2006 who had lost at least one parent to AIDS.

⁴ Central Statistical Authority. Ethiopia Demographic and Health Survey. 2005. Addis Ababa, Ethiopia

⁵ The Impact of HIV/AIDS on Labor Productivity in Akaki Fiber Products Factory, Ethiopia. 2001. MPH Thesis. School of Graduate Studies, Addis Ababa University.

Studies have also shown the increased AIDS-related costs incurred by the health sector in terms of specific expenditure for hospitalization, treatment and supportive care. It has been documented that HIV-related patients occupy approximately half of all hospital beds, and that the increasing numbers of AIDS patients strain the capacity of the already overburdened health professionals⁶. In addition the high cost of for AIDS care affects budget allocation from other programs such as primary health care and essential drugs services.

⁶ Kello A. Impact of AIDS on the economy and health care services in Ethiopia. *Ethiop J Health Dev* 1998; 12(3): 191-201.

2. Livelihood profiles in the Study Areas

The *Woredas* covered by the survey are listed below. As can be seen from the livelihood descriptions below, the *Woredas* have different level of food security/insecurity.

Tigray	Amhara	Oromiya	SNNPR
Atsbi Wonberta	Mama Midir	Fentale	Boreda
Saesi Tseadamba	Sekota	Ginir	Hulla
Endahemoni	Goncha Siso	Babile	Bensa

The livelihood descriptions are adapted from the Household Economy Baseline work of the Livelihood Integration Unit in DPPA. The Household Economy Analysis (HEA) is a livelihood based approach that uses a number of data collection methods to carefully triangulate information in order to obtain a consistent picture of household livelihoods. We have not put the description of each livelihood zone as this would take a lot of space. The descriptions have been summarized and some of the information presented in ranges.

2.1 Tigray Region

All in all, there are six livelihood zones in the three *Woredas*. Only in one of the livelihood zones farmers produce sufficient food. Most of the areas suffer from acute and or chronic food insecurity emanating from drought, small land holdings and infertile soil. The main factors determining wealth are size of cultivated land and livestock holdings, particularly, ownership of plough oxen. There are differences in the size of land cultivated between the poorer households and the better off. Cultivated land ranges from 0.25-0.5 for the poorer households to 0.75 -1 hectare for the better off. Livestock holdings are modest. Agriculture is almost entirely rain fed. In order to cope with hazards, poor households intensify search for wage labor where by people from more households will migrate and stay longer to work. Better off households increase livestock sale to cope with hazards. Income opportunities for the poorer households are limited, migratory labor and PSNP are key sources of income for such households. Food purchase is a very important component of expenditure, especially for the poorer households who, in some zones, spend up to a third of their income on staple food purchase.

2.2 Amhara Region

There are seven livelihood zones in the three *Woredas* covered by the study. Two of the areas are surplus producing areas owing to fertile soils and good rainfall. Other areas suffer from erratic rainfall and environmental degradation which have led to food shortages. Agriculture is entirely rain fed. While some areas have bi-modal rainy seasons others have just one rainy season. One of the seven livelihood zones is mainly dependent in livestock. For the remaining crop dependent areas, the main determinants of wealth are the size of land and ownership of livestock. Land holding ranges from 0.5 to 0.75 hectares for the very poor to 1.5 to 1.75 hectares for the better off in some livelihood zones, in other zones some of the very poor households hold as little as 0.25 hectares

while the better off up to 2 hectares. In addition to crops and livestock, income opportunities include honey sale for the middle and better off households, eucalyptus trees for all though the number of trees owned varies considerably by wealth group and migratory labor for poorer households in some zones. PSNP is a major source of income even in a typical year, in some zones the PSNP and agricultural labor together contribute more than half of the total income for poorer households. In a normal year, the better off and middle households rely highly on livestock and crop sales to generate cash income. Also, all wealth groups commonly switch expenditure from non food items to staple food items during bad years. Recurring hazards include erratic rains, pest infestation, livestock diseases and malaria. Coping mechanisms by poorer households include increasing the number of people working in local labor or migratory labor activities as well as intensify sale of firewood and charcoal sale as they do not have other options to use in bad years. The better off households increase sale of livestock.

2.3 Oromiya Region

Of the three surveyed Woreda in Oromiya, two have agro pastoral and mixed farming livelihood zones while one Woreda (Fentale) is purely pastoral. The mixed farming areas in one Woreda are food surplus except for a few Kebeles (localities), while the mixed farming areas in the other Woreda are food deficit areas. In the agro pastoral livelihood Zones of the two Woredas, it is the middle and better off households who focus on livestock rearing while the poor and very poor depend on crop production if the rains are good. The main source of income for the middle and the better off household is livestock and livestock products. The agro pastoral areas, especially in one Woreda (Babilie) are known for their food deficit. In addition to crops and livestock, important income sources include firewood collection (by the very poor and poor), brewery and sale of trees. There is also a credit package to purchase oxen or for petty trade, the amount ranging from birr 500-1500 to be paid in one year, with a 10.5% interest rate. Usually the very poor and poor households take the credit package. Very poor and poor households are employed by the middle and better off during weeding and harvesting. Chronic hazards are drought, stalk borer and livestock diseases. To cope with bad times, the poor and very poor households increase fire wood sell and migrate in search of labor; the better off and middle households increase sale of livestock and take their livestock to other areas for better grazing/water.

The purely pastoral Woreda is a sparsely populated low land area with fertile soil. In addition to livestock, other important economic activities include trade, migrant labor, firewood and honey. The size of the livestock herd and type of animals are the main determinants of wealth. Chronic hazards include drought, livestock disease and conflict. In order to cope with these, households increase sale of livestock, there will be abnormal livestock migration to better areas. In addition, the poor will be engaged in firewood and charcoals sell.

2.4 SNNPR

There are five livelihood zones in the three Woredas. In three of these zones, in general most of the population is food secure, however a small proportion of the poorer households in some of the livelihood zones are chronically food insecure. In the remaining two livelihood zones the population is highly food insecure, due to poor soil

fertility, irregular rainfall, small land holdings and other factors. A late start of the Belg rains is serious in that it results in extended and more severe hunger season than is usual by delaying the green maize and bean. Wealth is determined mainly by the size of land owned/cultivated and the number of cattle owned. Land size ranges from 0.25 hectares for the very poor to 2 hectares for the better off. Crop pests and diseases are chronic problems. During bad years, the poorer households increase migratory work, do more local casual work, switch expenditure from non food items such as clothes and health care to buy staple food items, and engage in petty trade as well as sale of firewood. The middle and better off households increase sale of livestock in bad years, however there is a limit to this strategy as there is a shortage of fodder and the number of livestock kept is not significant.

What we have seen from the above livelihood description is that while a few livelihood zones are surplus producing and relatively food secure, the majority are food deficit zones. Households, already have to grapple with small land holdings, shortage of plough oxen, hazards such as drought etc. Also, for the poorer households, sale of labor and Public safety net programs are very important sources of income. Needless to say, existing food insecurity and vulnerabilities reduce people's capacity to cope with the effects of HIV/AIDS

3. FINDINGS

The findings of the study are presented in five sections. In the first section, the effects of HIV/AIDS on human capital of the households are presented. The second section deals with the impacts on land cultivation and production. The financial capital effects and physical capital effects are discussed in the third and fourth sections of this chapter, respectively. Finally, the last section is devoted to the analysis of the impacts HIV/AIDS is causing on food security status of households.

3.1 Human Capital

Human capital is comprised of the knowledge, skills and good health that enable people to work in order to pursue livelihood outcomes. Hence, household human capital is determined by the quantity and quality of labor availability which, in turn, depends upon several factors, such as household size, age structure, skill and knowledge levels as well as health status. AIDS affects the quantity and quality of productive labor through the death and chronic illness of household members in productive and reproductive age group, through the amount of time taken by others to care for the chronically sick (taking into account HIV/AIDS is a protracted illness), time lost during customary mourning period and loss in knowledge/ skills transfers.

3.1.1 Mortality and Chronic Illness

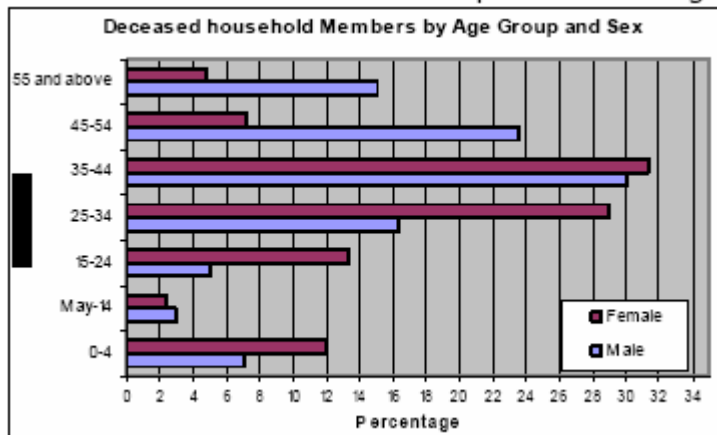
In this study, out of the 1243 households surveyed, 200 households (16%) reported they have experienced death of a member(s) over a 12 month's period preceding the survey. Out of these 200 households, 89% are affected households. A total of 223 deaths were reported, of which 90% are from HIV affected households. Put another way, 29% of affected households experienced death of a member while only 3.5% of non affected households lost a member to death in the same period. Therefore, mortality among affected households is much higher.

Table 3.1 Percent Distribution of households that had Deceased Family Member(s) in the 12 Months before the Survey by type of Reported Cause of Death

Reported Cause of death	Frequency	Percent
Malaria	4	1.8
TB	36	16.4
Pneumonia	25	11.4
HIV/AIDS	67	30.6
Short illness	19	8.7
Old Age	3	1.4
Accident	1	0.5
Diarrhea	10	4.6
Don't know	40	18.3
Other	14	6.4
Total	219	100

Households were asked to report the causes of death. About 31% of households explicitly reported HIV/AIDS as the direct cause of death. The percentage of households who reported TB, Pneumonia and Diarrhea as cause of death adds to 32.4 %; these three are co-infections with HIV/AIDS or opportunistic infections. It is possible that some members do not tell their households they have the virus (assuming the individual knows), or in rural areas people might not know given testing is not common. In deed, 18% of the households reported they don't know the cause of death. Another reason for not stating HIV/AIDS as a cause of death could be fear of the stigma.

Figure 1: Deceased Household Members in the Previous 12 Months by Age Group and Sex



When it comes to characteristics of the deceased, as table 3.2 below shows the majority of the deceased are in the productive age group (77 % are between 15 -54 years!). This is one of the factors that make HIV/AIDS a unique and devastating shock, most of those who are infected and die are who are normally the economically active. The women who die mostly are those primarily responsible for maintaining the household i.e. reproductive roles of caring for household members from food preparation to taking care of the sick. Male household members make up some 63 percent of the deceased while females comprise the remaining 37 percent.

Table 3.2 Percent Distribution of Deceased house hold Members by Age Group and Sex

Age Group	Male	Female	Total
0-4	7.1	12.0	9.0
5-14	2.9	2.4	2.7
15-24	5.0	13.3	8.1
25-34	16.4	28.9	21.1
35-44	30.0	31.3	30.5
45-54	23.6	7.2	17.5
55 and above	15.0	4.8	11.2
Total	100.0	100.0	100.0
N	140	83	223

Moreover, a high % of the deceased (54 %) were household heads. One implication is loss of knowledge/skills, including skills to manage agricultural activities. Another implication is that the remaining spouse is responsible for both economic activities and to head the household. Unfortunately with HIV AIDS the remaining spouse will also be sick.

In terms of chronic illness, a total of 724 people were reported to have been chronically ill in the last 12 months prior to the survey. Of these, 88% are from HIV affected households. Or, 78.5% of all the affected households in the survey had a chronically ill member(s) while 12% of the non- affected had chronically ill member (s). In terms of number of chronically ill members per house hold, 14% of affected households had 2, while 2.6% had 3 members, 1% had more than 3 while 75% had 1 member and 22% had none who was chronically ill in the past 12 months. Among the chronically ill, 28% were household heads. The implications of high death rates in the productive age group, death of household heads and spouses as well as implications of chronic illness (and for some households' chronic illness of multiple members) are discussed below.

3.1.2 Household structure and Dependency ratio

Household Structure

The mean household size for the survey is 5.4; when broken down for the different type of households MHH, have a higher household size as compared to FHH. When we compare affected & not affected, the household size is almost similar ($\mu= 5.4$ for not affected & 5.2 for affected).

As the table below shows, in the majority of non affected households (78%) the household head is married. In contrast, in only 56% of affected households the household head is married and in 27% of the households the head is widowed (more than twice of the non affected). The divorce rate is also higher among affected, perhaps indicating the pressure HIV AIDS is creating. One of the major differences identified by the study is a very high percentage of FHH among affected households (36%), as compared to the percentage among non affected households (19%); the former being almost as much as the latter. The 2005 Ethiopian Demographic and Health Survey also show the % of FHH in rural Ethiopia is about 20% on average. As we will see in later sections, FHH covered in the survey experience more negative effects on various forms of capital and on food security.

A total of 208 households or 16% from the sample are headed by the elderly (60 years and above). However, the number of elderly headed households is slightly higher among non affected households (115 as compared to 95 for the affected). There is no indication that households affected by HIV/AIDS are particularly left to be headed by the elderly. What has clearly emerged is that a large proportion of affected households are single headed (see table below) and many of them headed by females. Only two of the affected households reported they are headed by children (15 and 17 years old).

Table 3.3 Marital Status of the Heads of HIV/AIDS Affected and Non-Affected households

Marital Status of the house hold Head	Not Affected	HIV/AIDS Affected
Married	78	56
Widowed	11	27
Divorced	7	13
Never married	1	2
Separated	2	1
co habiting	1	1
Total	100	100
N	608	608

Regarding the presence of orphans, affected households have a higher number of orphans. There are 555 single orphans (one parent only) in affected households compared to 188 single orphans in non affected households, the former being three times more. The number of double orphans (lost both parents) is 66 in affected households and 13 in none affected, a difference of five folds. When households were asked if they send children away to relatives and friends, only 6% of affected households (out of 615) and 2% of the control group (out of 609) said they send children away. This suggests orphaned children stay with the nuclear family by and large.

In order to examine the effect of HIV/AIDS on family breakdown, households who experienced death of a member in the last 12 months, were asked to indicate the problems they faced as a result. Among the various responses, a few households (8 affected and 3 none affected) reported family breakdown due to death of a member. Still, it may indicate an emerging problem.

Dependency Ratio

General Dependency ratio is the number of people to be supported by working age people (number of non working aged 0 to 14 and above 59 years divided by number of 15 to 59 years old). Since Chronically ill adults in the productive age group can not work for a number of months (in fact healthy adults divert time from productive work to care for the sick), the number chronically ill aged 15 to 59 should be reduced from the working age group and added to the dependents; this is called effective dependency ratio. The general dependency ratio for the sample is of 125 which means every 100 working age adult is responsible to take care of themselves and other 125 people. With Chronic Illness, we get an effective dependency ratio of 156.

When we compare affected households with the non affected ones, the former have a much higher mean effective dependency ratio (189) as compared to (130) for non affected.

There are regional differences in dependency ratios with SNNPR displaying the highest effective dependency ratio of 187, Amhara the least with 137 Oromiya and Tigray 140 and 160 respectively.

3.1.3 Schooling

One of the mechanisms households employ in order to care for the sick is to withdraw children from school. The interviewee were asked a series of questions with the view to examine whether there is difference in school related indicators among children from HIV/AIDS affected and not-affected households. As the result in the table below suggest, there is no significant difference between children from affected and non-affected households in terms of ever attending in formal school, enrolling in school in the previous year before the survey, and attending school in the same period. However, pronounced difference is observed between orphans from affected and non-affected households in terms of absenteeism and dropout from school. Some 30 percent and 8 percent of the children from affected households reported the absenteeism of 20 percent or more of the classes and dropped out in the previous school year, respectively. The corresponding figures for non-affected households are 14 percent and 5.4 percent, respectively.

Figure 3.2 School Enrollment and Attendance of School Age Children from HIV/AIDS Affected and Not-Affected Households

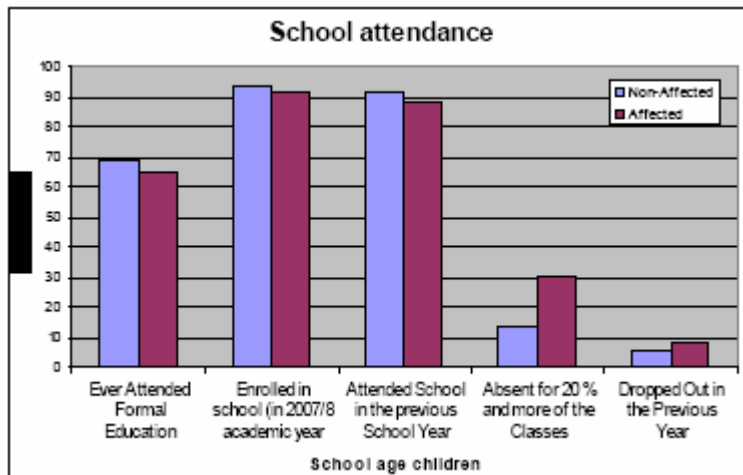


Table 3.4 School Related Indicators for Children between age 5- 18 by HIV/AIDS affected Status

	Non-Affected	Affected	Sig
Ever Attended Formal Education	68.4	65.3	0.198
Enrolled in school (in 2007/8 academic year)	94	91.4	0.107
Attended School in the previous School Year	91.4	88.2	0.164
Absent for 20 % and more of the Classes	14	30.2	0.000
Dropped Out in the Previous Year	5.4	7.9	0.038

3.5 School Related Indicators (in percentage) for Orphan and Non-orphan Children (between age 5 and 18) by Affected Status

	Orphan	Non-Orphan
Ever Attended Formal Education	61	59
Enrolled in school (in 2007/8 academic year)	93	93.4
Attended School in the previous School Year	86	90.7
Absent for 20 % and more of the Classes	28.9	20.2
Dropped Out in the Previous Year	7.5	5.9

A higher percentage of orphaned children were absent from school than the non-orphaned ones. This is the only difference in school related indicators that is significant at 0.001 level. Still there are small differences also in dropped out percentages and school attendance in the previous year. Thus, households hosting orphans need a closer monitoring.

3.1.4 Labor

Households in the study areas derive their living from labor intensive, rain fed small holder farming. The maximum most of the areas hope for is a bi modal rain distribution. This means enough labor is key during land preparation and planting so as not to miss the rains. The table below reveals that affected households have much less labor; of these Female headed households are in a worse condition. We have also seen above that most of those who have died and those who are chronically ill are men. As men have the primary responsibility for farm work, households with adult male who are sick or who lost such members to death are more exposed to labor shortage and the consequences that follow. In the case of adult female death, the households will feel the labor shortage in terms of both maintaining the household (reproductive roles of food preparation, child care etc.) as well as the economic contribution the female adult made.

Table 3.6: Mean Number of Adult Labor by the HIV/AIDS Affected Status of households

Mean No of adult labor	Not- Affected		HIV/AIDS-Affected	
	MHH	FHH	MHH	FHH
Mean number of adult labor (15-59 year olds)	2.16	1.32	2.2	1.33
Mean number of chronically ill adults	0.14	0.13	1.12	0.82
Mean adult labor minus CI adult	2.02	1.19	1.08	0.51

In order to shed more light on the matter, we also looked at the percentage distribution of households by the number of adult labor available in the house hold. The following table presents the results.

Table 3.7 Percentage distribution of households by number of adults in the house hold

Number of adult labor	0		1		2		3		4		5		6	
	A	NA	A	NA	A	NA	A	NA	N	A	A	NA	A	NA
Effective labor ⁷	27	4	31	13	20	42	12	18	7	14	3	6	1	2
Male labor	27	15	43	52	16	23	8	7	2	2	.2	.5	-	.34
Female labor	7	8	61	59	22	24	7	8	3	1	.3	-		

A= Affected NA= Not affected

As a reminder effective labor means we take out the number of chronically ill adults, as chronic illness is defined when the person is not able to work for three or more months in a year. The table shows, about 27% of affected households have no adult labor that is not chronically sick. By contrast, the percentage of non affected households with zero adult labor (not chronically ill labor) is only 4%.

Average labor to land ratio shows that Female Headed households affected by HIV/AIDS have less than 1 labor to land ratio. Male Headed affected households have a land to labor ratio of 1.16. However, as most of the Chronically Ill adults are male, it is likely they face shortage of male labor. In fact, the study shows that as a result of the number of deaths and illness in the working age group, affected households have cultivated a lesser amount of land than the control group. Land cultivation is discussed in detail below.

3.2 Land Cultivation and Production

3.2.1 Land Availability

In Ethiopia all rural land is state owned where individuals have user rights (for free) and can inherit the land to their children. There are differences in the average size of household land holding between regions as well as among households with in the same region. Regional differences emanate, among others, from differences in land administration (for example reallocation, rent), settlement patterns and population pressure. Differences among households in the same area mainly depend on household size.

⁷ Effective labour includes number of adults minus number of chronically ill household members (15 -59 year olds – Chronically ill adults)

Table 3.8: Percent Distribution of HIV/AIDS Affected and Non- Affected by the Land Size and Region

Land Size (hectares)	Tigray	Amhara	Oromiya	SNNP
0-0.25	30	9	11	16
>0.25-0.5	41	26	30	32
>0.5-0.75	12	9	5	6
>0.75-1	13	30	26.4	26
>1-2	4	24	21	14
>2	0.8	2	6	6
Total	100	100	100	100
N	277	260	269	300
No of households who responded = 1106				

As we can see from the table, the households from Tigray have a much smaller land size compared to the other regions; more households from Amhara and Oromiya have relatively larger land size i.e. greater than 0.75 hectare.

When we come to households affected by HIV/AIDS, table 3.8 below indicates the average amount of land held by affected households is less by 0.15 hectares than that of the non-affected; it is a statistically significant difference with $p=0.004$. The median land size for non- affected is 0.75 hectares while it is 0.5 hectares for the affected. It is not clear why affected should hold a lesser amount of land which is a crucial point to be investigated in future work.

Table 3.9 : Average land size of affected and non-affected households

Not- Affected		Affected	
Male Headed	Female Headed	Male Headed	Female Headed
1.04 hectares	0.70	0.93	0.65
Average not affected households = 0.99 hectares		Average affected = 0.84 hectares	

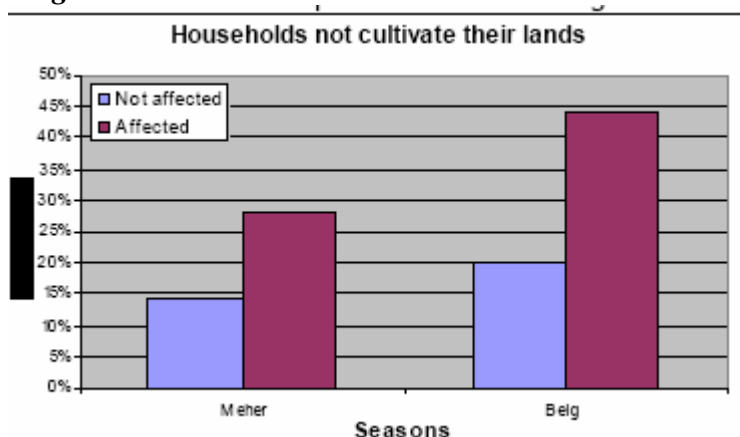
Female Headed households have much smaller land size than the Male Headed ones. The mean land size owned by FHH (from both type of households) is 0.67 while Male Headed households on average own 0.99, a difference of 0.32 hectares ($p = .000$)

In addition to differences in the size of land owned, non- affected households rent more land from others while the affected rent out more land. Considering this, affected households have less land to cultivate on average affected households had 0.78 hectares of land for cultivation after renting out, in comparison non affected households had 1.14 hectares to cultivate. This is a difference of 0.36 hectares between the two groups. Given the small average land size held by households we saw above, this is quite a difference.

The gap between the two categories widens when we consider the actual amount of land they use for cultivation. What is more, even with a lesser amount of land at their disposal,

more affected households than the control group, left all or part of that land uncultivated. As the table below indicates, out of 460 affected households who responded to the question on land cultivation, 28% left part or all of their land uncultivated; this is twice as much as the % of non-affected households who did not cultivate land; it is also a statistically significant difference. The number of households who responded for the Belg season is small and the difference not significant at 0.05 levels; so we will focus the discussion on the Meher season differences.

Figure 3.3 Households who left all or part of their land uncultivated in the Previous Belg and Meher Seasons



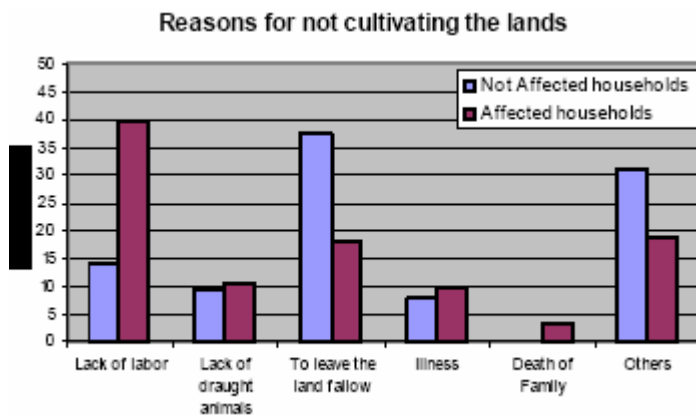
The primary reason cited by affected households for not being able to cultivate part or all of their land is labor shortage (as many as 40% of affected households reported labor shortage). Some households from the control group also reported labor shortage (14%), but the main reason for not cultivating land among these households is land was left fallow. 9.5 percent and 3.2 percent of affected households were not able to farm all or part of their land due to illness and death of a family member, respectively. The percentage of households that reported lack of draught animals is almost similar for both groups; it is possible for households to rent draught animal or have a share cropping arrangement. Unfortunately 31% of the control group and 19% of affected households did not specify the reasons for leaving land uncultivated.

3.10 Percent Distribution of households by the major reason for not cultivating all or part of their land in the previous *meher* season

Reasons for not cultivating	Not-Affected households	Affected households	Significance (Two-tailed)
Lack of labor	14.1	39.7	0.008
Lack of draught animals	9.4	10.3	
To leave the land fallow	37.5	18.3	
Illness	7.8	9.5	
Death of Family	0	3.2	
Others	31.2	19	
Total	100	100	

The effect of HIV/AIDS depends on the role the chronically ill or deceased member played. Households hit by the death of a member were asked to indicate the main contribution of the deceased before s/he succumbed from chronic illness and passed away. It was reported that 29% of the deceased (out of 223 deaths) mainly contributed labor when they were alive. Other contributions such as income are discussed in later sections.

Figure 3.4 Reasons for not cultivating part or all of their land among HIV/AIDS-Affected and Not-Affected Households



Therefore, non-affected and male headed households have access to more land for cultivation and have more labor to cultivate the land. On the contrary, the affected, particularly Female Headed households have a lesser amount of land and face labor shortage even that amount. Therefore, given small land sizes in rural Ethiopia, there might be surplus labor in general, but for HIV/AIDS affected households, this is not necessarily true. As prime age adults die or are chronically ill and as healthy adults take care of the sick, affected households, especially those headed by females face labor shortage to cultivate what ever small land they have

From different sections below, we will see that affected households produced a lesser quantity of food. This negative impact on production will be much pronounced in the future as affected households sell more and more productive assets and as chronically ill adults die.

3.2.2 Change in cropping pattern

One of the measures households take to address labor shortage is said to be changing cropping patterns by moving to less maintenance crops (Topouizs, 1999 p.16). In this study, some households from both groups reported changing crop types compared to the last three years. The reasons why affected households changed crops is somehow different from the control group.

As the table below shows a similar proportion of households from both groups reported to having changed crop types. When we come to the reasons for change, the Table 3.12 below shows that more non affected households changed crop types to get a greater amount of cash as compared to the affected. On the other hand, a higher % of affected

households reported they were forced to change crop types due to illness and labor shortage.

Table 3.11 Percentage of households who changed type of crops

Have you changed crop types compared to the last 3 years?	Non-Affected	Affected
No	82	81
Yes	18	19
Total	100	100
N	555	528

Figure 3.5: HIV/AIDS affected and not Affected Households by the the main Reason for Changing their Cropping Pattern

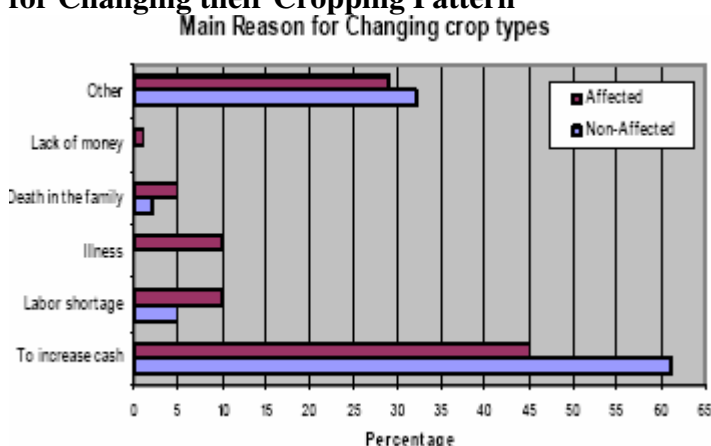


Table 3.12: Percent Distribution of HIV/AIDS Affected and Non-Affected households by the Main Reason for Changing crop types

Reasons	Non-Affected	HIV/AIDS Affected
To increase cash	61	45
Labor shortage	5	10
Illness	0	10
Death in the family	2	5
Lack of money	0	1
Other	32	29
Total	100% (n=76)	100% (n=82)

Out of the 200 households who reported changing crop types, 82 affected and 76 non affected households listed reasons. From these, 60% of the non- affected changed crops in order to increase cash, a lesser proportion of affected households, 45% did so for the same reason. On the other hand, illness and labor shortage together forced 16 affected households or 20% of the affected who changed crops; none of the non- affected changed cropping pattern due to illness while only 4 non affected households reported labor shortage as a reason for changing crop types. Even if the number of households who reported changing crop types is small (about 16% of the total sample), the differences in reason for change among the two types of households is statistically significant at 0.05 level. Therefore, some households affected by HIV/AIDS have

changed crop types due to illness while more affected households than the control group are changing crop types due to labor shortage.

3.3 Financial Capital

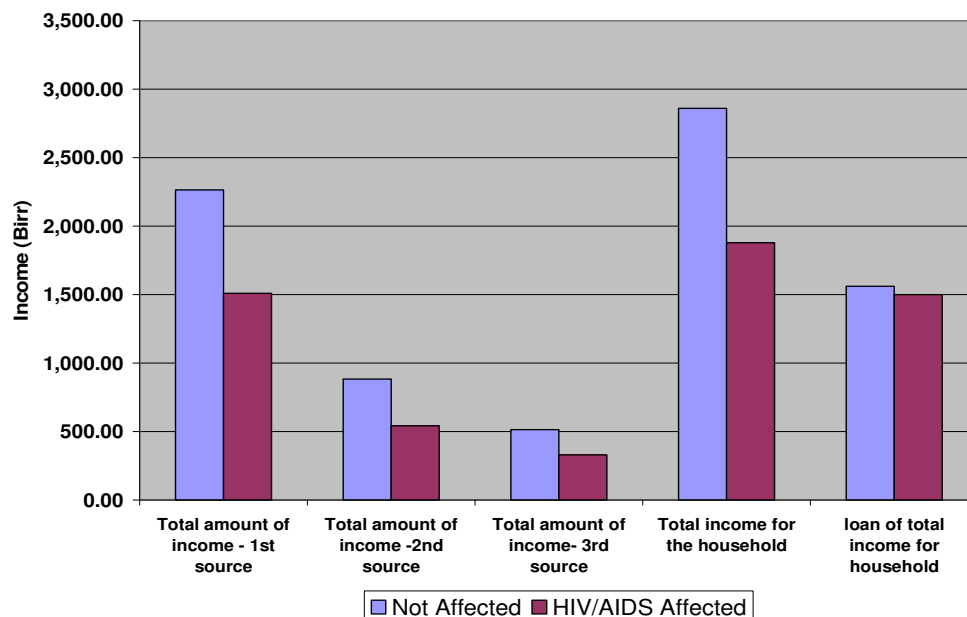
Financial resources owned by the households to pursue their livelihood objectives can be obtained from different sources such as cash income from sale of crops/livestock, savings either in cash or assets (savings in livestock, jewelry, etc), earned income from formal or self employment, loans and remittances. In this section, the impacts of HIV/AIDS on income, loan and expenditure of households is investigated.

3.3.1 Income

The impact of AIDS on financial capital may be the result of its direct impact on labor availability and production. We already saw that more than half of the deceased are between 25 and 44 years old. The chronically ill are also concentrated in the same age group. It is hypothesized that the immediate impact of this may be the reduction in income both from farm and off farm employment.

As people tend not to reveal all income or have difficulty to remember income over a 12 months period, enumerators' exercised great care to cross check information. Still, we will only be using the income figures to compare between affected and non affected households. The study revealed that the non-affected households have more income from different sources such as crop and livestock sales and self employment. The average income for a period of 12 months before adding loans, was 2860 birr for non affected households and 1877 birr for affected households, a difference of almost 1000 birr.

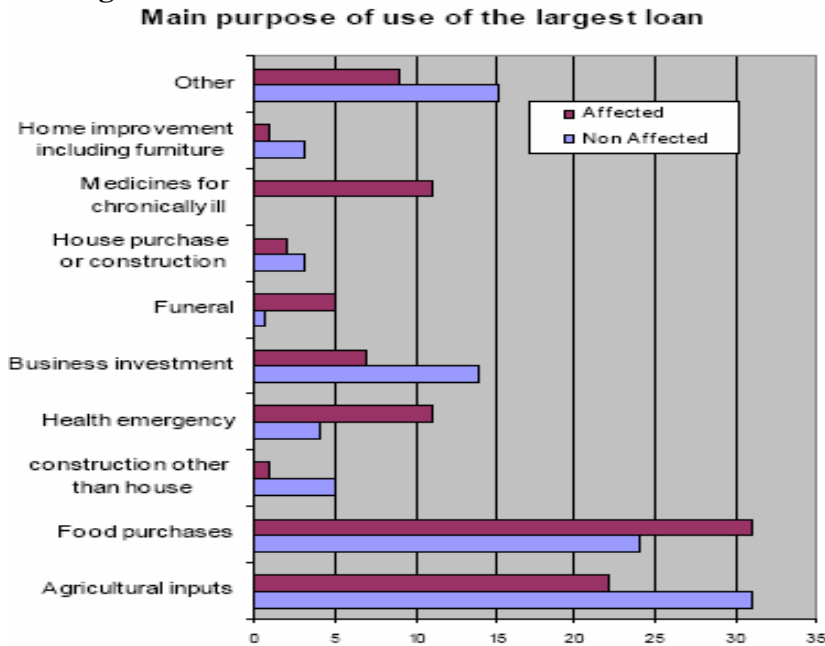
Figure 3.6 Amount of Income from the top three Sources and Total Income In the previous of HIV/AIDS-Affected and Not-Affected Households



3.3.2 Loan

When it comes to loans, the non-affected and affected households secured similar amounts, birr 1560 for the non-affected and birr 1,498 for affected, only a difference of 62 birr. But the use of the loans is different and revealing.

Figure 3.7 HIV/AIDS Affected and Not-Affected Households by their main reason of the largest Loan



Households reported the main uses of the largest loan they took in the 12 months prior to the survey. The number of households who responded to the question on use of the main loan is 359 (153 not affected and 206 affected), this makes 29% of the total sample. As the table below indicates, while both types of households reported food purchase using the loan, % of affected households who did so is greater than the non affected. Most non affected households used the largest share of the loan for agricultural inputs while most HIV affected households used the main share for food. The percentage of households that used the loan for business investment is also higher for the non-affected. 26.8% of affected households reported the main use for the largest loan they took is for health emergency, to buy medicines for chronically ill members and to cover funeral costs. By contrast, only 4.7% of non affected households reported they used the loan for health emergency and funeral, while none of them reported to have used the loan to buy medicine for chronically ill members. Given, the average amount of loan is almost similar between the two groups, these percentages show remarkable differences. Although, the results are based on a smaller number of households than the total sample, the difference are found to be statistically significant.

Table 3.13: Percent Distribution of HIV/AIDS Affected and Non-Affected households by the Main Use of the Largest Loan

	Not- Affected	HIV/AIDS Affected
Agricultural inputs	30.3	21.7
Food purchases	23.9	30.9
construction other than house	5.2	1.0
Health emergency	3.9	11.1
Business investment	13.5	6.8
Bride price/wedding	0.0	0.5
Land purchases	1.3	0.0
Funeral	0.6	4.8
House purchase or construction	3.2	1.9
Medicines for chronically ill	0.0	11.1
Home improvement including furniture	3.2	1.0
Other	14.8	9.2
Total	100% N=153	100% N=206
P=0.000		

The sources of the loan also differ among the two groups. Out of the total number of households reported taking loan, 93% of the non-affected and 98% of the affected indicated the sources of the loan. Of these, 56% of the non-affected were able to secure loan from micro finance institutes as opposed to only 32% of the affected households. By contrast more affected households secured loan from family/friends, from money lenders and shop keepers. It is possible that HIV affected households are considered more risky by micro finance institutions or the households themselves are afraid of the repayment conditions.

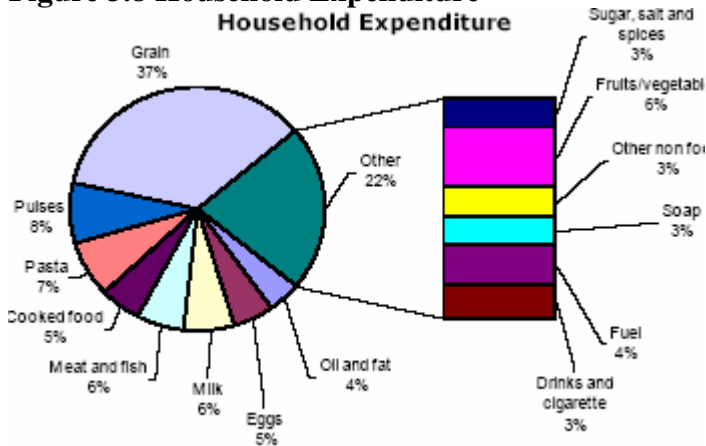
Table 3.14: Percent Distribution of HIV/AIDS Affected and Non-Affected households by the Main Source of Major Loan taken

	Not Affected	Affected
Family/friend in Ethiopia	7.7	19.3
Micro finance institute	56.3	32.2
Bank/Mortgaging land/house	0	0.5
Family/friends outside	0.7	0
Shopkeeper/Traders	6.3	10.4
NGO	10.6	7.9
Money lender	12.7	20.8
Other	5.6	9.0
Total	100 N=142	100% N=202
P=0.000		

3.3.3 Expenditure

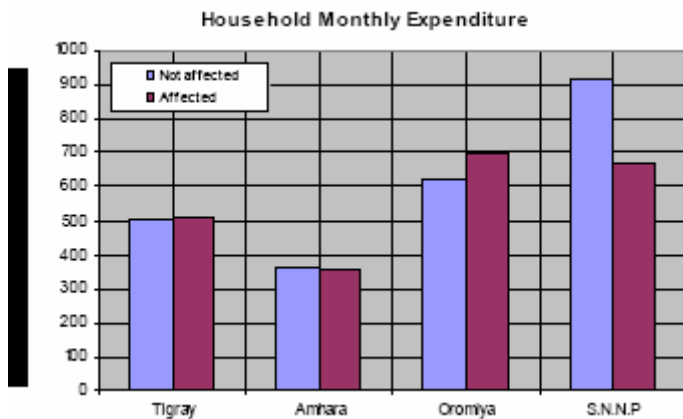
On overall, greater proportion of the household expenditure is on food items. As shown on the chart, the proportion of household expenditure on grain is 37%, followed by pulses (8%), Pasta (7%), meat and fish, fruit and vegetable and milk (6%), eggs (5%), oil and fats, and fuel (4%), and others at 3%. On the actual amount of money spent on health and funeral costs, only 13 households reported health care expenditure while no household reported funeral costs. HIV/AIDS affected households have no significant difference on the percentage of expenditure on food and non-food with affected households.

Figure 3.8 Household Expenditure



S.N.N.P region has the highest amount of expenditure (Birr 900) for non-affected and Birr 700 for affected households. Oromiya total monthly household expenditure for affected household (Birr 700) is slightly higher than not-affected (Birr 630) households. On the other hand, Amhara region has the lowest average monthly expenditure at only Birr 360 per month for both affected and non-affected households. The average expenditure for affected and not-affected household in Tigray is about Birr 510 per month. There were wide variations in monthly expenditures for affected vs. non-affected households in S.N.N.P and followed by Oromiya regions as depicted on the chart.

Figure 3.9 Households' Monthly Expenditure by Region and HIV/AIDS Affected and Not-Affected



To identify factors correlated with house hold expenditure of the surveyed households, three models have been constructed. The dependent variables in the three models include: logarithm of total expenditure, logarithm of expenditure on food, and logarithm of expenditure on non-food items /services. All the expenditures refer to the reported expenditure in Birr in the previous 30 days before the survey. The transformation of expenditure into logarithm is applied for two reasons. One, to control hetroskedasticity two to acknowledge that the marginal utility of income is assumed to be non-linear [Maxim, 1992:189]. Given that the dependent variable, expenditure, is expressed in logarithmic form, the coefficients give the proportionate effects of each explanatory variable. This can be expressed as:

$$\text{Log}(Y_i) = \beta_0 + \beta_1 x_{ij} + \beta_2 x_{2j} + \dots + \beta_k X_{kj} + e_j$$

Where Y_i = house hold expenditure per adult equivalent (PAE) in the previous 30 days (total-model-one, food-model-two, and non-food-model-three)

$j = 1, 2, \dots, j$ observation

β_0 = the intercept/constant term

β_k = slope parameters

X_{kj} = the k^{th} observable explanatory variable for the j^{th} observation.

$K = 1, 2, \dots k$ coefficients of observable explanatory variables

e_j = normally distributed error term

The variables entered into the regression models include possible factors presumed to affect expenditure. As presented in the table, most of the variables in the three models are not robust estimators of house hold expenditure.

Being male headed house hold is noted to increase expenditure for food related costs while has a decreasing effect on amount of expenditure of non food items, significant only at 10 %. The result is not statistically significant for the total expenditure.

Household size has significantly increasing effect on total expenditure PAE and expenditure on food PAE. Access to free food assistance in noted to have a decreasing effect on total expenditure PAE (significant at 1%) and expenditure on food PAE (significant at 10 %). On the other hand, access to FFW activities is positively associated with total expenditure PAE (significant at 5 % level) and expenditure on food (significant at 10 %).

Controlling for other variables, size of the land owned by the households have consistently positive effect on the PAE expenditures on all items, food items, and non-food items (all significant at 5 % level). From the magnitude of the coefficients, the effect on non-food item related expenditures is pronounced compared to the effects on total expenditure PAE and expenditure on food items PAE.

Contrary to expectation, being HIV/AIDS affected or not does not have statistically significant effect on the entire expenditure PAE or food related expenditures PAE. Its effect on non-food items expenditure PAE is positive and significant only at 10 percent level.

Table 3.15: Regression Results of Logarithm of Food, Non-food, and Total Expenditure per Adult Equivalent

Independent variables	Logarithm of total expenditure PAE	Logarithm of expenditure on food PAE	Logarithm of expenditure on NFI PAE
(Constant)	2.2301*** (25.022)	2.1867*** (25.738)	2.0519*** (5.5883)
widowed/widower	-0.0548 (-1.244)	-0.0434 (-1.034)	0.0970 (0.5301)
sex of head Household head	0.0465 (1.162)	0.0481* (1.260)	-0.2666* (-1.5326)
HOUSE HOLD size	0.0584*** (9.782)	0.0559*** (9.831)	0.0228 (0.8669)
Free food assistance	-0.0548**** (-1.301)	-0.0579* (-1.442)	-0.161 (-0.9100)
FFW	0.1097** (2.856)	0.0904* (2.471)	-0.0674 (-0.4395)
CFW	-0.0151 (-0.383)	-0.0041 (-0.108)	-0.0601 (-0.3611)
Size of land in hectare	0.0466 (2.935)**	0.0433** (2.863)	0.1733** (2.6463)
Age of the Household head	-0.0008 (-0.845)	-0.0003 (-0.309)	-0.0112** (-2.5889)
HIV/AIDS Affected status	-0.0115 (-0.426)	-0.0107 (-0.418)	0.1834* (1.6245)
Food production per adult equivalent	0.0000 (0.020)	-0.0001 (-0.053)	0.0386** (3.5725)
Coping Strategy Index	0.0004 (0.780)	0.0001 (0.316)	0.0006 (0.3762)

The results in parentheses are t-values.

*** Significant at 1 % level

** significant at 5 % level

* significant at 10 % level

3.4 Physical Capital

This section focuses on effects of HIV/AIDS on Asset- related indicators of households.

3.4.1 Asset Ownership

Households were asked whether or not they own the various assets listed in the table below. The percentage of non- affected households who have various types of assets is higher when compared to affected households. As the table below indicates, this is true for all asset categories except for borehole and protected well where the difference is not significant. For the remaining type of assets the difference is statistically significant at 0.05 level. Also, a higher proportion of non affected households have houses with galvanized iron sheet roof (50% compared to 36% of affected).

3.16 Percentage of HIVC/AIDS Affected and Non-affected households by ownership of Assets

Assets	Not Affected households	Affected households	Pearson's Chi-square	Significance (Two-tailed)
Radio (working)	37% n=231	25% n=153	21.5	0.000
Ox-plough	60% n=374	52% n=294	7.8	0.003
Hoe	72% n=444	65% n=396	7.2	0.007
Axe	77% n=479	69% n=428	9.07	0.003
Sickle	80% n=498	68% n=420	22.9	0.000
Bed	49% n=306	37% n=225	20.3	0.000
Jewelry	16% n=99	10% n=60	10.4	0.001

3.4.2 Sale of Productive Assets

Households who have chronically ill or deceased members in the 12 months prior to the survey were asked whether they sold assets in order to pay for medicines or to meet funeral costs. Out of 441 affected households with a chronically ill /deceased member , 179 households or 40% said they have sold assets and out of 44 not-affected households with a chronically ill /deceased member 12 households or 29.5% said they have sold assets to meet these costs. Out of these households who sold assets, 82% of the affected households sold productive assets and another 5% reported they sold both productive and non productive assets. Also, all the 12 non- affected households sold productive assets. These results show a high proportion of affected households have sold productive assets in order to meet health and funeral costs for chronically ill/deceased members.

3.4.3 Livestock Holding

Households were asked to report the number of different livestock they currently own. We converted these into TLU (Tropical Livestock Unit).⁸ The average TLU calculated for both groups show that non affected households have a TLU equal to 6 while affected have 4.4, less by 1.6 animals measured in TLU.

The surveyed households were also asked households if they are likely to sell livestock this year. While both groups reported they would sell livestock, more affected households indicated they will sell livestock to cover medical expenses.

⁸ The Tropical Livestock Unit Conversion used comprises: 1 cattle=1TLU, 1 goat=0.15 TLU, 1 horse= 1 TLU, 1 mule=1.15 TLU, 1 donkey=0.65 TLU, 1 camel=1.45 TLU, and 1 poultry=0.005 TLU

All the above evidence converges to the conclusion that in order to meet health and funeral related costs, households affected by HIV/AIDS are resorting to measures that threaten their food security and livelihoods. The food security situation of both type of households is discussed below.

Regression procedure is applied to model the quantity of livestock possessed by the household as measured by tropical livestock unit (TLU) This can be expressed as:

$$Y_i = \beta_0 + \beta_1 x_{ij} + \beta_2 x_{2j} + \dots + \beta_k X_{kj} + e_j$$

Where Y_i = Tropical Livestock Unit (TLU)

$j = 1, 2, \dots, j$ observation

β_0 = the intercept/constant term

β_k = slope parameters

X_{kj} = the k^{th} observable explanatory variable for the j^{th} observation.

$K = 1, 2, \dots k$ coefficients of observable explanatory variables

e_j = normally distributed error term

To obtain the TLU of each house hold, the number of animals possessed by the house hold is multiplied by a factor assigned for each type of animal. The predictor variable in the model include: a dummy for the sex of the house hold head (male=1, otherwise= 0), size of the land in hectare possessed by the house hold per adult equivalent, a dummy for HIV/AIDS affected status of the house hold, house hold size, age of the head of the house hold, and educational attainment of the head of the house hold.

The regression result presented in table 3.17 shows that widowhood status of the head of the house hold decreases the TLU of the house hold. However, the result is not statistically significant at 5 percent level. The number of adult labor the house hold possesses significantly increases the TLU of the house hold (Significant at 1 percent level). The coefficient implies that TLU on the average increases by 0.35 for an increase of one adult for the house hold. Although the coefficient is relatively lower, an increase in house hold size has also an increasing effect on TLU (Significant at 1 percent level). This may underscore the importance of adult labor, rather than mere increase in house hold size, on the wealth building of a house hold. Pronounced effect, as implied by the large coefficient, of TLU is observed as the land size per adult equivalent increases (Significant at 0.1 percent level).

The importance of whether the house hold is affected by HIV/AIDS or not on TLU possessed by the house hold is suggested by the regression results. After controlling for some other house hold characteristics, HIV/AIDS affected households, *ceteris paribus*, had possessed 1.05 lower TLU compared to non-affected households (Significant at 1 percent level). Given that other important variables have already been accounted for in the model, this difference may be substantially due to the effect of HIV/AIDS. This may be because HIV/AIDS affected households have a tendency to sell their livestock to cover expenses related to the illness and death of their member. For example, 57 percent of the plough oxen and 56 percent of the milking cows sold in the previous 12 months before the survey belonged to the HIV/AIDS affected households.

The gender of the house hold head is found to have substantial and statistically significant effect on the size of the TLU possessed by the house hold. The coefficient for the dummy variable in the model suggests that, on the average, male headed households had higher TLU compared to female headed households. This may reflect the gender bias in terms of possessing livestock. Although it is not statistically significant and the coefficient is very small, an increase in age of the head of the house hold has generally positive effect on the size of TLU.

Table 3.17 Regression Results of Tropical Live Stock Unit (TLU)

	TLU				
	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	5.89	1.73		3.41	0.001
Widow	-0.17	0.54	-0.01	-0.32	0.750
adult labor in house hold	0.34	0.14	0.09	2.45	0.014
Total house hold members	0.14	0.09	0.06	1.56	0.120
HIV/AIDS affected status	-0.98	0.36	-0.08	-2.69	0.007
Sex of the respondent	-2.01	0.50	-0.15	-4.01	0.000
Age of the respondent	0.02	0.01	0.04	1.36	0.174
Size of land in hectare	0.85	0.21	0.12	4.09	0.000

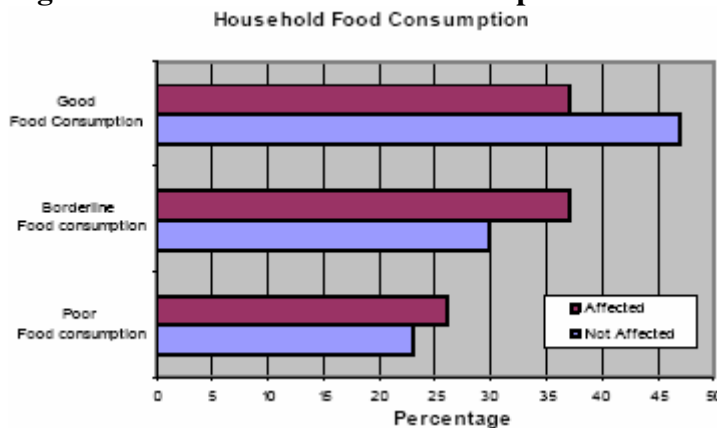
3.5 Food Security

3.5.1 Food Consumption Score

Given the time required to collect detailed food calorie intake at the household level, WFP has been using what is called the Food Consumption Score as a proxy indicator of household food security. This score is calculated using information on dietary diversity (the different food items consumed by household members) and the frequencies of consumption. In this study, a composite score of the dietary diversity and food frequency has been calculated for affected households and the control group.

Households were asked to recall the type of food items their members ate over the seven days prior to the survey as well as to indicate the number of days the food type was consumed. The items consumed were grouped into food groups (staples, pulses, vegetables, fruit, meat and fish, sugar, milk, oil). These different food groups were given weights, animal proteins with the highest weight. The consumption score is calculated by summing all consumption frequencies of food items from the same group; the sum of values, after recoded, is multiplied by the respective weight for the food group. The weighted food group scores are summed, which gives us the food consumption score (FCS). These scores are regrouped into categories using thresholds, <14 as very poor consumption, 14-21 poor consumption and so on. We see that the affected households have poorer consumption than the control group.

Figure 3.10 Household Food Consumption of HIV/AIDS-Affected and Not-Affected



While more than 50% of households from both types of households do not have good consumption score, the percentage affected households who do not have good consumption is higher than the control group.

3.18 Percent Distribution of households by Consumption Score Categories

Food Consumption Score	Not Affected	Affected
Very Poor consumption (<14)	16.1	15.0
Poor consumption (14-21)	7.0	11.0
Average/borderline consumption (22-35)	30.0	37.0
Good Consumption (>35)	48.0	38.0
Total	100 N=623	100 N=621

With the view to control the confounding effects and identify specific factors associated with the consumption scores of the household members, multivariate analysis is applied. Consumption scores of the households were grouped into two categories. The poor and very poor categories (FCS 0-21) were merged into one category referred to as “poor”. Households in the range of borderline (FCS 21.5 -35) and acceptable (FCS >35) were put under another category named “better”. Because the dependent variable is dichotomous (i.e., binary, or 0 and 1), logistic regression (logit regression) model is applied to estimate the nature and strength of association between various socio-economic and demographic factors and dietary diversity score. The likelihood of the households to fall into “better” [P (Y=1)] dietary diversity score is estimated using odds ratios.

The results presented in the table 3.19 show that Oromiya and SNNP are 3 times more likely to have “better” dietary diversity score than Tigray (Significant at 0.1 %). Households in Amhara region had 1.48 times higher likelihood of being “better” dietary diversity than Tigray.

As to marital status of the heads of the households, households headed by married men/women had a higher chance of having “better” dietary diversity compared to the other marital status categories. Although the results are not statistically significant at 5 % level, households headed by never married (OR=0.268) and widowed (OR=0.59) men/women had a lower likelihood of having “better” dietary diversity even compared with divorced (OR=0.93) and separated (OR=0.90).

The logistic regression model results regarding the impact of HIV/AIDS on dietary diversity score corroborate the findings of the descriptive statistics. Households affected by HIV/AIDS had a likelihood of 27.8 percent lower than households non-affected by HIV/AIDS in terms of falling into “better” dietary diversity category. Ideally, PLHIV need to get both adequate amounts of macro and micro nutrients through consuming a diverse range of food to fight the disease. The lower likelihood of HIV/AIDS affected household members to get diversified food items suggests that they have lower capacity to care for their PLHIV member using food.

Female headed households have a higher likelihood of having “better” dietary diversity, compared to male headed households.

Age group of the head of the household does not seem to have significant influence on the probability of “better” dietary diversity category, as suggested by the odds ratios and high significance statistics values (all above 0.7). Households headed by illiterates/ who had never attended formal education have lower likelihood of having “better” dietary diversity compared to their counterpart in primary education and secondary and above categories.

The fertility of the land possessed and used by the surveyed households as rated by the respondents appears to have significant effect on the dietary diversity score of the respondents. As implied by the odds ratios, households possessing dry land, infertile land, and who have no access to land at all had likelihood of 25 percent, 54 percent, and 67 percent lower than households possessing fertile land, respectively, in terms of having “better” dietary diversity.

Households who have at least one adult chronically ill or deceased adult member in the previous 12 months before the survey were less likely to have “better” dietary diversity compared to those who had no chronically ill and deceased adult member. The latter have 1.5 times more likely to have “better” dietary diversity than the former, regardless of their HIV/AIDS affected status.

It is expected that quantity of food obtained through own production, food aid, food for work, and purchase would increase the dietary diversity of households. However, the logistic regression results in the table below suggest that the effect is very small, as implied by the odds ratios.

3.19. Parameter Estimates and Standard Errors for Dietary Diversity from Logistic Regression Model

Predictor Variables	B	S.E.	Sig.	Exp (β)
Region				
Tigray	0.000		0.000	1.000
Amhara	0.398	0.237	0.093	1.480
Oromiya	1.111	0.269	0.000	3.036
SNNP	1.056	0.258	0.000	2.874
Marital Status of the Household head				
Married	0.000		0.002	1.000
Widowed	-0.528	0.332	0.112	0.590
Divorced	-0.072	0.377	0.848	0.930
Never married	-1.316	0.740	0.075	0.268
Separated	-0.105	0.608	0.862	0.900
Cohabitation	-2.208	0.607	0.000	0.110
Is the house hold HIV /AIDS affected?				
No	0.000			1.000
Yes	-0.260	0.223	0.244	0.771
Sex of the head of the house hold				
Female	0.000			1.000
Male	-0.325	0.308	0.291	0.722
Age of the Household head				
<26	0.000		0.832	1.000
26-59	0.050	0.499	0.920	1.052
60+	0.189	0.541	0.727	1.208
Educational status of Household head				
Illiterate/Never attended Formal Education	0.000		0.060	1.000
Primary Education	0.539	0.232	0.020	1.715
Secondary education and above	0.274	0.308	0.374	1.315
Type of land possessed				
Fertile	0.000			1.000
Dry land	-0.291	0.203	0.153	0.748
Infertile	-0.781	0.220	0.000	0.458
No land at all	-1.113	0.504	0.027	0.329
Adult Chronically Ill house hold member in the previous 12 months?				
Yes	0.000			1.000
No	0.426	0.286	0.137	1.531
Deceased adult house hold member in the previous 12 months?				
Yes	0.000			1.000
No	0.410	0.223	0.066	1.506
Quantity of Food Obtained through aid, FFW, purchase, etc	0.001	0.000	0.006	1.001
Quantity of Food Obtained through own production	0.010	0.012	0.439	1.010
Constant	0.792	0.567	0.163	2.208

3.5.2 Food Access

In order to see if there are differences between the two types of households in terms of the quantity and source of food, households were asked the amount of food they received in the last three months from their own production and from different sources. The main sources for the three months have been production and purchase.

Table 3.20: Average quantity of cereals and Pulses Obtained from Various Sources in 3 months before the Survey

Source	Non Affected		Affected	
	Quantity (Kg)	Percentage	Quantity (Kg)	Percentage
Own production	73.3	41.6	61.8	34.8%
Purchase	72.5	41.2	73.7	41.5
Food For Work	20.4	11.6	22.4	12.6
Free food aid	3.2	1.8	8	4.5
Gift	1.4	0.8	4.7	2.7
Borrowing	4.4	2.5	6.5	3.7
Other	0.8	0.5	0.5	0.3
Total	176 kg	100	177.6	100

The number of households who responded on the amount of food from own production are 385 affected and 405 not affected. We can see that affected households produced a lesser amount. While this question is on production in the last 3 months, comparison of production during the previous *Meher* (November 2006) also shows affected households produced less for most crops. The mean quantities for selected crops are presented below.

Figure 3.11 Main Sources of Food in the Previous Three Months before the Survey among HIV/AIDS Affected and Not-Affected Households

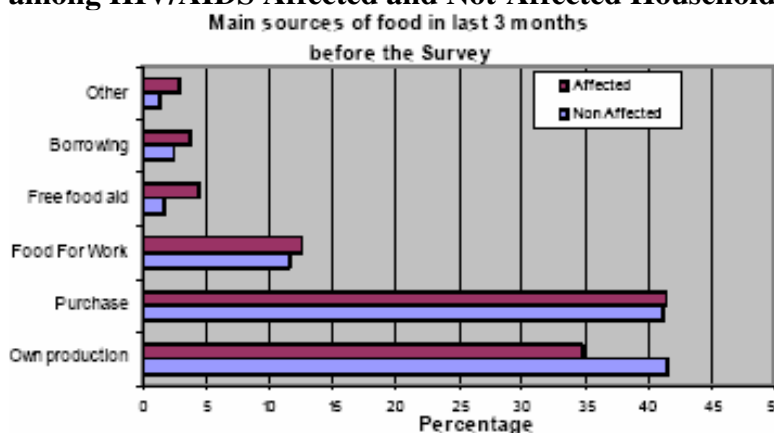


Table 3.21: Mean Quantity of Crops produced by house hold Type (Kg)

Crop type	Tigray		Amhara		Oromia		SNNPR	
	Not Affected	Affected	Not Affected	Affected	Not Affected	Affected	Not Affected	Affected
Maize					579 (N=69)	528 (N=60)	278 (n=103)	321 (n=76)
Teff	297 (N=34)	183 (N=18)	429(N=62)	688 (N=44)				
Wheat	332 (N=104)	244 (N=95)	467 (N=74)	461(N=7)	831(N=41)	597(N=38)		
Barely	362 (N=75)	268 (N=63)	440 (N=40)	400(N=39)	396(N=27)	363(N=19)	125(N=20)	155(N=20)
							677 (N=48)	856(N=37)

The results show, except in the Woredas from SNNPR, HIV affected households produced a lesser quantity for most crop types

From table 3.20 we see that affected households compensated through purchasing similar quantities as the non affected households. In addition affected households received a little bit more from food aid, gifts and borrowing. However, in order to buy food, more affected households as compared to the control group, had to sell assets and to borrow money (discussed later). Thus, they are meeting their food needs at a high cost.

Also, the three months food availability may show similar amount of cereals and pulses, but, a dietary diversity and consumption frequency score show us the affected eat poorly as compared to the non affected households

Generally, opportunities for diversification of income are limited in rural Ethiopia. Given this the loss of production/income for affected households will have serious consequences.

3.5.3 Coping Strategies

This section has two parts. The first one deals with descriptive statistics while the second one approaches coping strategies using multivariate analysis tools.

3.5.3.1 Descriptive Statistics

Empirical research has shown that what people do to cope with household level food shortages is a very useful indicator of the households' food security level. We asked the households, if they had faced food shortages in the last thirty days preceding the survey and what actions they took in order to meet the shortfall. A total of 1122 households (556 affected, 566 not affected) responded. The responses were grouped into four main type of strategies: 1. consumption strategies where households try to increase food availability through borrowing, for example, or reduce the amount eaten or eat less preferred food items. These kind of measures are easily reversible or do not have serious long term consequences when compared to the following measures 2. Expenditure strategies, where households switch expenditure from health care, education or from agricultural inputs in order to buy food. 3. Income Strategies, households sell more than the usual number of livestock, or they sell productive assets. These measures are quite serious as they affect the households ability to produce in the future. 4. Migration strategies, when households can not cope on their own they send children to relatives, or migrate unusually to find work.

The households were also asked to report how often they applied the various coping measures. The frequency responses were grouped into five categories, 1(Never), 2(Seldom), 3(Sometimes), 4(often) to 5 (Daily). In order to obtain the severity score of each coping strategy, focus group discussions were conducted with community members who ranked the seriousness of the measures from 1 to 3, (1 being least severe, 2 moderate and 3 very severe). The severity score for each strategy is multiplied with the frequency of that strategy, the sum of all weighted scores gives us the Coping Strategies Index (CSI). The average CSI for HIV/AIDS affected households comes to 30 while it was 14

for non-affected. This shows coping measures taken by affected households take are much severe which is in line with findings in the previous sections that affected households are only ‘coping’ by depleting their assets. Female Headed households also have a higher mean CSI (27) versus mean CSI of 19 for Male headed households.

In the following table the frequency of each coping strategy is presented. For ease of presentation, the 5 type of responses (from Never to Daily) are grouped in to two categories. The Never and Seldom categories are recoded into NO, while sometimes, often and Daily are recoded into YES.

Table 3.22: Percentage of HIV/AIDS Affected and Non-Affected households by the type of Coping strategies used and Sex of the house hold head

Strategy		Non-Affected		Affected		Significance
		MHH	FHH	MHH	FHH	
Borrowed money to buy food	NO	93	96	85	90	0.000
	YES	7	4	15	10	0.010
Bought food on Credit	NO	96	96	91	90	0.003
	YES	4	4	9	10	0.126
Relied on less preferred foods	NO	74	73	61	61	0.000
	YES	26	27	39	39	0.055
Members reduced the no. of meals per day	NO	84	66	86	65	0.000
	YES	14	34	14	35	0.001
Members Reduce the quantity eaten per day	NO	78	82	58	56	0.000
	YES	22	18	42	44	0.000
Restricted consumption of adults for children	NO	83	88	75	74	0.020
	YES	17	12	25	26	0.029

As can be seen from the table, a higher proportion of HIV affected households had to borrow money rely on less preferred food, reduce the quantity eaten per day and adults restrict consumption so that children can eat. All these differences between affected and non affected households are statistically significant at 0.05 level or lower. These show house hold affected by HIV AIDS require support in order to enable them acquire enough food.

Households with chronically ill adults or where an adult has died in the last 12 months were asked what coping strategies they used to manage the problem caused by the death illness. A total of 480 affected households & 65 non-affected households responded to the question. Of these, 37% non- affected did not use any coping mechanisms while only 2.7% affected reported they did not use any coping mechanism while by contrast more affected households got support from others, reduced the hours of work begged for food, sold assets relied on charity and ate.

3.5.3.2 Multivariate Analysis

This section has two parts. The first one deals with the regression results in relation to a summary index called coping strategies Index (CSI). In the second part, five specific coping strategies are analyzed using logistic regression model.

Coping Strategies Index (CSI)

Table 3.2.3 below presents the estimated effects of a regression procedure employed to identify socio-economic and demographic variables affecting the food security status of the surveyed households, as approximated by the coping strategies index (CSI). The predictor variables entered into the model include a dummy for sex of the head of the house hold (male=1, otherwise=0), age of the head of the house hold head, a dummy for widowhood status of the house hold head (widow/widower = 1, otherwise=0), a dummy for HIV/AIDS status of the house hold (HIV/AIDS-affected house hold=1, otherwise=0), dummy variables indicating participating/benefiting from such programs as free food aid, food for work (FFW), and cash for work (CFW) (yes=1, otherwise=0), size of the land in hectare, income per adult equivalent, and quantity of food crops produced per adult equivalent.

Although the result is not statistically significant, the dummy for sex of the house hold head suggests that female headed households are more food insecure, as measured by CSI, compared to male headed households. An increase in house hold size of the respondents is noted to increase the CSI, implying that increase in house hold size in general increases the food insecurity of the house hold (Significant at 0.1 percent level). This finding has serious implication in the context of the rising number of AIDS orphans in the country (see MOH, 2006). In Ethiopian setting, caring for the helpless orphans is largely the responsibility of the community. When a child loses both of his/her parents their relatives or neighbors bring them to their house hold. However, from this result, addition of children to households may jeopardize the food security situation of households. This may also mean that adding burden to the house hold by stretching the limited income of the house hold to support an additional dependent. As a result, people may not be encouraged to play the traditional role of adopting orphans. Even though they adopt these helpless orphans, they may end up in starvation.

Clear picture of association has emerged between HIV/AIDS status of the house hold and CSI in the model. As indicated by the very high coefficient, HIV/AIDS status of households is a robust predictor of the likelihood of falling into food insecurity trap. It has been found that households not affected by HIV/AIDS tend to employ significantly less severe coping strategies when compared to HIV/AIDS affected households. This may mean that HIV/AIDS has a serious deleterious effect on house hold food security status. Because they belong to the house hold it seems less likely to assume that PLHIV house hold members would be buffered from these negative coping strategies. Even in some cases intra- household food distribution may favor the healthy members at the expense of PLHIV who are no longer productive or are dying. On the other hand, in the face of side effects of the illness like anorexia and nausea, lack of availability and access

to the appropriate food worsens the situation and employing severe coping strategies may have serious negative consequences on the overall health and nutritional status of PLHIV.

In the model, age of the head of the house hold is not robust predictor of house hold food security. The coefficient is very small and statistically insignificant. The dummy variable for widowhood status of the house hold head is found to be an important predictor of food security of households. Other things being equal, the CSI of households headed by widows/ widowers increases by 10.4 when compared to other households.

With the view to predict the effect of food /cash programs on the house hold food security status, three dummy variables indicating whether the house hold had received or not free food assistance, FFW, and CFW are included in the model. The results suggest that households who received free food assistance on the average had higher probability of practicing severe coping strategies in the previous one month time before the survey when compared to households who did not receive free food assistance (Significant only at 10 percent level). This may not be surprising since people who are targeted through this program are usually hard hit by a certain crises. On the other hand, households who reported the receipt of food/cash in the previous six months through FFW and CFW schemes had a lower likelihood of employing severe coping strategies to deal with food shortages. Although the difference is very small, as the magnitude of the coefficient suggests, FFW may have relatively more decreasing effect on the food insecurity of households when compared to CFW schemes.

Size of the land owned by the house hold and a total amount of income earned per adult equivalent do not seem to be robust estimators of the CSI of households. Total quantity of food crops produced in the previous harvesting season per adult equivalent on the other hand seemed to decrease the CSI of households.

Table 3.23: Regression Results of Coping Strategies Index (CSI)

Independent Variables	Un- standardized Coefficients (β)	S . E .	Standardized Coefficients (Beta)	t	Sig.
(Constant)	30.682	9.910		3.0960	0.002
sex of head house hold	2.207	2.905	0.031	0.7597	0.448
Total house hold members	2.137	0.428	0.169	4.9914	0.000
HIV/AIDS status	11.636	1.919	0.197	6.0634	0.000
Age of the household head	-0.009	0.071	-0.004	-0.1289	0.897
Widow / widower	-10.445	3.183	-0.130	-3.2813	0.001
GFD	4.951	3.067	0.053	1.6142	0.107
FFW	-6.838	2.759	-0.101	-2.4785	0.013
CFW	-6.513	2.815	-0.094	-2.3135	0.021
Size of land in hectare	-1.478	1.162	-0.045	-1.2723	0.204
Income per adult equivalent	-0.000441	0.000	-0.062	-1.8615	0.063
Production per adult equivalent	-0.508	0.127	-0.138	-3.9891	0.000

Dependent Variable: coping strategy index

Consumption related and Asset disposal coping Strategies

There were five options in the questionnaire for the respondents to answer the question “which of the following coping strategies did the house hold utilize in the last 30 days and how frequent?” These options were: never, seldom (1-3 days/month), sometimes (1-2 days/week), often (3-6 days / week), and daily. For simplicity of analysis, the first two options were merged into one category and labeled as “did not apply”. The second option (seldom) is put under this category assuming that the frequency is so small that it may not be significant. The last three groups were brought together as another group which signifies the house hold has used the specific coping strategy asked.

Among the 29 coping strategies asked in the interview, only five are analyzed using multivariate tools. These coping strategies are selected based on their possible negative consequences on the health and livelihood of individuals. The first three coping strategies; namely, reducing the number of meal per day, reducing the quantity of food the house hold members eat, and skipping the entire day without eating; are related to food consumption of the house hold members. Employing such coping strategies are particularly dangerous for HIV/AIDS infected individuals, as proper nutrition is critical for nutritional status, health and survival. The remaining two strategies discussed in the second sub-section are related to asset disposal to cope with food stress the house hold encountered. These are also critical as they render households more insecure and vulnerable which consequently undermine future, livelihoods and damage social, financial, physical, or natural assets irreversibly in the long run.

To control confounding effects and identify specific variables that affect the application of coping strategies, logistic regression model is utilized. Logistic regression model is an appropriate tool because the response or dependent variable is dichotomous (1 or 0, suggesting that the house hold has applied the specific coping strategy in the previous 30 days before the survey and did not apply, respectively). The predictor variables entered into the model may be categorical, quantitative, or a combination of the two.

Suppose, the probability of applying the specific negative coping strategies Y, [P (Y=1)] depends on a set of explanatory variables $X_1, X_2, X_3, \dots, X_k$. The basic form of the logistic function is

$$P = p \left(y = \frac{1}{x_1, x_2, x_3, \dots, x_k} \right) = \frac{e^z}{1 + e^z} = \frac{\exp(z)}{1 + \exp(z)}$$

Where z, is a linear function of a set of predictor variables, $X_1, X_2, X_3, \dots, X_k$, given by

$$Z = b_0 + b_1X_1 + b_2X_2 + \dots + b_kX_k,$$

and $b_0, b_1, b_2, \dots, b_k$ are regression coefficients.

Logit of P is derived by taking natural logarithm, that is, $\log \left[\left(\frac{p}{1-p} \right) \right] = Z$

The quantity $[\frac{p}{1-p}]$ is called the odds and hence $\log [\frac{p}{1-p}]$, the log odds. These logit regression coefficients are used to compute odds ratios (OR), which are interpreted as the increased odds of a positive outcome on a dependent variable for the affirmative category (applied the specific coping strategy asked) (X=1) over “not applied” (X=0). The OR helps an estimate of the magnitude of association between the predictor variables and the dependent variable, application of the specific coping strategies.

Food Consumption Related Negative Coping Strategies

The results of the logistic regression analysis for the three dependent variables: reducing the number of meals per day, reducing the quantity of food eaten, and skipping the entire day without eating are presented in table 3.24.

The variation in the utilization of the three coping strategies across the four surveyed regions shows nearly uniform pattern. The highest likelihood of applying all the three coping strategies is highest in Tigray than the other regions. Rural households in Amhara, Oromiya and SNNP had likelihood of 21.6 percent, 41 percent, and 27.5 percent lower than the rural households in Tigray in terms of applying reduction in the number of meals to cope with food stress, respectively.

households headed by widowed and divorced men /women have 1.51 and 5.49 times more likelihood of employing reduction in the quantity of food the house hold members eat, respectively, when compared with households headed by married men/women. With regard to the likelihood of applying skipping the entire day without eating as a coping strategy, it is significantly higher among widowed (OR=1.94), divorced (OR=2.15) and never married (OR=9.39), compared to households headed by married men/women.

HIV/AIDS affected status of the surveyed households consistently suggested statistically significant association with the likelihood of employing all the three consumption related coping mechanisms. As clearly demonstrated by the logistic regression results, HIV/AIDS affected households are 1.47, 1.57, and 1.26 times more likely to utilize reduction in the number of meals eaten per day, reduction in the quantity of food the house hold members eat, and skipping the entire day without eating, respectively, compared to non-affected households. PLHIV belonging to households practicing these consumption related coping strategies are less likely to escape from the practice since there is overall shortage of food in the house hold. While these coping strategies may be relatively effective in the absence of HIV/AIDS, the distinct nature of the disease may render them ineffective and even destructive. Contrary to the situation on the ground, to mitigate the effect of HIV/AIDS, PLHIV are encouraged to:

- Eat small and frequent meal
- Increase their energy (kilocalorie) intake by 10-30 % according to their stage compared to healthy individuals. (FANTA, 2004; WFP/WHO, 2007)

The implication of this finding is that households that are affected by HIV/AIDS are more vulnerable to practice risky coping strategies that accelerate the pace of progressing the disease to AIDS stage and finally to death among PLHIV. Due to lack of access to adequate quantity and variety of food among HIV/AIDS affected households compared to non-affected households to mitigate its impacts. Moreover, the prevalence of such coping strategies may lead HIV/AIDS affected house hold members to adopt behaviors and livelihood strategies that put them at greater risk of HIV infection like resorting to commercial sex work or as migrant laborer to earn money for food and basic necessities.

Age group of the house hold head emerged as a significant predictor of exercising reduction of meal per day and skipping the entire day without eating. The result suggests that households headed by men/women in the age group 26-59 have the likelihood of employing reduction of number of meals and skipping the entire day without eating, compared to the households headed by men/women in the under 26 and over 59 age

ranges. These mid-span ages are where the prevalence of HIV is highest. And most of the household members are likely to be young children. For example, according to DHS (2005) lion's share proportion of the adult HIV prevalence concentrates around the age range of 25 to 44. The overlapping of the two variables, HIV/AIDS and food insecurity, suggests that PLHIV and small children have higher probability of being exposed to the hazards of malnutrition, poor health, and school drop-out, etc.

households headed by men / women with primary and secondary and above education have 52.7 percent and 33.7 percent lower likelihood of employing skipping the entire day without eating compared to households headed by illiterate /never attended formal education, respectively.

Compared to households that did not have any chronically ill member in the previous 12 months before the survey, the likelihood of practicing all the three consumption related coping strategies is higher among households who had at least one chronically ill member in the same period (significant at 1% level). The magnitude is even higher among households who had at least one deceased adult member compared to their counterparts that did not have deceased adult member. The association of chronic illness and adult death with the risk of employing consumption related coping strategies clearly emerged from the analysis regardless of the fact that the cause of illness or death is HIV/AIDS or not.

Table 3.24 Parameter Estimates and Standard Errors for Food Consumption Related Coping Strategies from Logistic Regression Model

Independent variables	Reduce number of meals per day			Reduce quantity of food			Skip the entire day without eating		
	β	S.E.	Exp (β)	β	S.E.	Exp (β)	B	S.E.	Exp (β)
Region									
Tigray	0.000		1.000	0.000		1.000	0.00		1000
Amhara	-0.243	0.253	0.784**	0.257	0.046	0.773**	0.173	0.256	0.841
Oromiya	0.528	0.241	0.59**	0.146	0.229	0.864	0.906	0.251	0.4.4
SNNP	0.322	0.236	0.725	0.271	0.220	0.763	0.701	0.245	0.496
Marital status of the household head									
Married	0.00		1.000	0.000		1.000	0.000		1.000
Widower	0.11	0.325	0.90	0.07	0.31	1.070	0.66	0.307	1.94***
Divorced	0.24	0.381	1.27	0.41	0.371	1.51	0.77	0.369	2.15***
Never married	0.19	0.79	1.21	1.7	0.734	5.49**	2.24	0.758	9.39***
Separated	-1.25	0.807	0.29*	0.85	0.697	0.43	0.87	0.563	2.38
co-habiting	-2.11	1.080	0.12**	-0.73	0.66	0.48	-1.12	0.804	0.33
HIV/AIDS status of households									
Non-affected	0.00		1.00	0.000		1.000	0.000		1.000
Affected	0.39	0.19	1.47**	0.45	0.198	1.57**	0.23	0.012	1.26**
sex of the household head									
Female	0.00		1.000	0.000		1.000	0.00		1.000
Male	0.13	0.305	1.14	0.193	0.294	1.123	0.03	0.290	0.97
Age of household head									
<25	0.000		1.000	0.000		1.000	0.000		1.000
26-59	0.26	0.12	0.77**	-0.363	0.478	0.695	0.259	0.052	0.778***
60+	0.08	0.03	1.08**	0.116	0.205	1.123	0.149	0.034	1.161***
Level of educational of the Household head									
Illiterate/Never attend	0.000		1.000	0.000		1.000	0.000		1.000
Primary Education	0.47	0.305	0.628	-0.493	0.279	0.611	-748	0.319	0.473***
Secondary & Above	-0.439	0.334	0.644	0.367	0.309	0.693	-0.411	0.153	0.663***
Type of land the house hold possessed									
Fertile	0.000		1.000	0.000		1.000	0.000		1.000
Dry land	0.26	0.188	1.30	0.24	0.200	1.27	0.137	0.526	1.147
Infertile	0.82	0.207	2.26***	0.79	0.156	2.21***	0.097	0.531	1.102
No land at all	0.01	0.537	1.01	0.11	0.516	1.11	-0.197	0.539	0.821
Any chronically sick adult house hold member in the previous 12 months?									
No	0.00		1.000	0.000		1.000	0.000		1.000
Yes	0.27	0.08	1.310***	0.270	0.057	1.31***	0.36	0.149	1.43***
Any deceased adult house hold member in the previous 12 months?									
No	0.00		1.000	0.000		1.000	0.000		1.000
Yes	0.75	0.199	2.11***	0.79	0.191	2.21***	0.79	0.200	2.20***
Quantity of food obtained from own production per house hold size	0.044	0.053	1.045	0.014	0.38	1.014	0.296	0.083	1.344
Quantity of food obtained from food aid, FFW, purchase, etc per house hold size	0.000	0.000	1.00	0.000	0.000	1.000	-0.06	0.000	0.266
Constant	4.046	1.273	57.1666***	2.458	0.921	11.687***	3542	1.049	34.547***

*** Significant at 1 % level ** significant at 5 % level * significant at 10 % level

Asset Disposal Related Coping Strategies

Asset disposal is another aspect of coping strategies that have negative consequences on the households. Sale of asset especially that of productive asset, usually happens after exhausting consumption related coping strategies. At the first stage of asset disposal, the households dispose non-productive asset like jewelry and some house hold articles. When the situation is getting worse, they would resort to sale of productive asset like land. Sometimes it is tricky to identify such measures as “coping” since they render households more insecure and vulnerable in the long run. In this sub-section, two coping strategies related to asset disposal are selected for analysis to examine their correlates among the surveyed households. Logistic regression coefficients and their odds ratios are estimated for 1) selling house hold articles, jewelry, and furniture and 2) selling/renting fixed assets (land, house, etc). In both models, the dependent variable is zero/one dummy variable identifying households that employed the coping strategies using the pooled data. The independent variables include demographic and educational, location, farm/land, production, etc.

Age, sex, marital status (partially), and level of education of the house hold head in the two logistic regression models are not statistically significant at 5 percent level. The remaining predictor variables are significant in either of the models or in both models.

Both in terms of significance level as well as in terms of magnitude of odds ratio, region seems to be important variable affecting the likelihood of asset disposal as a coping mechanism. Compared to households in Tigray, households in Amhara, Oromiya and SNNP have 84.2 percent, 84.0 Percent, and 88.1 percent lower likelihood of selling house hold articles, jewelry and furniture, respectively. (Significant at 1 % level). households in Tigray also have more likelihood of selling/renting fixed assets compared to the other three regions. Although the result for Oromiya is not statistically significant, households in Amhara and SNNP, have odds ratio of 0.395 and 0.407, significant at 1 % and 5 percent, respectively.

As it has been the case in the consumption related coping strategies, clear picture of association emerged between HIV/AIDS affected status of the households and practicing of the two asset disposal coping strategies. HIV/AIDS affected households have a higher likelihood of using the two coping mechanisms compared to their non-affected counterparts (significant at 5 percent level). As the odds ratios suggest, HIV/AIDS affected households are 1.45 and 2.15 times more likely to sell house hold articles, jewelry, and furniture and sell/rent out fixed assets, respectively, compared to non-affected households. This may be explained by the fact that HIV/AIDS affected households tend more to sell/rent their asset to cope with the negative consequences of AIDS shock. Specifically, sale of productive assets usually happen when it is absolutely necessary for survival. On the other hand, HIV/AIDS affected households may be forced to sell/rent out assets like land because of shortage of labor. As stated elsewhere in this paper, the agricultural activities of HIV/AIDS affected households are constrained by lack of labor compared to non-affected households.

As implied by level of significance (significant at 1 % level) and magnitude of the odds ratio, the type of land the house hold possessed is an important predictor of selling house hold asset. Possession of infertile and dry land increases the likelihood of selling house hold articles, jewelry, and furniture by 5.5 and 8 times, respectively, compared to

households possessing fertile land. The result of the second model, selling /renting out fixed asset, is not statistically significant to the type of land the house hold possessed. Thus, sale/renting out of fixed assets like land is less likely to be determined by the level of fertility of land possessed by the house hold.

Households that have experienced adult chronic illness and death in the previous 12 months before the survey are more likely to exercise both asset disposal coping strategies. This holds true regardless of the chronic illness or death. The magnitude of the odds ratios for the per capita of the quantity of food from own production and other sources (food aid, FFW, purchase, etc) are very small. Thus, the effect of these two variables on the likelihood of practicing the two coping strategies does not seem to be substantial.

Table 3.25 Parameter Estimates and Standard Errors for Asset Disposal Related Coping Strategies from Logistic Regression Model

Independent variables	Selling house hold assets			Selling of fixed assets (lod)		
	β	S.E.	Exp (β)	β	S.E.	Exp (β)
Region						
Tigray	0.000		1.000	0.000		1.000
Amhara	-1.858	0.674	0.156***	-0.928	0.367	0.395***
Oromiya	-1.836	0.709	0.160***	-0.183	0.443	0.834
SNNP	-2.127	0.685	0.119***	-0.900	0.378	0.407**
Marital Status						
Married	0.000		1.000	0.000		1.000
Widower	0.940	0.58068	2.550*	1.118	0.47026	3.05**
Divorced	1.155702	0.6708	3.17*	0.884	0.51006	2.42*
Never Married	2.13522	1.02546	8.4589105	1.41365	1.02427	4.1109501
Separated	-4.4574	13.6422	0.0115925	0.481	0.85382	1.618
Cohabiting	-5.65385	15.8007	0.003504	0.39962	1.10861	0.6705731
HIV/AIDS Affected Status						
Non-Affected	0.000		1.000	0.000		1.000
Affected	0.37	0.135	1.45**	0.76	0.333	2.15**
Sex of the Household head						
Female	0.000		1.000	0.000		1.000
Male	0.467	0.547	1.595	0.23	0.423	1.250
Age of Household head						
<25	0.000		1.000	0.000		1.000
26-59	0.434	0.597	1.543	0	0.741	1
60+	0.341	0.154	1.406	-0.28	0.824	0.750
Level of educational of the Household head						
Edu Illit/Never	0.0000		1.0000	0.0000		1.0000
primary	0.19	0.558	1.209	147.000	0.497	0.864
Secondary	0.441	0.643	1.554	0.077	0.544	0.926
Type of land the house hold possessed						
Fertile	0.000		1.000	0.000		1.000
Dry land	1.718	0.679	5.574***	0.443	0.435	1.557
Infertile	2.08	0.733	8.003***	0.361	0.443	1.434
No land	0.664	0.688	1.943	-0.767	0.731	0.465
Any chronically sick adult house hold member in the previous 12 months?						
No	0.000		1.000	0.000		1.000
yes	0.19	0.025	1.21	0.367	0.132	1.443***
Any deceased adult house hold member in the previous 12 months?						
Decrease	0.000		1.000	0.000		1.000
Yes	0.19	0.025	1.21	0.367	0.132	1.443**
Quantity of food obtained from own production per house hold size	0.04	0.134	1.045	0.225	0.14	1.252
Quantity of food obtained from food aid, FFW, etc per house hold size	-0.001	0.000	0.999**	-0.001	0.000	0.999
Constant	8.95	15.829	7727.426	4.498	1.548	89.859

4. Conclusions and Recommendations

4.1 Conclusions

The study has examined the effects of HIV/AIDS on food and livelihood security through investigating effects on human, physical and financial capital as well as examining food consumption and coping strategies. From descriptive and multivariate analysis which controls for other factors while analyzing the effects of HIV/AIDS, we have seen that HIV/AIDS has affected all the three forms of capital and has contributed to food insecurity. From the brief livelihood descriptions we saw that the majority of the livelihood zones are food insecure ones. Households have to struggle with food shortages caused by inadequate rainfall, poor soil, pests and livestock diseases, small land holdings and so on. This is the context in which households affected by HIV/AIDS are trying to 'cope'.

The study results show a much higher number of death and cases of chronic illness among affected households in contrast to the non -affected. As many as 223 deaths were reported over a 12 months period prior to the survey. Of these, 90% or 201 are from affected households.

As a result of a higher number of deaths and chronic illness, HIV/AIDS affected households showed a much different household structure than the control group. The difference include: a higher number of widows and widowers, a higher dependency ratio, a much higher number of orphans. There is a much higher percentage of FHH among the affected, almost double the percentage for non-affected and the national average for rural areas. FHH have faired badly on many of the indicators used for analysis.

When it comes to education of children, more children from affected households were absent from school for four or more days per month. Also, a slightly higher percentage of children from affected households dropped out of school. But, we did not find much difference in the percentage of children who were enrolled in school at the beginning of the academic year.

Another effect of high number of death and illness was labor shortage faced by affected households. FHH were particularly constrained by labor shortage. More affected households left land uncultivated and they reported labor shortage together with illness as the reasons for leaving land uncultivated. In addition to leaving land uncultivated, a higher proportion of affected households as compared to the non affected changed crop types due to illness and labor shortage.

Household heads or their spouses constitute a substantial proportion of the deceased and chronically ill. Household heads and spouses are usually the primary bread winners of rural households. The loss of these core members due to AIDS causes an increase in number of orphans and leads to loss of accumulated knowledge which is normally transferred to succeeding generations. Loss of knowledge will consequently reduce the labor productivity in agriculture.

Regarding the effects of HIV/AIDS on household assets, a higher proportion of affected households reported selling productive assets in order to meet health and funeral costs.

Erosion of assets is a serious blow to Rural Ethiopian families as the agriculture strategy is pinned upon formation of capital to get as much as possible out of the small land size.

Concerning financial capital, on average, affected households had less income than the non affected. On the other hand a higher proportion of affected households borrow money to meet costs associated with illness and funeral in contrast to non affected households who mainly borrow money for agricultural inputs. More affected households had to borrow money in order to purchase food.

When it comes to food security status, households affected by HIV/AIDS had poorer consumption as compared to non affected households. This is revealed both by the consumption score which combined frequency of meals with diversity and the finding that more affected households had used negative consumption related coping strategies, like skipping meals, which undermine their nutrition.

4.2 Recommendations

A number of recommendations have been made in conferences and papers to address the effects of HIV/AIDS on rural livelihoods and food security. Implementation of the selected recommendations below will first of all require mapping out how to make them operational. It will also require careful thinking on targeting households affected by HIV/AIDS so that they will not face stigma and all its related consequences.

Mainstreaming – the overall approach to address the effects of HIV/AIDS on rural livelihoods should be, for government and non government agencies to incorporate HIV/AIDS issues into their core business. This will require analyzing not only the effects of HIV/AIDS but how a program can best address the effects. The specific measures that can be taken with in an overall approach of integration with core development policies and activities include the following.

Labor: in order to address labor shortage faced by households, developing or promoting existing labor saving technologies and production will be very useful. While promoting low labor input production, care needs to be taken the crops/products do not have low nutritional value. Labor saving technologies include :

- farming equipment such as lighter ploughs that can be used by women and youth
- inter cropping
- minimum tillage
- bringing water close to the home and fire wood plots.
- Low labor input crops and products such as poultry

In most rural areas in Ethiopia women do not plough for cultural reasons. While promoting technologies like lighter ploughs, addressing the issue of gender roles is needed. How to best address the gender roles is a good example of mapping out the practical or operational side of the recommendations.

Another important way to address labor shortage is to look into the ways the communities already use. For example in Ethiopia, the ‘Debo’ is a traditional mechanism whereby

members of the community help a household during peak agricultural activities. This can be adapted and strengthened to help the households who face labor shortage.

Education – school support can be given to households whose children are absent from school. The appropriate form of school support needs to be worked out depending on the reason why the children are not going to school and depending on what form of assistance already exists.

Loss of knowledge/skills: agricultural extension should target households who have lost knowledge/skills through death of an adult. Extension needs to be women/youth friendly. Training of agricultural extension workers on the effects HIV/AIDS has on agricultural work specifically and on rural livelihoods in general is very crucial.

Poor food consumption: In order to address the poor consumption experienced, particularly by PLHIV, the following measures can be taken:

- Diversifying income/food from less labor intensive activities. Assistance could be given to these households to raise highly nutritious products like poultry, vegetables (home gardens) and small ruminants.
- When the resource is available, free food/cash assistance should be provided.
- The training of the rural health extension workers should include nutritional counseling to PLHIV so that they can assist in applying the appropriate dietary and nutrition related practices to mitigate the effects of the illness and medication.

Asset protection: in order to support households who deplete their assets to buy food, medicine or pay for funeral costs, the measures mentioned above in terms of direct food/cash support or credit for income generating activities will be appropriate. The credit need to be more flexible and tailor made to households affected by HIV/AIDS who may face labor shortage to work and pay back with in a specified time frame.

References

Batteh SE, Alkenbrack, Forsythe S, Martin G, Chettra T. (2008). *Confirming the impact of HIV/AIDS epidemics on household vulnerability in Asia: the case of Cambodia*. AIDS. 2008;22 Suppl 1:S103-11.

Central Statistics Agency and Macro International (2007). Ethiopian Demographic and Health Survey 2005. CSA and Macro International, Addis Ababa

Converse P. et al (2005). Bibliography on HIV/AIDS in Ethiopia and Ethiopians in the Diaspora: The 2005 update in Ethiopia Journal of Health Development, 2006, (20) 1
DFID (1999). Sustainable Livelihoods Guidance Sheet, UK

Drinkwater, Michael, Margaret McEwan, Fiona Samuels(2006). *The Effects of HIV/AIDS on Agricultural Production Systems in Zambia: A Restudy 1993-2005*. RENEWAL, International Food Policy Research Institute (IFPRI), CARE International, Through CARE UK, CARE USA and CARE Zambia, International HIV/AIDS Alliance, Swedish Embassy in Zambia, Food and Agricultural Organization (FAO).

FANTA (2004) HIV/AIDS: A Guide for Nutrition Care and Support, FANTA
Government of Ethiopia, Central Statistical Agency. (2006) Ethiopia Demographic and Health Survey 2005, Addis Ababa, Ethiopia

Government of Ethiopia, Ministry of Health, HAPCO (2007) Accelerated Access to HIV/AIDS Prevention, Care and Treatment in Ethiopia: Road Map 2007-2008/10, Addis Ababa

International Conference on HIV/AIDS and Food and Nutrition Security: From Evidence to Action, Apr.14-16, 2005, Durban, South Africa

Jayne, T.S, Marcela Villarreal, Prabhu Pingali, and Gunter Hemrich () *HIV/AIDS and the Agricultural Sector in Eastern and Southern Africa: Anticipating the Consequences*

Laketch. M. (2004) Exploring the Impact of HIV/AIDS on Household Food Security in Rural Ethiopia : 2 case studies, a Joint UNECA/ UNDP/ WFP study, Addis Ababa, Ethiopia

Lewis. W.A (1954). "Economic Development with Unlimited supply of Labor", The Manchester School.

Mather, David, Cynthia Donovan, Thomas Jayne and Michael Weber(2005). *Using Empirical Information in the Era of HIV/AIDS to Inform Mitigation and Rural Development Strategies: Selecting Results from African Country Studies*. Policy Synthesis for USAID Offices and Country Missions.

Maxim, Paul (1992). "Immigrants, visible minorities, and self-employment" in *Demography*. Vol.29. No. 2. PAA, USA.

Maxwell D, Caldwell R. (2008) *The Coping Strategy Index: Field Methods manual*, second ed.

Save the Children (2004) *Food Security, Livelihoods and HIV/AIDS: A Guide to the Linkages, Measurement & Programming Implications*.

Senefeld, Shanon and Ken Polsky (). *Chronically Ill Households, Food Security, and Coping Strategies in Rural Zimbabwe*

Topouzis. D (1999) *The Implications of HIV/AIDS for Household Food Security in Africa*, UNECA, Addis Ababa, Ethiopia

United Nations (2005). *Designing Household Survey Samples: Practical Guidelines*. Studies in Methods Series F No.98

WFP, VAM: *Draft Food Consumption Analysis: Calculation and use of Food Consumption Score in Food Consumption Analysis*

White, Joanna and Elizabeth Robinson (2000). *HIV/AIDS and Rural Livelihoods in Sub-Saharan Africa*. Policy Series 6. Chatham, UK: Natural Resource Institute.

WHO (2006) *Revisions to WHO HIV and AIDS case definitions and classification of HIV related disease*, WHO EMRO National Programme Manager Meeting. Amman, Jordan June 2006.

World Bank (1990). *Making Adjustment work for the Poor: A Framework for Policy Reform in Africa*. Washington D.C., The World Bank.

Yamano, Takashi, T.S. Jayne, Melody McNeil (2002). *Measuring the impact of Prime-Age Death on Rural Households in Kenya*.

Annexes

Annex I: Rural Vulnerability and Livelihood Survey Household Questionnaire

Annex II: Rural Vulnerability and Livelihood Survey Filter Questionnaire

Questionnaire ID |__| |__| |__|

ETHIOPIA RURAL HIV AIDS and LIVELIHOODS STUDY
HOUSE HOLD INTERVIEW

My name is _____ and I am working with the World Food Program. We are conducting survey about households' vulnerability to livelihood /food insecurity. We would very much appreciate your participation in this survey. I would like to ask you about your health, asset ownership, land use, production and related issues. This information will help the organization to plan its interventions. The survey usually takes about 30 minutes to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other persons. At this time, do you want to ask me anything about the survey?

May I begin the interview now?

Enumerator! – If you are allowed to continue please go ahead and start the interview.

Enumerator, First, apply the Filter Questionnaire and fill in the status of the house hold below.

HIV/AIDS affected = 1

Not affected = 2

1. IDENTIFICATION

1.1a Region: /_____/	1.2a Woreda /_____/	1.3 kebele /_____/
1.1b Region Code /___/___/	1.2b Woreda Code: /___/___/	
1.4 House No. /_____/	1.5 Name of Head of house hold _____	1.6 house hold Type 1. Has a chronically sick member 2. A house hold member has died 3. Not affected by HIV/AIDS
1.7 Date of first visit /___/___/___/	1.8 Date of Second Visit -----/-----/-----/-----	
Enumerator's Name	Supervisor's Name	Data Entered by

_____ Signature: _____ Date: /__/_/____/	_____ Signature: _____ Date: /__/_/____/	Name _____ Code _____
--	--	--

A: DEMOGRAPHICS				Ask the respondent the following and complete table according to responses given for each									
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14
	Please give me	What	a. Sex	Marital	0 – 17 years		(for 10 years	Has NAME been very sick for at	What is NAME's	Where did NAME go	If NAME was sick	Has NAME been	Was NAME not

	Please give me the first name of each house hold member, starting with house hold and followed by head spouse See Manual for definition of house hold member	What is (NAME) relationship to head of house hold? options in A3	Male = 1 Female =2 b. age in full years	status (for those 10 years & above) 1= Married 2 = Widowed 3= Divorced 4 = Never married 5 = Separated 6= Co-habiting	a. Is the NAME's natural mother alive? 0=No 1=Yes 2=Don't Know b. If yes above, does she live in this house hold? 0=No 1=Yes	a. Is the NAME's natural father alive? 0=No 1=Yes 2=Don't Know b. If yes above, does he live in this house hold? 0=No 1=Yes 2=Don't Know	years & above) a. What is (NAME) Primary Economic Activity? b. Which economic activity brings the most income to the house hold Refer to options in A8	very sick for at least 3 months during the past 12 months? By very sick means too sick to work or do normal activities for at least 3 of the past 12 months? 0 = No 1 = Yes 2 = Don't Know If 0 or 2, skip to A13	NAME's Main sickness options in A10	NAME go for health care? Enter 0 if did not get health care options in A11. After filling this go to A13	was sick and did NOT get Formal health care, what was the MAIN reasons options in A12	been receiving the following basic support in the past preceding the survey (multiple response)	NAME not able to work for at least 3 months over the past 12 months due to illness 0 = No 1 = Yes
			a.	b.	a.	b.	a.	b.					
1		1											
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

A3 -Relationship to head of house hold 1 = Head 2 = Souse 3 = child 4 = father/mother (of head or spouse) 5 = brother/sister 6 = Grand child 7= other relative 8 = adopted/foster or step child 9 = worker 10 =no relation	A8- Primary Economic Activity 0. No occupation 1. Gov. employee 2. Private sector employee 3. Petty trader 4. Commercial sex worker 5. Local liquor seller 6. Artisan/handicraft 7. Agriculture 8. NGO employee 9. Unpaid domestic work 10. Paid domestic work 11. Daily labourer 12. Pensioner 13. Student 14. House wife 15. Other (Specify)	A10. main sickness 1=TB 2=Meningitis 3=Malaria 4=Diarrhea 5=Pneumonia 6=HIV/AIDS 7=Headache 8 = mentally/physically disabled due to accident 9 = mentally/physically disabled since born 10 = Back Ache 11 =other _____ 12=Don't know	A11. Health service provider Public Sector Source 0= if did not get health care 1 = Central Hospital 2=Referral hospital 3 = District/Rural Hospital 4 = Rural/Municipal Health centre or Clinic 5 = Other Public 6 = Mission Facility 7= Village/Community health worker	Private Sector 8 = Private Hospital/Clinic 9 Pharmacy 10 = Other Private Other 11 = Traditional/Spiritual Practitioner 12 = Other	A12. Reasons for not seeking formal health care 1 = No money to pay for treatment 2 = No transport, too far 3 = Poor quality of service 4 = Religious or cultural reasons 5= did not need formal health care 6 = Do not believe in modern health care 7=Shortage of health workers 8 = Other reasons (Specify)	A13. basic support 1 = Health Care Support 2 = Emotional Support 3 = Social Support, including material support 4 = food commodities 5 = cash 6 = other 9=None
---	---	--	--	---	---	--

B: Education related issues									
2	Ask the respondent the following and complete table according to Section A, for example, row 1 should be the house hold Head.								
3	respondents should correspond in the same order as Section								
4	If age 5 and over, 5 -18 YEARS ONLY, ELSE GO TO B6								
5	else go to B6								
6	B1.		B2			B4		B5	B6
7	a. Has NAME ever attended school?		a. Has NAME been registered to attend school in the current school year?			What is the main reason for (Name's) absenteeism?		What is the main reason for NAME not completing school?	If (NAME) joined the house hold in the last 12 months what was the main reason for joining?
8	0=NO 1=YES		0=NO 1=YES 2= waiting for National exam results			0= NO 1= YES If no go to B6		Go to B6	
9	b. What is the highest grade NAME completed?		b. What grade is NAME registered in? (see options below)			b. Has name completed school in 1999 EC?			
10						c. 0Was NAME absent from school for 4 days /month during the 1999 EC school year?			
11						0=NO 1= YES If NO go to B6			
12	a.	b.	a.	b.	a.	b.	c.		
1									

Codes for Questions B1 – B6		
B1b 0=grade zero/Preschool 1 = grade 1 2 = grade 2 3 = grade 3 4 = grade 4 5 = grade 5 6 = grade 6 7 = grade 7	8 = Grade 8 9 = Grade 9 10 = Grade 10 11 = Grade 11 12 = Grade 12 13 = Higher Education 14=none 98=don't know	B4 and B5 – Primary Reason for Absent, Not Enrolled or Dropped Out 1 = illness 2 = work for food or money 3 = help with house hold work 4 = care for ill member/younger sibling 5 = not interested in school 6 = distance to school far 7 = hunger 8 = expensive/no money 9=Early marriage 10= Unwanted pregnancies 88 = other (specify _____)
		B6 1 = To assist house hold / Work for the house hold 2 = Relieve strain on house hold of origin 3 = Own house hold dissolved 4 = To attend school 5 = Marriage 6 = Death of parent/caregiver 7 = Birth 8 =Returning member 99=N/A 88 = Other (Specify _____)

C. HIV Education and Awareness		
1	Can people reduce their chances of getting the HIV by having just one sex partner who is not infected and who has no other partners?	0 = NO 1 = YES 2= DK
2	Can people get the HIV virus because of injections with needles already used by someone else?	0 = NO 1 = YES 2= DK
3	Can people get the AIDS virus from mosquito bites?	0 = NO 1 = YES 2= DK
4	Can people get the AIDS virus by sharing food with a person who has AIDS?	0 = NO 1 = YES 2=DK
5	Can people reduce their chance of getting the AIDS virus by abstaining from sexual intercourse?	0 = NO 1 = YES 2= DK
6	Can people reduce their chances of getting the AIDS virus by using a condom every time they have sex?	0 = NO 1 = YES 2= DK
7	Can the virus that causes AIDS be transmitted from the mother to her baby: During pregnancy During delivery During breast feeding	0 = No 1 = Yes 3= DK 0 = No 1 = Yes 3= DK 0 = No 1 = Yes 3= DK

D. ASSETS AND LIVESTOCK OWNERSHIP			
D1.	Does your house hold own any of the following items: 0= NO 1= YES	Hoe <input type="checkbox"/>	Bed <input type="checkbox"/>
		Ox-Plough <input type="checkbox"/>	Radio (working) <input type="checkbox"/>
		Axe <input type="checkbox"/>	Sewing/Knitting <input type="checkbox"/>
		Sickle <input type="checkbox"/>	watch / Clock <input type="checkbox"/>
			Jewellery <input type="checkbox"/>
			Borehole with pump <input type="checkbox"/>
			Ox drawn cultivator <input type="checkbox"/>
			Protected wells <input type="checkbox"/>
			Refrigerator /---/ <input type="checkbox"/>
			Wheelbarrow <input type="checkbox"/>

D2	Indicate what the major material of the roof and floor are used								
		Concrete	Mud	Straw	Wood	Plastic	Galvanize d iron	Tiles	Other, specify
	a- Roof	1	2	3	4	5	6	7	8
	b- Floor	1	2	3	4	5	6	7	8
	c- wall	1	2	3	4	5	6	7	8
D3	How many living rooms/structures do you have?					Rooms/Structures			
D4	Is your home rented or owned?			1 =Rented from Kebele	2= rented from individuals /company	3 = Owned	4= Free Hold	5 = Other (specify)	

Livestock	D5. How many of the following livestock does your		D6. How many did your house hold own at the same time last year	D7. What were the reasons for the increase (Multiple answers acceptable)	D8. What were the reasons for the decrease (Multiple answers acceptable)	D9. If livestock were sold what number was sold	D10. If livestock were sold reasons for sell (Multiple answers acceptable)	D11. Are you likely to sell livestock this year 0=no 1=yes 99=N/A	D12. Why? Refer to E10 for options
	a). house hold currently keep?	b). house hold currently own ?							
Plough Oxen									
Milking cows									
Other cattle									
Sheep									

Goats										
Milking camels										
Other camels										
Donkeys										
Horse/Mule										
Chicken										
Bee hives										
D7 Reasons for increase 1 = Births 4 = Other 2 = Purchase 99=N/A 3 = Given	E8. Reasons for decrease 1 = Sold 3 = Slaughtered 2 = Deaths 4 = Stolen 5 = Gave away 6 = Other 99 = N/A		E10 Reasons for selling 1=culling (No longer needed) 2=To pay nominal daily expenses 3=To buy food for house hold 4=To pay medical expenses 99=N/A				5=To pay debt 6=Funeral expenses 7=To pay school expenses 8=other (specify _____)			

E. LAND USE AND PRODUCTION											
E1.	Does this house hold have access to land for cultivation (could be own or rented)				0=no, 1 =yes						
E2.	How much land do you own? (state in hectares)										
E3.	How many hectares of land did the house hold lease this year? (leased in or out)				A. Leased IN			B. Leased OUT			
E4.	What kind of land does your house hold utilize ?				1 = fertile land 2 = dry land			3= infertile land 4= No access			
E5	a. Did you leave uncultivated during 1999 (Ethiopian Calendar)? If the answer is NO go to E6				a) MEHER: 0=NO 1=YES			b) BELG: 0=NO 1=YES			
E5	b. what were the reasons for leaving land uncultivated? (record for each season the most important ones)				1 = lack of labour 6 = To leave as fallow 2= lack of seed 7 = Illness 3= lack of draught 8 = Death in the family power 9 = Not applicable 4 = lack of fertilizer 10 = Other 5 = lack of rainfall (specify) _____				a) Meher		
E6	What crops did you grow in the past Meher and Belg Production period?		1 = maize 6 = Oats 2 = sorghum 7 = chick pea 11 = Coffee 3 = teff 8 = Beans 12 = Enset 4 = wheat 9 = other pulses 13 = roots 5= barley 10 = Chat 14 = Other 15 =			a) Meher (Record Crop Codes)					
E7	How many quintals did you produce in the past production year? (for each crop)		Maize	Chick pea	Roots						
			Sorghum	Beans	Chat						
			Teff	Peas	Coffee						
			Wheat	Other pulses	Dagusa						
			Oats	Enset	Other						
E8	Have you changed the type of crops compared to last 3 years, If Yes why		1 = To increase cash 2 = Labor shortage 3 = Illness				4 = Death in the family 5 = Lack of money 6 = Other, specify				
E 9	a. Does your house hold own any fruit trees?			1 = YES 0 = NO			b. Number				
	b. If the answer is yes, how many?										
E10	a. Does your house hold own any enset trees? b) If YES, how many?			1 = YES 0 = NO			b. Number				
E11	Do you grow vegetables for sale or own consumption			1 = YES 0 = NO							

F. FOOD SOURCES		
Last 3 months refers June to August 1999 EC period. Cereals are earned (cereals include maize, rice, sorghum, millet, wheat, teff etc)		
F1.	How many kg food or cash in birr have you received as payment for labour during the last 3 months?	Cereal _ _ _ _ kg CSB _ _ _ _ kg Oil _ _ _ _ kg Birr _ _ _ _
F2.	How many Qntls have you received from food aid during the last 3 months?	Cereal _ _ _ _ kg CSB _ _ _ _ kg Oil _ _ _ _ kg

F3	How many have you received from gifts and remittances during the last 3 months?	Cereal _ _ _ _ kg CSB _ _ _ _ kg Oil _ _ _ _ kg
F4	How many kgs have you received from purchases from own income/ barter during the last 3 months?	Cereal _ _ _ _ kg CSB _ _ _ _ kg Oil _ _ _ _ kg
F5	How many kgs have you received from own production during the last 3 months?	_ _ _ _ qntls
F6	How many kgs have you received through borrowing during the last 3 months?	_ _ _ _ qntls
F7	How many kgs have you received from other sources during the last 3 months?	_ _ _ _ qntls
F8	Have you received any assistance in cash or food from relatives or children?	1 = YES 0 = NO If NO go to G
F9	Where are the children/ Relatives who assist residing?	1= Within Ethiopia 2= Outside Ethiopia 3 = None

G. Water and Sanitation			
G1.	What is the current main source of drinking water for your house hold?	1= Own piped water 2= Public tap (Bono), other people tap 3=pond, lake, river or stream 4= borehole with pump 5= rain water	6= protected dug well or spring 7= unprotected well or spring 8 = Other, specify
G2.	Do you pay for water from this current main source?	1 = yes 0 = no	
G3.	How far is the source of water for your house hold? <i>Record both time in minutes and distance in km to access</i>	1.....kms	2..... Minutes
G 4	What kind of toilet facility does your house hold use?	1 = Flush latrine 2 = Traditional pit latrine 3 = Ventilated Improved Pit (VIP) 4 = Open pit (no walls) 5 = bush, stream etc 6=Other	

H. HOUSE HOLD DIVISION OF LABOR

HOW MANY HOURS PER DAY DO YOU AND YOUR HOUSE HOLD MEMBERS NORMALLY SPEND ON THE FOLLOWING ACTIVITIES?

This question only applies to those 10 years and older

ACTIVITY	PEAK SEASON					LEAN SEASON				
	HEAD	SPOUSE	OTHER ADULT	CHILDREN		HEAD	SPOUSE	OTHER ADULT	CHILDREN	
				Boy	Girl				BoY	GIrl
AGRICULTURE (INCLUDES LIVESTOCK REARING)										
OFF FARM WORK										
FOOD FOR WORK										
DOMESTIC WORK										
CARE FOR THE SICK										
SOCIAL										
OTHER (SPECIFY)										

I. EXPENDITURE PATTERNS

Item	a.- Est. Expenditure in Cash during the last 30 days Birr	b.-Est. Expenditure in Credit during the last 30 days Birr			a. - Est. Expenditure in Cash during the last 30 days Birr	b. -Est. Expenditure in Credit during the last 30 days Birr
I.1 Grain			I.14 Alcohol, chat, cigarettes			
I.2 Pulses			I.15 Soap			
I.3 Pasta/Macorn i			I.16 Milling			
I.4 Meat/Fish			I.17 Health care			
I.5 Vegetables			I.18 For the items below fill 6 months expenditure	Est. expenditure in cash during the last 6 months	Est. expenditure in credit during the last 6 months	
I.6 Fruits			I.19 Education			
I.7 Cooked food			I.20 Transport			
I.8 Milk			I.21 Livestock/ farm inputs/equipment			
I.9 Egg			I.22 Funeral related			
I.10 Oil & fat			I.23 Gifts to others			
I.11 Sugar, salt and spices			I.24 Celebrations			
I.12 Coffee/tea			I.25 Rent			

K. CONSUMPTION AND FOOD FREQUENCY								
K1.	HOW MANY FULL MEALS DID YOU HAVE YESTERDAY ?	Adults 1 =One 2 =Two 3 =Three 4 = none				Children under 5 years 1 =One 2 =Two 3 =Three Plus 4 = none 99=N/A		
OVER THE LAST 7 DAYS, DID YOUR HOUSE HOLD CONSUME ANY OF THE FOLLOWING FOOD TYPES (PUT NO. OF DAYS 0 TO 7)...:								
	Food item	All house hold Members Number of days eaten (0 to 7 days)	TWO Source	Main		Food item	All house hold Members Number of days eaten (0 to 7 days)	TWO Main Source
K2.	Injera/ bread				K10.	Fruits (not wild fruits)		
K3.	Pasta/Macaroni/Rice				K11.	Wild foods (leaves, roots, tubers, fruits)		
K4.	Enset /Kocho				K12.	Meat (chicken, beef, wild...)		
K5.	Root crops				K13.	Eggs		
K6.	Sugar or honey				K14.	Fish (fresh or dried))		
K7.	Nuts & Pulses (groundnuts, beans)				K15.	Cooking oil, fats and butter		
K8.	Leaf Vegetables include pumpkins, etc				K15.	Other		
K9.	Milk & Milk products							
	Source codes:	1 = Own production 3 = Borrowed	5 = Purchases 7 = Barter	2 = Casual labour 4 = Gift 5 = Purchases	6 = Barter 7 = Food assistance 8 = Hunting/gathering/catching			

L. SHOCKS AND FOOD SECURITY			
L1.	Did you experience any unusual food shortage during the last 12 months?		0 = NO 1 = Yes if NO go to M
L2.	If yes, by order of importance, what problems led to the food shortage? Do not read options, write number in front of the identified cause by order of importance (1=highest) – Probe : « Did you experience any other problem ? »		
	__	A. Drought/irregular rains, prolonged dry spell	__ H. Unusually high prices for food
	__	B. Death of a house hold member	__ I. Unusually high level of human disease
	__	C. Death of a working house hold member	__ J. Theft of productive resources
	__	D. Death of head of house hold	__ K. Relocation of the family
	__	E. Serious illness or accident of a house hold member	__ L. Cut off remittances from relatives working abroad
	__	F. Loss of employment for a house hold member	__ M. Floods
	__	G. Reduced income of a house hold member	__ N. Other

M. COPING STRATEGIES						
Which of the following Coping Strategies did the house hold utilize in the last 30 days?						
Consumption Strategies						
	Has the house hold	Never	Seldom (1-3 days /month)	Sometimes (1-2 days /week)	Often (3-6 days a week)	Daily
M1.	Borrowed food	1	2	3	4	5
M2.	Borrowed money to buy food	1	2	3	4	5

M3.	Bought food on credit?	1	2	3	4	5
M4.	Relied on less preferred foods as substitutes for maize/Teff?	1	2	3	4	5
M5.	Members reduced the number of meals eaten per day?	1	2	3	4	5
M6.	Members reduced the quantity eaten (portions) per day?	1	2	3	4	5
M7.	Members skipped entire days without eating due to lack of money?	1	2	3	4	5
M8	Members skipped entire days without eating due to lack of food?	1	2	3	4	5
M9.	Members eaten meals of vegetables only?	1	2	3	4	5
M10.	Eaten unusual types of wild food that are not normally eaten?	1	2	3	4	5
M11.	Restricted consumption of adults so that children can eat normally?	1	2	3	4	5
M12.	Slaughtered more livestock than normal for food?	1	2	3	4	5
M13.	Send members to beg for food?	1	2	3	4	5
M14.	Eating of cereal seed?	1	2	3	4	5
M15.	Eaten all maize green/ fresh from the field? (i.e. nothing left to harvest)	1	2	3	4	5
Expenditure Strategies						
M16.	Have you avoided spending on healthcare because you had to buy food?	1	2	3	4	5
M17.	Have you reduced expenditure on education to buy food?	1	2	3	4	5
M18.	Have you reduced expenditure on agricultural and livestock inputs?	1	2	3	4	5
M.19	Children taken out of school	1	2	3	4	5
Income Strategies						
M20.	Have you sold more than the usual number of livestock to get food?	1	2	3	4	5
M21.	Have you sold breeding and draft cattle to get food?	1	2	3	4	5
M22.	Have you sold other house hold assets to get food?	1	2	3	4	5
M23.	<i>Have Sold house hold articles (utensils, blankets) or jewelry,</i>	1	2	3	4	5
M.24.	Have sold /rented land?	1	2	3	4	5
M.25.	Spent Savings	1	2	3	4	5
M.26	Send underage children to work (child labor)	1	2	3	4	5
Migration Strategies						
M26.	Send children away to friends or relatives?	1	2	3	4	5
M27.	Been forced to temporarily or permanently migrate to find food or work?	1	2	3	4	5
M.28.	Moved House	1	2	3	4	5
M29	Moved House	1	2	3	4	5

N. PROGRAMME PARTICIPATION						
N1	N2	N3	N4	N5	N6	
Has any member of your house hold participated in any FOLLOWING food based programmes in the last 6 months?	0 = NO 1 = YES If NO go to N6	Line no. of house hold member Who participated	Who selected the house hold member?	How did the programme benefit your house hold in the last year?	If none of your house hold members participated in any programme in the last 3 months was this because	
A	School feeding					
B	Free food distribution					
C	Food for work					
D	Cash for work					
E	Food for HIV					
F	Other (specify)					
Codes for Responses (N4 to M6)						
N4			N5		N6	

1. Volunteered 2. Project manager outside community 3. Community selection 4. Government / recipient list	1= No benefit 2 = Bought more food 3 = Paid for education 4 = Paid medical expenses 5 = Paid house rent 6 = Paid off debts 7 = Invested in productive assets	1 = No programme in area 2= Didn't know there was a programme in the area 3 = No able-bodied person to participate 4 = Did not want to participate. 5 = Not selected by project manager outside community 6 = Not selected by community 7 = Not on Government / recipient list 8 = Not on association membership list 9= Labor shortage 10 = Other (specify)
--	--	---

O. ART enrollment and Adherence

O 1 Is there any member in the house hold taking ART? 1= Yes
2= No If No skip to P

O2 Beneficiary Roster Number (from Section A) _____	O3 O 3 How long have he/she been on ART? (if less than a month fill 0)	O4 a. How many pills were prescribed for a day (for children taking medicine in Syrup form write No. of teaspoon) b. How many pills were prescribed for the previous 30 days c. How many pills were missed from the total prescribed in the previous 30 days? d. How many pills were swallowed from the total prescribed for you in the previous 30 days Interviewer: If the patient has not missed any pill in the previous 30 days go to P. Otherwi:	O5 Why did he/she miss the pills ? 1=Due to the toxicity of the drug 2=Lack of the appropriate food to cope with the side effects of the drugs= 3= Treatment failure 4= Forgot swallowing in time 5= Too ill 6= Run out of pills 7= Other, specify----- -----
--	--	--	--

Name	Line. No		a	b	c	d	

P. Mortality							
<p>N1. Now I would like to ask you a few more questions about your house hold. Think back over the past 12 months, has any usual member of your house hold died in the past 12 months? (include death of infants even if less than one month: include death in hospital of normal house hold members) 0 = No 1 = Yes If YES please provide details below. If NO go to Q1</p>							
<p>P2. Gender (Sex) of the deceased</p> <p>1 = Male 2 = Female</p>	<p>P3. Age at time of Death</p>	<p>P4. Relationship current head of house hold to of</p>	<p>P5. Cause of death</p>	<p>P6. What was the contribution of the Deceased to the family before death?</p>	<p>P7. What problems did the house hold face due to the death of the house hold member?</p>		
Codes for questions P4 – P7							
<p>P4.</p> <p>1 = Spouse 2 = Son/daughter 3 = Son/daughter in law 4 = Father/Mother 5 = Brother/sister 6 = Grandchild 7 = Grandparent 8 = Other relative 9 = Other non relative</p>	<p>P5.</p> <p>1 = Malaria 2 = TB 3 = Pneumonia 4 = HIV/AIDS 5 = Short Illness 6 = Old Age</p>	<p>7 = Cholera 8 = Accident 9 = Suicide 10= Diarrhea 11 = don't know 12 = other</p>	<p>P6</p> <p>1 = Labor contribution 2 = income 3 = Heading house hold 4 = skill, knowledge transfer 5= None</p>	<p>P7</p> <p>1=reduced Income 2=Labor shortage 3=Family breakdown 4=Loss of gains from participation in social activities</p>			
<p>P8</p>	<p>DUE TO THE DEATH OR ILLNESS OF THE HOUSE HOLD MEMBER, DID YOU SELL ANY HOUSE HOLD ASSETS IN THE PAST 12 MONTHS TO PAY FOR MEDICINES FOR THEIR ILLNESS OR FUNERAL?</p>					<p>0 = NO 99 = NA</p>	<p>1 = YES</p>
<p>P9</p>	<p>If YES WHAT WAS THE TYPE OF ASSETS? (CIRCLE ONE ONLY)</p>	<p>1. PRODUCTIVE EG. OXEN, FARM TOOLS</p>	<p>2. NON-PRODUCTIVE EG. JEWELLERY</p>	<p>3. BOTH TYPES</p>			
<p>P10</p>	<p>HAVE YOU HAD TO BORROW MORE MONEY IN THE LAST YEAR BECAUSE OF THE ILLNESS OR FUNERAL</p>					<p>0 = NO 99 = NA</p>	<p>1 = YES</p>
<p>P11</p>	<p>IF YOU HAVE BORROWED MORE MONEY IN THE LAST YEAR BECAUSE OF THE ILLNESS OR FUNERAL DO YOU STILL OWE?</p>					<p>0 = NO 99 = NA</p>	<p>1 = YES</p>

Q. Coping mechanisms for death or prolonged sickness related problems

Q1. Enumerator! go to P3. Has an adult member has died in the last 12 months	1= YES 0= NO
Q2. Enumerator! Refer to A9 and A4. Is there an adult family member who is chronically sick? If the answer to Q1 and Q2 is Yes proceed to Q3. If no, thank the interviewee and finish the questionnaire.	
Q3. if there is a chronically sick adult in house hold or an adult member has died, what did the house hold do to cope with the problems that resulted due to the loss /sickness the member? (give three answers in order of importance)	
Q4. DUE TO THE DEATH OR ILLNESS OF THE HOUSE HOLD MEMBER, DID YOU SELL ANY HOUSE HOLD ASSETS IN THE PAST 12 MONTHS TO PAY FOR MEDICINES FOR THEIR ILLNESS OR FUNERAL?	0 = NO 1 = YES
Q5. IF YES WHAT WAS THE TYPE OF ASSETS? (CIRCLE ONE ONLY)	1=PRODUCTIVE EG. OXEN, FARM TOOLS 2= NON PRODUCTIVE ASSETS 3= BOTH
Q6.HAVE YOU HAD TO BORROW MORE MONEY IN THE LAST YEAR BECAUSE OF THE ILLNESS OR FUNERAL	0 = NO 1 = YES 99 = NA
Q7. IF YOU HAVE BORROWED MORE MONEY IN THE LAST YEAR BECAUSE OF THE ILLNESS OR FUNERAL DO YOU STILL OWE?	0 = NO 1 = YES 99 = NA

and less land
 and less-intensive food crop
 sold/gifted
 and labour of other house hold members
 workers to cultivate land
 and labour support/help from other households
 asked to work
 sent living with other households
 withdrawn from school

10 = Rely on charity
 11 = took on loans
 12 = spent house hold savings
 13 = sold assets
 14 = ate food of poorer quality
 15 = ate less quantities of food
 16 = other (spec.: _____)
 17 = other (spec.: _____)
 18 = other (spec.: _____)

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Q. 1 Have you or any of your house hold members showed the symptoms in the previous one year?

Major signs		Signs	Yes=1	Remark
			No= 2	
	1	Weight loss		
	2	Fever for longer than 1 month (intermittent or continuous)		
	3	Diarrhoea for more than 1 month intermittent or continuous)		
	1	Persistent cough for longer than one		

		month.		
	2	General itchy skin rashes		
	3	Recurrent herpes zoster (shingles).		
	4	A thick, whitish coating of the tongue or sores in the mouth that come and go		
	5	Chronic progressive and disseminated herpes simplex infection.		
	6	Swollen glands anywhere in the body;		

Enumerator: Count the number of Yes's (1) answered from the major and minor signs in the table. How many **yes's** have been answered by the house hold? Major signs /_____/ Minor signs /____/

If You get **2 or more Yes for the major signs and 1 or more yes for the minor signs** consider the house hold as **affected**. If the number of "yes" is below 2 for the major signs and below 1 for the minor signs consider the house hold to be **not affected**.

What is the status of the house hold?

Affected house hold [] → Skip to the main questionnaire

No affected individual currently living in the house hold proceed to the second question []

Q 2. Think back over the past 12 months, has any usual member of your house hold died in this

12 month period?

Yes []

No []

Q 3. How many house hold members died over the previous 12 months? []

Q 4. Did anyone of the deceased show the following symptoms?

		Signs	Yes=1 No= 2	Remark
Major signs	1	Weight loss		
	2	Fever for longer than 1 month (intermittent or continuous)		
	3	Diarrhoea for more than 1 month intermittent or continuous)		
Minor signs	1	Persistent cough for longer than one month.		
	2	General itchy skin rashes		
	3	Recurrent herpes zoster (shingles).		
	4	A thick, whitish coating of the tongue or sores in the mouth that come and go		
	5	Chronic progressive and disseminated		

		herpes simplex infection.		
	6	Swollen glands anywhere in the body;		

Enumerator: Count the number of Yes's (1) answered from the table. How many "Yes" s have been answered by the house hold? Major signs /_____/ Minor signs /____/

If You get **2 or more Yes for the major signs and 1 or more yes for the minor signs** consider the house hold as **affected** and if the number of **"yes" is below 2 for the major signs and below 1 for the minor signs** consider the house hold to be **not affected**.

What is the status of the house hold?

Affected house hold [] → proceed to the main questionnaire

No affected individual currently living in the house hold **end the interview.**