ADDIS ABEBA UNIVERSITY
COLLEGE OF DEVELOPMENT STUDIES
CENTER FOR FOOD SECURITY STUDIES

TARGETING PRACTICES IN URBAN PRODUCTIVE SAFETY NET PROGRAM AND ITS IMPLICATIONS TO HOUSEHOLD FOOD SECURITY IN ADDIS ABABA, ETHIOPIA: A CASE STUDY FROM WOREDA 05, ADDIS KETEMA SUB-CITY

BY

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Yeabsira Birhanu Desalegn
June 2019

DECLARATION

I declare that this thesis is my original work and has not been presented for a degree or certification in any other Universities, institutions and that all sources of material used for the thesis have been duly acknowledged.

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June, 2019

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Approval Sheet

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As supervisors/co-advisers of the thesis, we certify that we have read and evaluated the thesis proposal prepared by **Yeabsira Birhanu e**ntitled '*Targeting Practices In Urban Productive Safety Net Program and Its Implications to Household Food Security In Addis Ababa, Ethiopia: A Case Study From Woreda 05, Addis Ketema Sub-City'* and recommend for Open Defense as fulfilling the requirement for the degree of **Master of Science in Food Security and Development Studies.**

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As members of the Examining Board of the Thesis Open Defense, we certify that we have read and evaluated the thesis prepared by **Yeabsira Birhanu e**ntitled '*Targeting Practices In Urban Productive Safety Net Program and Its Implications to Household Food Security In Addis Ababa, Ethiopia: A Case Study From Woreda 05, Addis Ketema Sub-City"* and recommend that it is acceptable thesis required for the degree of **Master of Science in Food Security and Development Studies.**

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Abbreviation

AAMSEB:	Addis Ababa Micro and Small Enterprises Biro
AAUJCFS:	Addis Ababa Urban Job Creation and Food Security
AAUPSNP:	Addis Ababa Urban Productive Safety Net Project
CBPWDG	Community Based Participatory Watershed Development Guideline
CSA:	Central Statistics Agency
EDRI:	Ethiopian Development Research Institute
EFY:	Ethiopian Fiscal Year
FANTA:	Food and Nutrition Technical Assistance Project
FAO:	Food and Agriculture Organization
FGD/s:	Focus Group Discussion
FUJCFSA:	Federal Urban Job Creation and Food Security Agency
HFIAS:	Household Food Insecurity Access Scale
HH:	Household Head
JRIS:	Joint Review and Implementation Support
KTC:	*Ketena* Targeting Committee
MIS:	Management Information System
MoUDC:	Ministry of Urban Development and Construction
NDRMC:	National Disaster Risk Reduction and Management Council
PAD:	Project Appraisal Document
PCU:	Project Coordination Unit
PIM:	Project Implementation Manual
PMT:	Proxy Means Test
PSNP:	Productive Safety Net Program
UPSNP:	Urban Productive Safety Net Project
USAID:	United States Agency for International Development.

ABSTRACT

The purpose of the study was to assess the targeting practices in Urban Productive Safety Net Program and its implications to household food security in a woreda 05, Addis Ketema sub city, Addis Ababa. The beneficiary household survey was conducted among 338 participants of in the study area. Data was collected using a questionnaire. The method of data analysis was three-fold: firstly, asses the UPSNP beneficiary targeting practices particularly the Proxy Means Test (PMT) scores of beneficiaries in the study area. Secondly, Household Food Insecurity Access Scale (HFIAS) used to determine the food security status of households in the study area. Thirdly, ordered logit model was used to determine which of our independent variables have a statistically significant effect on food security status of households. The results show that, the PMTs were 69.8% below the median score and 30.2 above the median score, and of the selected samples; Approximately 2.1% of households were categorized as food secure, 30.5% as mildly food insecure and 45.3% as moderately food insecure and 22.2% as severely food insecure. The results of the regression analysis shows that gender, age, marital status, education attainment, income, health status, and household size are found to be more significantly associated with food security status of a household in the study area. The study recommends that local government at (federal, city, sub city, and woreda level) give attention on to the performance and impact of the UPSNP among the intended outcome of the programe, and give attention on households Proxy Means Test indicators depending on city's situation, and policy initiatives in urban areas towards entrepreneurial programmes and employment creation, as well as skills development to unlock the potential of households to ensure their food security.

Keywords: *PMT, UPSNP,HFIAS, Ketena, Woreda, Addis Ketema, Addis Ababa*

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

As defined by the FAO (2002), Food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. This definition highlights the now generally accepted four dimensions of food security: food availability, food access, utilization and stability, FAO (2006).

According to World Bank (2015), Ethiopia is one of the most food-insecure and famine affected countries. A large portion of the country's population has been affected by chronic and transitory food insecurity. Food security situation in Ethiopia is highly linked to recurring food shortage and famine in the country, which are associated to recurrent drought and urban poverty rates in Ethiopia are quite high, particularly in the large cities. The total national poverty head count in 2011 was 29.6 percent (30.4 percent in rural Ethiopia and 25.7 percent in urban areas). Poverty rates in Addis Ababa and Diredawa were as high as 28.1 percent and 28.3 percent, respectively. The poverty gap index is estimated to be 8 percent in rural Ethiopia and 6.9 percent in urban Ethiopia, CSA (2011).

MoUDH (2015), states that the most visible faces of urban poverty are the destitute. These are the poor that live on the street and comprise street children, the homeless, and beggars, who need housing, healthcare, counseling, and often reunification with their families, in addition to financial support. This group is very poor but also relatively small in number (an estimated 3 percent of the poorest 15 percent of urban households). Another clearly identifiable group of the urban poor are the elderly and disabled living in households with no working-age members (7 percent of poorest 15 percent). Financial and community support is weaker for this group in cities than in rural communities and as a result they are both poorer and more vulnerable than the elderly and disabled in rural areas.

Recognizing this problem the government of Ethiopia launched urban food security 10 years program and strategy. The aim of strategy is to reduce poverty and vulnerability among the urban poor living below the poverty line over a period of 10 year as an element of the Urban Job Creation and Food Security Strategy approved on May 8, 2015. And it is response to support the

needs of the chronically food insecure households, as well as to develop a long-term solutions to the problem of food insecurity. The long-term program framework has an objective of reaching 4.7 million urban poor living in 972 cities and towns. Under this UFSP and strategy, the government agreed Project Development Objective (PDO) for 5 year UPSNP project and implement since/in 30April 2016 to support the Government of Ethiopia to improve the income of targeted households and establish urban safety net mechanisms in eleven major cities (Addis Ababa, Adama, Hawassa, Mekele, Dessie, Dire Dawa, Harar, Jigjiga, Asayita/Samara, Gambella, Asossa) Up to 604,000 beneficiaries will be targeted through a gradual roll-out in the first phase of UPSNP.

According to CSA (2011), One-fifth of Ethiopia's urban population lives in Addis Ababa and reducing poverty rates in this and other large urban centers is a key priority toward addressing poverty reduction in Ethiopia. Addis Ababa city was one of the UPSNP beneficiary city, currently implementing the program by the collaboration of government and World Bank, which selected or targeted by criteria's of their population size, population density, poverty rate, and others. Among the 448,885 total program beneficiaries 2010 EFY found in eleven cities; 370,343 (84%) for pubic work transfer; 70,542 (16%) have been targeted for direct support, 8000 clients with special needs have also planned to be targeted. Among the total targeted beneficiaries, Addis Ababa has been above 70 percent beneficiaries are targeted and benefited. In the first round of implementation 123,180 beneficiaries in 35 *woredas*, 200,000 beneficiaries in the second round in 55 *woredas*, total 323,180 beneficiaries in 90 districts were benefited in Addis Ababa city, UPSNP Project Coordination Unit (2011). And now the third round beneficiary targeting for the remaining 26 *woredas* would being carried out.

CSA (2011), also indicates that, Addis Ababa poverty status at the sub cities and *woredas* are; totally 116 *woredas* with in 10 sub cities in Addis Ababa, which has 21 high, 69 moderate and 26 low poverty woredas. Of this, Addis Ketema sub-city has 10 *woredas* which 8 are high and 2 are moderate poverty *woredas,* and having greater number of beneficiaries (18,099) than the others. However, select Addis Ketema sub city by the criteria with high incidence of poverty focus on high-medium (>20%) poor *woredas* and having greater number of beneficiaries and *woreda* 05 one of the high poverty *woredas.*

1.2 Statement of the problem

According to CSA (2011), in Addis Ababa urban poverty rates were high, at 28.1%. One-fifth of Ethiopia's urban population lives in Addis Ababa and reducing poverty rates in this and other large urban centers is a key priority toward addressing poverty reduction in Ethiopia. The city administration of Addis Ababa sees urban productive safety net program as one of the best strategies to achieve its goal of sustainable poverty reduction and to overcome the food insecurity problems of the city. However, the outcome or impact of the program has been weakened by several factors including poor targeting practice of the eligible households. This leads to targeting errors (inclusion errors such that, some people benefit from the program whilst they are not the ones most in need, and exclusion errors; such that, that people who are among the ones in dire need, are excluded from the benefit). To reduce this problem several targeting methods, such that; community based targeting, geographic targeting, group targeting, self-targeting, proxy means test, and combination methods could be applied.

The first round Proxy Means Testing (PMT) for the UPSNP project has been undertaken by Ethiopian Development Research Institute (EDRI). EDRI used the same proxy means test indicators to assess their socioeconomic status at all cities (eleven cities). But cities have different PMT indicators depending on the cities situation. Because of this even households that were very poor according to the survey data, the PMT list excluded households from the beneficiary list due to prediction error in the PMT model.

The total estimated number of people below the poverty line in Addis Ababa is 766,800, and Addis Ketema sub city accounts 92,805, *woreda* 05 has 3,004. Moreover, the project is intended to reach out approximately 415,923 people in Addis Ababa and Addis Ketema sub city accounts 51,043 people and *woreda* 05 has 1,652 urban poor. However, the remaining 45 percent of the urban poor are chronically food insecure people in the city as well as in the sub city and *woredas* World Bank (2015). Addis Ababa poverty status at the sub cities and *woredas* are, totally 116 *woredas* with in 10 sub cities in Addis Ababa, which has 21 high, 69 moderate and 26 low poverty woredas. Of this, Addis ketema sub-city has 10 *woredas* which 8 are high and 2 are moderate poverty *woredas,* and having greater number of beneficiaries (18,099) than the other sub cities, World Bank (2015). With such limited resources it is even more a challenge to identify eligible household correctly and to implement the project components effectively mainly

due to lack of clear data and poor targeting practices. This means the project might have unintended outcomes (increase dependency, affect the local labor market, affect individuals as well as household's entrepreneurial skills, have no positive impacts on household's food security.

However, much of the research done so far on the roles, contributions and impacts of PSNP and status of food security in Ethiopia has emphasized on rural food insecurity. Such studies have not focused on understanding the targeting practices of UPSNP, and what are the implications of the intervention for households' food security in urban areas, and this is a knowledge gap that this study attempted to fill by assessing the targeting practices of Urban Productive Safety Net Program (UPSNP) to the implications to food security of UPSNP beneficiaries. The knowledge generated from this study is expected to contribute to the development of appropriate interventions for improving targeting practices and food security in woreda 05, Addis Ketema sub city in particular and Addis Ababa in general.

1.3 Objective of the study

1.3.1 General objective

The overriding objective of the research is to assess the targeting practices in urban productive safety net program (UPSNP) in Addis Ababa and its implications to food security enhancement among the urban poor households.

1.3.2 Specific objectives

More specifically, the study aspires to:

- ✓ examine the UPSNP targeting practices in the study area
- ✓ investigate the food security status differences between beneficiaries and non-beneficiaries
- ✓ assess the determinants of household's food security

1.4 Research questions

This research intended to answer the following basic questions which are derivatives of the above mentioned research objectives:

- What are the practices in the targeting process of the UPSNP in the study area?

- What types of targeting errors occur in the study area?
- How the UPSNP targeting implies household's food security?
- What are the determinant factors of household food in/security status among the UPSNP client and non-client at the study area?

1.5 Scope and limitation of the study

The study has limited spatial scope i.e. *woreda* 05, Addis Ketema sub city, Addis Ababa. The study area was selected the sub city was purposively and the *woreda was* selected randomly with 10 *ketenas*. The study considers UPSNP beneficiary and non-beneficiary households from each ketenas. However, the challenge of urban poor has multidimensional aspect the scope of the study would be focused on UPSNP targeting practices in line with the trends to achieve the project goal.

This study has some limitations with regard to data acquisition (in amount and time horizon) as a result of limited available financial and time resources. But, the researcher would try to adopt and arrange stakeholder (committee) meetings in the study area for validating and triangulating information among stakeholders.

1.6 Significance of the study

Addis Ababa city and Addis Ketema sub city have many poverty related challenges and are administration areas known for inability to sufficiently serve their residents. Thus, it is becoming an utmost urgent issue to resolve these paramount challenges in a quick and integrated manner. One of the main challenges seen in the *woreda*, sub city as well as the city is that of food insecurity issue with lack of coordination between the different stakeholders involved. Gaps identified in achievement of food security in urban centers are multi-dimensional and complicated and necessitate substantial preventive and rehabilitative works. They also require a lot of hard work to coordinate the efforts of different organizations.

Appropriate organizational capacity and operational systems would be developed and established, based on thorough studies, Organization would have the vision to gradually reduce and eventually eliminate chronic urban poverty, unemployment and vulnerability to various social ills. This is to be achieved by researches. In this respect, this research has some

contribution on the study area and city administration as well as national effective program implementation alternatives to address urban food insecurity. Moreover, it can also help as a spring board for further research and examination of the implementation practice of food insecurity activities on the targeting practices of urban productive safety net program and its implications household food security in the UPSNP beneficiary *woredas* and cities.

1.7 Ethical consideration

In case of data collection, ethical considerations must be seriously taken into account to ensure the protection, integrity, anonymity, consents and other human elements of the informants. As argued by Kitchin and Tate (2000) research ethics are considered with the extent to which the researcher is ethically and morally responsible to his/her participants, the research sponsors and other concerned bodies who have a contribution in his/her research. Taking this idea into consideration, before starting to conduct the study, ethical consideration has been seriously taken into account by the researcher. First of all, initial contacts has made with those higher government officials and sample populations to introduce myself and explain the purpose of the research. Then after, the discussants, and respondents were met and asked their willingness to conduct FGD and interview. The questionnaire survey was undertaken by trained data collector. The data collectors were selected with the collaboration of *woreda* UJCFS office director, and then i gave half day training on all the necessary research process including research ethics. In addition, obviously, the voluntarily respondents are the target groups of this research.

1.8 Organization of the thesis

This thesis consists of five chapters. Chapter one presents the general introduction of the thesis that includes: background of the study, statement of the problem, objectives and research questions, significance of the study, scope and limitation of the study. The second chapter is devoted to a review of related literature through which various concepts relevant to the study are discussed. The third chapter deals with methodological issues, under which the general descriptions of the study area, the data sources and acquisition techniques as well as method of data analysis are discussed. The forth chapter is also devoted to discussion and analysis based on the processed primary and secondary data of the study. And finally the fifth chapter is dedicated to conclusion and recommendation based on the findings/results of the study.

CHAPTER TWO: REVIEW OF LITERATURE

2.1 Theoretical and conceptual review

2.1.1 Food in/security

Maxwell and Smith (1992) say that there are many definitions and models of food security, but these all agree that the key characteristic of household food security is secure access at all times to sufficient food. However, several literatures indicate about the evolution of the food security concept in different times.

According to Timothy et.al (1998) during 1960's and 1970's, the definition focus on; national food security and it was believed that world hunger could be resolved if each country became food self-sufficient, i.e., grew enough food to feed its people, volume and stability of food supplies, and national food availability than food security. World Food Summit (1974) sates that, availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices. In 1980's, the concept focus on Household Food Security, researchers and development practitioners observed that access to food was caused by an erosion of people's entitlement to food. World Food Summit, (1983), indicates, ensuring that all people at all times have both physical and economic access to the basic food that they need. Early 1990's, Focus on Nutritional Security. Once food is obtained, emphasis on how food is utilized, translated into satisfactory nutritional levels in this time, household food security is a necessary but not sufficient condition for nutritional security.

This leads to the now generally accepted definition of food security of FAO in 2002, Food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.' This definition highlights the now generally accepted four dimensions of food security: food availability, food access, utilization and stability, FAO, (2006).

Food access: Food access incorporates both physical and economic access. Physical access involves a place where food is attainable and available, while economic access relates to entitlement to food, Staatz et al., (2009:158). It encompasses income, expenditure and buying

capacity of households or individuals, and it refers of having sufficient food at national level or at certain territory cannot be taken as the proof that all the household or individuals in the country/territory have enough food to eat. It suggests that every individual should have sufficient access to sufficient resources in order to have appropriate food to live a healthy life. FANTA, (2006:1), Benson, (2004:8), and Labo, (2001), respectively states about food access; food accessibility by households can be obtained through consumption, production and receiving gifts from other households. The extent to which each member of a household has access to sufficient food depends on gender, age and the employment status. Access to food is closely associated with poverty because poor people usually do not have sufficient resources to attain access to the right amount of quantities.

Food availability: Food availability addresses supply side of the food security and expects sufficient quantities of quality food from domestic agriculture production or import. It can be assessed by precipitation record, food balance sheet, food market survey, agricultural production planet. The indicators of food security for this dimension at different levels are fertility rate, food production, population flows, harvesting time, staple food production, food storage, consumption of wild foods, etc. The food availability indicators capture not only the quantity but also the quality and diversity of food.

Supply of food should be distributed through domestic and international production. Kannan (2000) argue that food supply is very essential and that the government of any particular country should not depend entirely on international markets for food supply. Goodall (2009:2) maintains that the availability of food is interpreted differently across countries; it could simply mean the availability of food to survive or to sustain a healthy life by having enough nutrients. Food availability does not guarantee food access; this is because several factors such as institutional structures, government policies, business and the market have an influence on food security at a household level, which in turn is accomplished through empirical analysis, (Page & Redclif, 2002; Hadley, 2011). The challenges associated with food supply in a country include several factors such as political instability, war and riots, the shortage of effective transportation and inefficient market structure (Benson, 2004:8). A food balance sheet provides relevant information about food availability among nations, regions and sub-regions, Babu & Sanyal, (2009:8).

Food Utilization: Food utilization addresses not only how much food the people eat but also what and how they eat. It also covers the food preparation, intra-household food distribution, water and sanitation and health care practices. The nutritional outcome of the food eaten by an individual will be appropriate and optimum only when food is prepared/ cooked properly, there is adequate diversity of the diet and proper feeding and caring practices are practiced. Stunting rate, wasting rate, prevention of diarrheal diseases, latrine usage, weight-for-age, goiter, anemia, night blindness etc. are the indicators at different level for this dimensions which can be assessed by demographic and health survey, immunization chart etc.

According to Richardson, (2010:1), IICA, (2009), and WFP, (2007:4) states, utilization of food involves the preparation of sufficient food with clean water, sanitation and special health care. This ensures that the wellbeing of individuals' psychological needs is met efficiently. Food utilization implies that the amount of nutritional food intake by an individual should be safe, of the right quality and be sufficient for a diet that provides adequate energy and vital nutrients. A person's body must be able to extract and use the nutrients from consuming food; this is according to the meaning of an 'active and health life' in the definition of food security. The preparation of food and health status of a person has a direct influence on food security, Staatz et al., (2009:159). Food utilization is limited by several factors such as loss of nutrients during food processing, inadequate sanitation, lack of proper care. This in turn might have an adverse effect on other members of a household. Food utility entails food usage, therefore throughout the year food utility changes with seasonal variation and food availability when there is food production and consumption domestically, Yin et al., (2008).

Food Stability: Food stability addresses the stability and sustainability of the other three dimensions over time. People cannot be considered food secure until they feel so and they do not feel food secure until there is stability of availability, accessibility and proper utilization condition. Instability of market price of staple food and inadequate risk baring capacity of the people in the case of adverse condition (e.g. natural disaster, unexpected weather etc…), political instability and unemployment are the major factors affecting stability of the dimensions of food security.

Food stability emphasizes that every individual should have access to sufficient food at all times. Unexpected economic shocks should not be a risk factor to food access when needed, IICA,

(2009). Stability also relates to the loss in resources due to income shocks and insufficient reserves. The loss in resources may either be temporal or permanent, Schmidhuber & Tubiello, (2007:1). The concept of stability is interrelated with the elements of access and stability FAO, (2006:1).

Food Insecurity: Sen (1999), states that, food insecurity, famine, malnutrition and undernourishment are different concepts though interchangeably used in different literature. As indicated hereinbefore, food insecurity is a complex concept mainly referring to lack of access to enough food for all people at all times for an active and healthy life. The Food and Agricultural Organization, FAO, (2002) defines food insecurity as a situation where there is limited availability of safe and nutritious food needed to live an active and healthy life. This condition also involves being worried about not having sufficient food to eat or not having money to buy food when it runs out, Burns, (2004:6). People found to be food insecure generally cannot consume or grow enough food due to limited resources, Boussard et al., (2006:9). Other instances of food insecurity are found amongst those who have been victims of wars, the urban poor and low-income households, especially in underdeveloped countries. Moreover, women residing in low-income households are mostly vulnerable to food insecurity. This is because women usually spend a large share of their income on children's needs. They are also responsible for producing or preparing the food they purchase (FAO, 2011; European Commission, 2009:9), note that theory differentiates two types of food insecurity, chronic and transitory food insecurity:

Chronic food insecurity: chronic food insecurity occurs when the shortage of food lasts for long periods of time and it is usually caused by lack of productive and financial resources due to poverty. It persistently affects individuals that are not able to meet necessary requirements to purchase or produce enough food (European Commission, 2006:1). Chronic food insecurity breeds conducive conditions for vulnerability - which is defined as continual susceptibility to food insecurity, Devereux, (2006:3). Chronic food insecurity is regarded as mild or moderate food insecurity and it usually dominates when there is consistent market or structural failure within a nation Misselhorn et al., (2010). Chronic food insecurity has an effect on almost one billion people in each year Staatz et al., (2009:159). Cathie (2006:100) argued that the minimum

daily food intake and nutritional policy measures are essential policy recommendations to alleviate the challenges related to chronic food insecurity.

Transitory food insecurity: Transitory food insecurity is a temporal shortfall of food and last for short periods of time. It is rooted from several factors such as short-term shocks and lack of food availability due to fluctuations in food prices FAO, (2008:9). The condition of transitory food insecurity happens when there is an unexpected change in the ability to purchase or produce sufficient food to maintain a healthy lifestyle. Transitory food insecurity is regarded as the most serious manifestation of household food insecurity because it causes hunger and famine, even though the condition occurs in the short-term, Staatz et al., (2009:159). Inappropriate government policy may lead to transitory food insecurity due to the destabilization of food consumption trends, Cathie, (2006:100). The major sources of transitory food insecurity are; year-to-year variations in international food prices, foreign exchange earnings, domestic food production and household incomes, temporary sharp reductions in a population's ability to produce or purchase food and other essential undermine long term development and cause loss of human capital from which it takes years to recover.

Chronic and transitory food insecurity is interrelated because chronic food insecurity is rooted in one or more incidences of transitory shocks, Misselhorn et al., (2010). Coping strategies employed by households outlines a clear indication of the relationship between the two concepts. A household is likely to sell off its assets in an attempt to cope with transitory food insecurity, thus this sacrifices their ability to attain food or income, which in turn leads to chronic food insecurity. This whole process is called a poverty trap, Staatz et al., (2009:160).

2.1.2 Targeting in international perspective

Fiscal constraints and the realization that growth and official development assistances were not necessarily helping the poor have led the international community to use tools to reach the poor. The literature indicated that making the poor the prime beneficiaries of any poverty program or policy, first the poverty elevation resources should invest in the sectors that can help the poor easily. Second the poor should have to be identified in order to be able to transfer the benefits of the program exclusively to them (Lavallee, et al., 2010). By doing this, poor are targeted in such a way that they are the sole beneficiaries of the program. As a result, one of the poverty

reduction policy targeting is the selection of individuals or households whom are considered to be poor from the community.

According to the poverty alleviation targeting, working paper, although targeting can be geared to different concepts of poverty, targeted policies generally adopt the monitory approach. This approach defines the poor those individuals or households whose income is below a certain threshold. Targeting is generally applied to the policies of social sectors. However, it can also apply in other policies developments like water and sanitation, energy and other rural and urban policy interventions. Coady et al 2003, identified, there are five types of policy interventions especially applicable to targeting: cash transfers, in kind transfers, public works, price subsidies and social funds. Among these, direct cash transfers, in-kind transfers and public works have some conditionality obligation (i.e. food for work) to the recipients, Coady, et al., (2003)

2.2 Empirical literature

2.2.1 Food Security Programs in Ethiopia

According to an early 2010 report, 5.2 million people in Ethiopia face a precarious food security situation. The worsening food security situation is attributed primarily to poor rainfall last year during the February–May and June–October seasons. A series of successive droughts had already weakened Ethiopia's food situation, with "poor and erratic rainfall over the last two years." Global conditions such as the high food and fuel prices that have persisted in the country since 2008 and the global financial crisis have also contributed to Ethiopia's failing food security. Ethiopia is considered a least developed country ranked 171 out of 182 countries in the UNDP Human Development Index (2009).

El Niño occurred in 2015 and the resulting drought conditions led to a sharp deterioration in food security; the estimated number of food insecure people was 4.5 million due to this vulnerable shock in August 2015, and by the end of the same year this figure had more than doubled. According to a Government-led multi agency assessment, 10.2 million Ethiopians are food insecure in 2015/16. In 2017, Ethiopia is addressing the food need of 7.9 million of chronically food insecure and over 8.2 million of people facing acute food insecurity problem. Besides addressing the immediate food need of people facing chronic and acute food insecurity, Ethiopia aimed at tackling food insecurity and eliminating temporary and long-term food gaps and reduce

the number of people requiring food assistance from government and humanitarian agencies. To that end, Ethiopia formulated policies that frame an integrated approach which tackles the households' food security problem and contribute to achieve sustainable food security through increasing productivity, reducing vulnerability and improving households/ community resilience to food insecurity.

In order to materialize the broad goal of achieving food security, number of programs are designed and being implemented. The programs are addressing the moisture stress, pastoral and lowland communities and high potential areas of the country. Accordingly, the following are major food security programs which are formulated and being implemented on a wider level: Resettlement program, PSNP (Productive Safety Net program), HABP (Household Asset Building Program), CCI (Complimentary Community Investment), Agricultural Growth and Transformation Plan (AGP), Villagization for the pastoral and lowland communities, and also urban productive safety net strategy and program was recently endorsed by the government.

2.2.2 Productive Safety Net Program (PSNP)

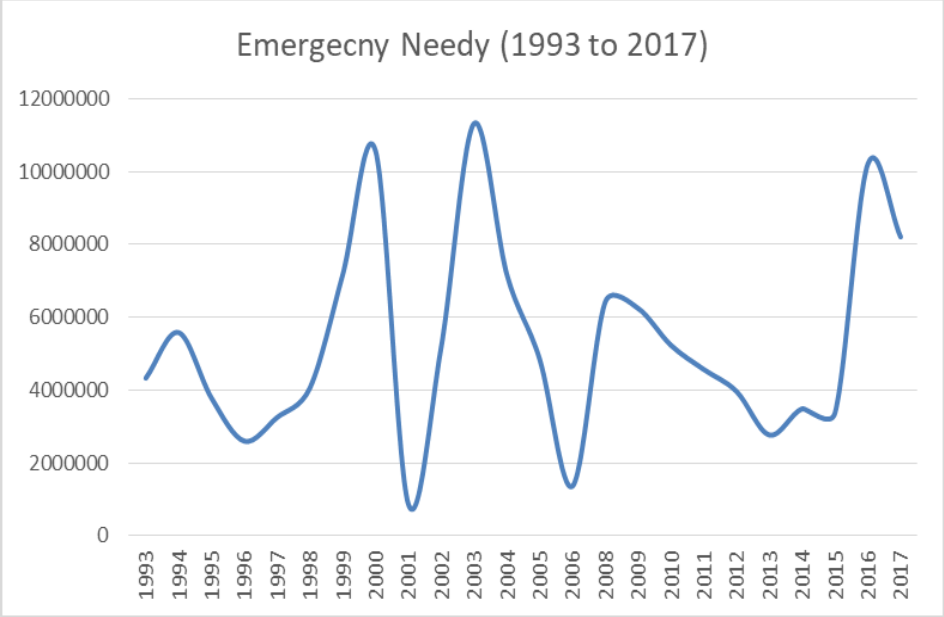
For over 30 years, responses to food insecurity in Ethiopia were dominated by emergency food aid. While this saved lives, it often failed to protect livelihoods, and this became a growing concern. In response, the Ethiopian government revised its emergency food aid system in 2005 and launched the Productive Safety Net Program (PSNP).

In the ten years from 1994 to 2003, an average of five million Ethiopians were declared "at risk" and in need of emergency assistance, and since 1998 the numbers of food aid beneficiaries in Ethiopia have fluctuated between 5 and 14 million every year (figure 2.1).

However, a high proportion of households that receive emergency food aid, or work on public works projects, every year are not "famine prone" but are "chronically food insecure" they face predictable annual food deficits caused by agricultural production constraints and poverty. These "predictably food insecure" people are also exposed to recurrent shocks, usually triggered by drought, that raise their vulnerability further, by forcing them to dispose of their assets to survive. This results in a gradual deterioration of their food security status over time, which decades of large-scale food aid deliveries have done little to prevent. Instead, dependency on

food aid has steadily increased over time, as has the number of chronically food insecure Ethiopians.

Figure 2.1: Emergency needy population in 1993 to 2017



Source: National Disaster Risk Reduction and Management Council (NDRMC, ND)

Ethiopia lunched productive safety net program (PSNP) as social protection program since 2005 to tackle the causes of food insecurity. Even though, the country lunched the PSNP there are different challenges that hinder proper implementation of program for attaining intended impact on rural community (Wondim, 2018).

PSNP main aim is to shift from a dependence on annual food aid and emergency food assistance that were used to tackle the deep-rooted poverty since the 1983/84 famine, to providing a combined solution of supporting the needs of chronically food insecure households and developing long-term solutions to deal with the root cause of food insecurity (Zemzem, 2012).

In her research paper entitled importance of community participation in sustaining an asset-bgased social protection program, Zemzem (2012) described that, the program has three intermingled objectives. The first two, which are related to short-term solutions, are directed towards protecting households from hunger by smoothing food consumption and preventing them from further impoverishment by protecting current household assets. The third objective, on the other hand, relates to providing long-term solution to the existing food insecurity by

creating community assets that contribute to the promotion of sustainable livelihoods. Further to this, unlike preceding initiatives, the program formally distinguishes between two types of beneficiaries: direct support and public work.

The direct support covers vulnerable but labor-constrained households while those in the Public work component are expected to use their labor to build community assets. The latter follows the Community Based Participatory Watershed Development Guideline (CBPWDG) which aspires for community participation throughout the cycle. Consequently, achieving the long-term objective of the program relies on proper planning, implementation and management of the assets created by the Public works. Despite this fact, many studies on the PSNP concentrate on evaluating and analyzing issues related to the short-term objectives although the long-term objective is crucial in terms of sustainably addressing problems of food insecurity.

Sharp et.al (2006), in their Research Paper entitled Targeting Ethiopia's Productive Safety Net Program (PSNP), the study result about the targeting design, implementation and outcomes of the Productive Safety Net Program shows that, the PSNP is reaching the poor. The institutional structures for combined administrative and community targeting are in place in most areas (though not all), and are functioning with varying degrees of success. Great efforts have been made by local government and community decision makers to fulfill a very difficult task. Some major misinterpretations and confusions in targeting during the first year have now been corrected. No systematic corruption or large-scale abuse of the targeting system was found.

Muktar (2012) states that; several studies show that, a number of challenges are faced in the implementation of the food security program. Poor targeting processes resulting in inclusion and exclusion errors was one of the problems. In his Research Paper entitled Targeting Practices in Safety Net Programs: described the targeting errors may lead, respectively, to some people benefiting from the program whilst they are not the ones most in need, and on the other hand, people who are among the ones in dire need, being excluded from the benefit. Obviously, such targeting errors make these safety net programs less effective. Meanwhile the problem is extreme in the pastoral areas of the country like Somali region were both the physical and human capacity for the program implementation is limited.

He is also empirically investigates and explores the major factors affecting the performance of the targeting by assessing the program targeting process by a case study. This implies that several factors affecting the targeting process in which the major ones include; limited quota number, lack of reliable data, and lack of training and skilled manpower. Also, the advantages of participation and transparency that the community level targeting is supposed to demonstrate were not sufficient to guarantee a smooth targeting process. In short, even though the targeting process appeared to be working, the study concluded that several factors negatively affect the performance of the program.

According to Fekadu and Mberengwa (2009), in their research paper entitled challenges of productive safety net program implementation at local level (Ethiopia) shows that; poor geographical, administrative, and community targeting are evident. The process of targeting the poor is froth with nepotism, corruption as demonstrated by high inclusion ratio of non-poor households in the program. Other challenges which negatively affect the program include weak institutional linkages and lack of active community participation in the decision making process.

According to MoUDH (2015) states in the UFSS document, the main challenges and gaps that were encountered during the implementation of the national food security program were the effects of climate change (mainly drought) have had in terms of beneficiaries' backsliding to their previous status, budget constraints, shortage of man power and limited implementation capacity, dependency syndrome, whereby the beneficiaries saw the program as a donation from the government rather than as a strategic support as a way out from their basic problems, and its impact on the level of voluntary public participation, and loose financial administration systems.

Encouraging results are registered in local development works by undertaking different capacity building and monitoring and evaluation works as well involving the public in order to tackle the above mentioned challenges. These experiences demonstrate that the food security strategy being implemented in the rural areas of the country has changed the lives of many citizens as well as the images of localities. Among the secrets that made the program successful is the existence of strong collaboration and coordination among the Government, development partners and the public at all stages of the program's implementation. It is therefore imperative to implement the urban food security strategy by taking into account the various experiences gained as well as the

challenges faced during the implementation of the rural food security strategy and analysing them with respect to the special context in urban areas

According to the theoretical and empirical literatures discussed above, there are many definitions and models of food security, and all are agree that the key characteristic of household food security is secure access at all times to sufficient food. And the key dimensions of the household food security construct are; physical availability of food, economic and physical access to food, and adequate food utilization that is a function of the ability of the body to process and use nutrients as well as of the dietary quality and the safety of the foods consumed at a sustainable way. Because of the central role that food security plays in human development, it is recognized as a universal human right that is currently unmet for billions of individuals globally.

In order to materialize the broad goal of achieving food security in Ethiopia, number of programs are designed and being implemented including UPSNP. But there are a number of factors that affect the practices of food security programs implementation including PSNP targeting and ensuring food security of the households. Such variables can be explained by socioeconomically and/or demographic aspects.

2.2.3 The UPSNP Proxy Means tests Practices in Ethiopia

The first round Addis Ababa UPSN program PMT surveys was undertaken by the Ethiopian Development Research Institute (EDRI) has been contracted to administer. The PMT was implemented after the community-targeting process. Ideally, the targeting committee should have an understanding of some of the characteristics that will be measured through the PMT to ensure that no significant divergence is created between the community-selection and the PMT scoring. Towards this end an external consultant was hired to train the KTCs on the targeting process in all treatment *woredas*. Moreover, EDRI gave a half day training to officials coming from *woreda*, sub- city and *ketenas* involved in the project on PMT and what attributes of the households the KTCs should focus when undertaking targeting. In practice, the criteria used in the community-based targeting were different from the criteria that constituted the PMT.

The purpose of PMT is to provide an additional verification step in the targeting process, as a way to ensure that no non-poor households are included in the community selection (otherwise referred to as ‘inclusion error’). The data from the short questionnaire is used to generate a

standardized measure of poverty, using a model that predicts per adult equivalent annual consumption, using a selected set of 13 key household variables.

Once the targeting committee has presented and discussed the community-selection with all the households in the *tabia/kebele/sefer*, the community list was presented to the Sub-city/*woreda* administration officials and aggregated into a main Sub-city*/woreda* list. EDRI enumerators then took a sample of 10% of households from the main list and visit the households to conduct the PMT questionnaire.

2.2.4 Review of determinants of household food in/ security

2.2.4.1 Household income

Household income is the total monthly income of households from all sources. Household income is regarded as the most critical determinant of household food security status. Low income households are more likely to suffer from food insecurity as compared to middle income and wealthier households (Jacob, 2009). A study by Bashir et al. (2012:4) in Pakistan used logistic regression to determine whether income had an effect on household food security status.

The study concluded that income was positively significant, meaning that there was a positive relationship between the food security status and monthly income. Research by Carter et al. (2005:5) reported that disposable income had a direct influence on food security. The study further showed that there was a negative correlation between income and food insecurity by four times the odds of becoming food insecure for lowest income households as compared to the highest income households. Low income households are found to depend on social welfare transfer and food aid to consume food. There have been instances were low income households end up in debt because of insufficient income to consume food (Omonona et al., 2007:404).

2.2.4.2 Gender of Household head

Several studies (De Cock, 2012:38; D'Haese et al., 2011:66, and Olagunji et al., 2012:119) have argued that female-headed households are more likely to be vulnerable to food insecurity and poverty as compared to their male counterparts (Kassie et al., 2012:5). Carter et al. (2010:3) found that incidents of food insecurity are much higher for female-headed households compared to male-headed households. Females are most likely to take care of their extended families, and

will usually sacrifice their food intake to feed other members of their household when threatened by food insecurity and moreover they are most likely to be single parents than their male counterparts.

A study conducted by Kassie et al. (2012:14) in Kenya observed that the change in chronic food insecurity between female-headed households and male-headed households is statistically significant. Franye et al. (2009:16) found that female-headed households were hit the hardest by the incidents of food insecurity as compared to male-headed households.

2.2.4.3 Age of Household head

Bashir et al. (2012:7) reported that there is a negative relationship between the age of household head and food insecurity in Pakistan. A rise in the age of the household head in a year was associated with a 4.5% decrease in the likelihood of being food secure. Young people are economically active than old people and can operate in challenging jobs within the labour market. Households with older heads are exposed to chances of food insecurity because they might have more retired and older members to feed.

A study by Omonona et al. (2007:403) in Nigeria showed that the prevalence of household food insecurity increases with age, household heads above the age of 60 is usually retired, with large household size and low income, thus this increases their likelihood of food insecurity.

Ejigayhu and Abdi-Khalil (2012) showed that age has a positive and significant influence on household food insecurity. The possible reason could be as the age of the person increase, one may lose job and one couldn't participate in other income generating activities.

2.2.4.4 Educational level

Shumiye (2007) reported that the educational attainment of the head of the household has positive effects on household food security. Bashir et al. (2012:7) observed a negative relationship between the levels of educational attainment of household in Nigeria; meaning the higher the level of education the lower the likelihood of food insecurity in the household. This situation is likely to happen because these households have improved opportunities to sustain active life styles for their members.

Bogale and Shimelis (2009:1917) showed that an educated person has the ability to think critically with regards to maintaining a certain standard of living because they have the necessary knowledge and information. Household heads that have attained a minimum of primary education have an advantage with agricultural production than those with no formal education Bogale & Shimelis, (2009:1917).

Ejigayhu and Abdi-Khalil (2012) observed that households who have household heads with relatively better education are more likely to be food secure than those headed by uneducated (illiterate) household heads. It is explained in terms of contribution of education on working efficiency, competency, diversify income and becoming visionary in creating conducive environment to educate dependants with long term target to ensure better living condition than illiterate ones. Thus, being literate reduces the chance of becoming food insecure in the sample households. The result coincides with the theoretical evidences that educational improvement could lead to reducing the problem of food insecurity.

2.2.4.5 Household size

Household size is measured by the number of members within a household. Households with many members are expected to consume more food than small households (Jacobs, 2009). A study conducted by Olayemi (2012:138) found that household size and food security are negatively correlated; this is because as household size increases food security decreases.

Aidoo et al. (2013:519) observed that an increase in one additional member of a household generally reduces income per head, expenditure per head and per capita food consumption. This is because larger household sizes demand more food. Moreover household size matters because food consumption increases with a rise in household members. The higher the number of inactive individuals in households the higher the burden for active individuals in the provision of food, which in turn increases the likelihood of food insecurity Amaza et al.(2009:11).

Ejigayhu and Abdi-Khalil (2012) found that Household size revealed a positive relationship with food insecurity and statistically significant. This positive relationship shows that the probability of being food insecure increase with increase in household size. The possible reason is that with existing high rate of unemployment and less employment opportunity coupled with low wage

rate payment, an additional household member shares the limited resources that lead the household to become food insecure.

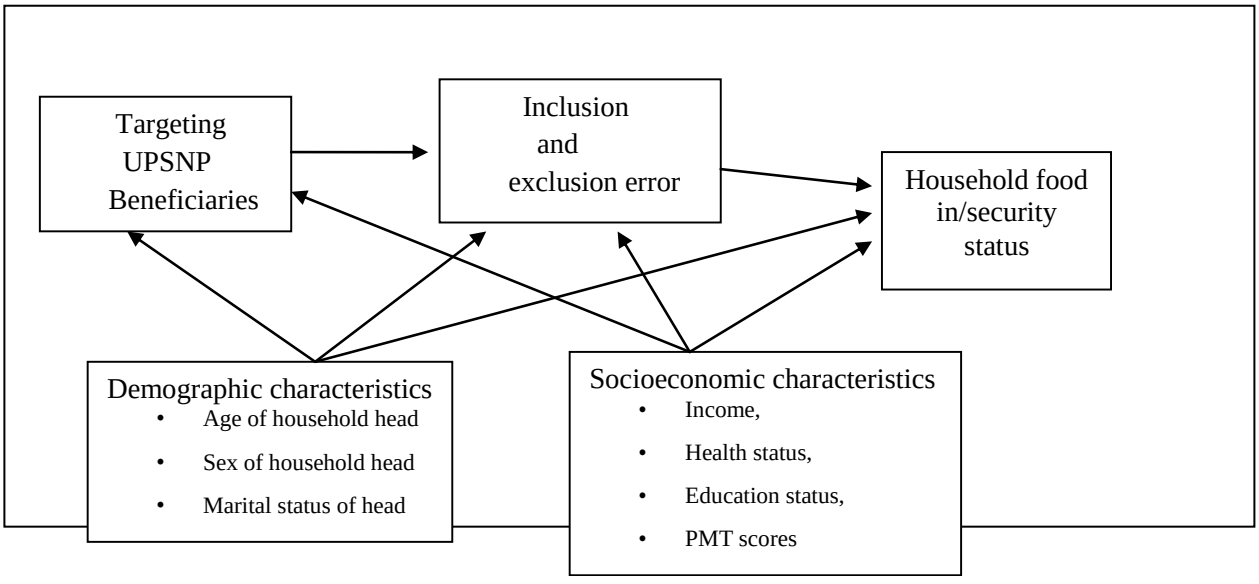
2.2.4.6 Marital status

Karla L. Hanson et.al(2007) found that Marital status was associated with food insecurity among men, but not women. Divorced men were more likely to report very low food security than never-married men. We hypothesized that divorced and separated individuals would have a higher prevalence of food insecurity but expected greater marital differences among women than men. For men, our control for reported income may not fully reflect the resources available for the purchase of food because some of that income may actually support children in other households. Also, a wife is often the primary confidante and conduit to a larger social network (30). Without wives, divorced men may experience very low food security at higher rates due to a lack of social supports to mediate periods of economic distress. Divorced men may be an important group toward which to target food assistance.

2.3 Conceptual Framework

This framework is summarized as a flow-chart diagram, which shows relationships between theories, concepts and variable of the study. The following diagram will show briefly.

Figure 2.2: Conceptual framework.



Source: Students own design

The conceptual framework for household food in/security that show the targeting practices including inclusion and exclusion errors, basic demographic (age, sex, marital status factors) and socio economic (monthly income, education status, health status of household head, and Proxy Means Test score of household factors) are the immediate causes of household food in/security.

Basically the targeting UPSNP beneficiaries, inclusion and exclusion errors are also affected by demographic and socio economic factors. Because, based on UPSNP client selection criteria if a household be eligible to the project client should be absolute poor and those age of the head was categorized in to three which is below 17, 18 to 59, and above 60 years old, if a household be eligible to the project client should be absolute poor and both sex of the head was can be a client but, more of female headed households have priority than male headed households, if a household be eligible to the project client should be absolute poor and widowed and separated households have more focuses and priorities than married and single household heads. Regarding to socio economic factors, based on UPSNP client selection criteria if a household be eligible to the project client should be absolute poor and low income earning, with chronic health problem, no and/low education status, and low proxy means test score (<20%) households are can get priority. But the violation of this eligibility criterion is can have a cause and effect relationship.

2.3.1 Operationalizing concepts

For the purpose of this study the following operational definitions of terms meant as indicated below

- **UPSNP:** a Program/project used to reduce urban poverty and vulnerability among the urban poor living below the poverty line, in the short term up to 604,000 beneficiaries, and in the long-term program framework has an objective of reaching 4.7 million urban poor living in 972 cities and towns will be targeted through a gradual roll-out (World Bank 2015).
- **Targeting process:** Refers the process by which chronically food insecure households are selected to participate in public works or direct support. It also includes ensuring the selected households actually to benefit from the program (MoARD, 2010b).
- **Selection criteria:** It refers a list of subjective indicators or local knowledge that is used to select the eligible beneficiaries (MoARD, 2010b).
- **Inclusion error:** It refers to some people benefit from the program whilst they are not the ones most in need (FAO).

- **Exclusion error:** It refers to people who are among the ones in dire need, are excluded from the benefit (FAO).
- **Household Food Insecurity Access Scale (HFIAS):** a food in/security measuring tool, used to measure food insecurity status in a comparable way, i.e., with cross-cultural equivalency, developed by the Food and Nutrition Technical Assistance Project (FANTA) in 2006 with an aim to provide a valid tool for use in a developing country context, consists of nine occurrence questions and nine frequency-of-occurrence questions ask whether or not a specific condition associated with the experience of food insecurity ever occurred during the previous 4 weeks (30 days)
- ***Woreda*** (Amharic), are the third-level administrative divisions next to sub city in urban administration of Ethiopia. They are further subdivided into a number of *ketenas*, which are the smallest unit of local government in Ethiopia (MoUDC, ND).
- ***Ketena:*** (Amharic), are one of the urban administrative divisions next to *woreda*, or neighborhood associations, and further subdivided into a number of blocks. (MoUDC, ND).
- **Addis Ketema** (Amharic), meaning "new city", is one of the 10 sub cities of Addis Ababa, the capital of Ethiopia. (MoUDC, ND).

CHAPTER THREE: DESCRIPTION OF THE STUDY AREA AND RESEARCH METHODS

3.1 Description of the study area

Addis Ababa city has a population of over 3 million, which is 25% of the country‘s urban population (World Bank Group, 2015). It is facing extensive urban poverty, joblessness, inadequate housing, severe overcrowding and congestion and underdeveloped infrastructure. As per MoUDH PAD (2015), the overall unemployment rate in urban areas is 17.1 percent, but this is higher in Addis Ababa (23.6 %). It is also stated that almost a third (31 %) of those working in Addis Ababa are underemployed. As stated in UN- HABITAT (2017), the rapid and uncontrolled demographic growth and spatial expansion in Addis Ababa has resulted in considerable damage to the environment which today is suffering from high levels of water and air pollution, soil degradation and contamination. Slum and informal settlements brought a great deal of challenge to the city, which is considered to be the core problem that affects the livelihood and the state of the urban environment (Dubbale, et al., 2010). Addis Ababa is expanding in height and width which has consequently brought modification of landscapes and land covers in and around the city.

The study conducted in the *Woreda* 05, Addis Ketema sub city of Addis Ababa a capital of Ethiopia. *Woreda* 05, is one of the *woredas* in Addis Ketema sub city consisting ten *ketenas*. According to the CSA (2013) reported Addis Ababa total population projection values of 2017 hosts an estimated 3, 434,000 people, which is 52.7% are females, and 47.3% are males. Of this, the Addis Ketema sub city hosts 320,053 people and *woreda* 05 has 23,262 people.

According to the information obtained from the sub city administration office the general information of the Addis ketema sub city is located in the northern part of Addis Ababa. Gullele borders in the north, Arada in the east, Kolfe Keranio in the west and Lideta in the south, and it have 10 *Weredas*, covered an area 7.41sq.km, and the population density per sq.m: 36,659.1, and *woreda* 05 is located near to the sub city, it have 10 *ketenas* and covered an area 126 (1.26) sq.km, and the population density per sq.m: 117.01.

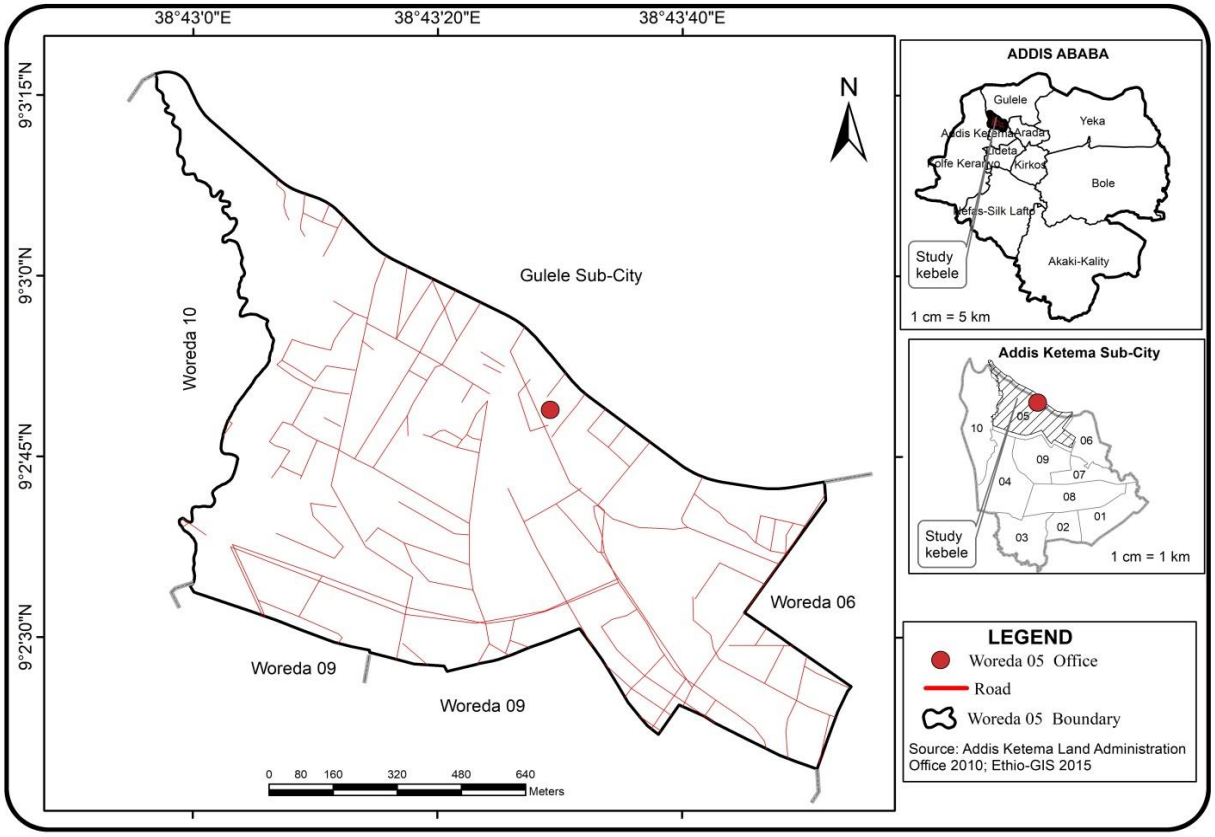


Figure 3.1: Study area at *woreda* level in its sub city and city administration settings

3.2 Methods and materials

3.2.1 Research design and approaches

This study assessed the targeting practices in urban productive safety net program and its implications to household food security in a *woreda* 05, Addis ketema sub city, Addis Ababa. The study employed cross-sectional type of research design. Because, cross sectional research design is appropriate to **s**tudying different units (e.g. households, *woredas*, sub-cities, cities, etc) at a given point in time. To achieve this, both primary and secondary data were used. Based on the purpose and the predetermined objectives of the study, this research was carried out using mixed approaches (quantitative and qualitative). Since, all the two approaches have their own limitations, researchers felt that biases inherent in any single approach could neutralize or cancel the biases of other approaches. On the other hand, triangulating data sources a means for seeking convergence a cross qualitative and quantitative methods (Creswell, 2009). The quantitative approach encompasses from servey data (PMT, HFIAS, and regresion analysis). On the other

hand, qualitative approach has been used with the main aim to investigate the perceptions, feelings and experiences of the informants.

3.2.2 Sampling technique and sample size determination

For this research, the sampling technique was a combination of probability and non-probability sampling (i.e. purposive and stratified sampling). However, the study has applied multistage sampling technique and selected Addis Ketema sub city from the 10 sub cities through purposive or judgment sampling in terms of their total number of beneficiaries with number of having peoples of poverty line, and then Select *Woreda* 5 randomly in the sub city from the 4 first year program beneficiary *woredas,* Select beneficiaries from the selected *woredas* through quota sampling (public work 84% and direct support 16%), and select non-beneficiaries from the reserve list through the help of KTCs, and used survey method for beneficiaries and non-beneficiaries.

The study area *(Woreda* 05) is one of the 10 *woredas* of Addis Ketema sub city, city administration of Addis Ababa. According to the data obtained from the *woreda* administration office, there are 10 *ketenas* in the *woreda.* Then sampling technique was employed to all *ketenas* in the *woreda.* This ensures most representation stratum than the total population and results in more reliable and detailed information.

The information obtained from the sub-city and *woreda* urban job creation and food security office, the total number of UPSNP beneficiary households in in Addis Ketema sub-city *woreda* 05 in the all 10 sample *ketenas* is 517 public work, and 242 direct support, total 759 households (with having 1652 beneficiaries) and non-beneficiaries are from the reserve which are 10% of the total beneficiaries 76 households (with having 165). Then the target group is at household level, so, the number of sample beneficiary households (the number of respondents for the household questionnaire survey) was determined to be about 262 (34.5%) of the total beneficiary households, with ±5% precision level and 95% confidence interval, Yamane (1967) provides a simplified formula to calculate sample sizes. $n = \frac{N}{1+N(e)2}$ Where n is the sample size, e is the level of precision assumed to be 5% in this case, N is the total household of the all *ketenas* in the *woreda* and all 76 (100%) non-beneficiary households in all *ketenas* with in the *woreda).* The

total sample size has been distributed to each sample *ketenas* based on the proportion of total number of households in each selected *ketenas* in the *woreda*. (See Table 3.1)

Table 3.1: Sample size

Study *woreda* and sub city	Sample *Ketenas*	Total households				Sample households			
		Number of beneficiary households		Number of non-beneficiary households (10% reserve)	Total House holds	Sample beneficiary households		Sample non-beneficiary households (sampled all 10% reserve)	Total Sample Households
		PW(84%)	DS(16%)			PW	DS		
Addis ketema Sub-city *Woreda* 05	*Ketena* 1	61	17	8	86	21	6	8	35
	Ketena 2	68	16	8	92	23	6	8	37
	Ketena 3	28	22	5	55	10	8	5	23
	Ketena 4	58	37	9	104	20	13	9	42
	Ketena 5	50	27	8	85	17	9	8	34
	Ketena 6	59	17	8	84	20	6	8	34
	Ketena 7	66	35	10	111	23	12	10	45
	Ketena 8	44	21	6	71	15	7	6	28
	Ketena 9	33	23	6	62	12	8	6	26
	Ketena 10	50	27	8	85	17	9	8	34
Total		517	242	76	835	178	84	76	338

3.2.3 Tools and techniques of data collection

Based on conceptual framework, the researcher used both primary and secondary data sources for this research. To generate the required data from the primary source, different methodological tools such as in-depth interview guide, FGD guide, and questionnaire tools where used by the researcher.

3.2.3.1. Questionnaire survey

Questionnaire-based survey was administered to sample beneficiary households by using a standard questionnaire after obtaining the consent of the respondents as a research ethics. The questionnaire was translated in to Amharic for the purpose of simplicity and ease of communication between the enumerators and the respondents. With this technique data related to demography, socioeconomic, proxy means test (PMT), and household food insecurity access scale practices have been collected. In order to maintain the quality of data, scientific principles and guidelines during questionnaire designing, data collection, data filling, encoding, data entry and processing would be applied. Data collectors are oriented on issues related to data collection procedures and ethics.

3.2.3.2. Key Informant Interview (KII)

The study employed key informant interviews to get information on personal thought, experience and attitude related to UPSNP targeting practices. Interview is the most commonly used qualitative technique which can provide rich sources of data on people's experiences, opinions, aspirations and feelings (Kitchin and Tate, 2000). Having this in mind, in this study, composed from Addis Ababa Urban Job Creation and Food security Agency (AAUJCFSA), Addis Ketema sub city and woreda 05 Urban Job Creation and Food security office, totally 7 key persons were interviewed. The existed UPSNP targeting practices in woreda 05, Addis Ketema sub city, and Addis Ababa as a city level were covered during the interview.

3.2.3.3. Focus Group Discussion (FGDs)

One focus group discussions (FGDs) was carried out with a selective participants from *ketena* targeting committee and appeal committee. According to Wilkinson (2003), the advantage of FGD is that, when managed well, they can produce a broader as well as more-in-depth understanding of an issue or topic, because the interaction process stimulates memories, discussions, debates and discloser in a way that is less likely a one-to-one interview. Topics related to issues of general UPSNP practices, such as; beneficiary targeting criteria and processes, appeal process, the objective of UPSNP, the role and responsibilities of *Ketena* targeting committee (KTC) and appeal committee, implementation practice was addressed. As a result, it was used to get ample information from the discussions and idea sharing of the groups under study.

3.2.3.4 Secondary data sources

The major sources of the secondary data was obtained from the Federal Urban Job Creation and Food Security Agency (FUJCFSA) related to the progress of UPSNP at all (11) beneficiary cities undertaken by joint review and implementation support (JRIS) composed of various World Bank, city administration of Addis Ababa Urban Job Creation and Food Security Agency, Federal Urban Job Creation and Food Security Agency (FUJCFSA), and 10 beneficiary city's directors of urban job creation and food security office, Ministry of Labor and Social Affairs, Ministry of Women, Children and Youth were reviewed.

3.3 Techniques of data analysis

The data collection includes, demographic, socioeconomic, PMT and HFIAS data, and coded, edited and entered into SPSS and presented using descriptive statistics such as tables, bar-chart to describe the frequencies and percentages and i used multicolloniarity test and ordinal logistic regression.

The method of data analysis was three-fold: firstly, the measurement of proxy means test (PMT) by using the UPSNP proxy cut off point (median score) (20%). Secondly, the Household Food Insecurity Access scale (HFIAS) developed by the FANTA (2006) was used to determine the food security status of households in the study area based on the PMT scores of above and below the median of both beneficiaries and non-beneficiaries. Finally, an ordered logit regression model was used to estimate the socio-economic and demographic variables particularly PMTs that determine the food in/security status of households.

3.3.1 The measurement of proxy means test (PMT) of the households

Proxy Means Test (PMT) is an excellent poverty assessment mechanism, and it uses data on household or individual characteristics to proxy household income or welfare, which is then used to predict welfare (Persaud 2005).

Ptanawanit (2016) states, in developing countries, limited application of means tests is not because of its complexity and cause of stigmatization, but unreliable income data and inaccurate poverty lines are the main reason. Kidd & Wyld (2011) argue that targeting the poor, especially, in developing countries is complicate because their large informal economies make it difficult to accurately assess people's incomes. Other authors including Johannsen (2006) mention similar limitations of using proxy means tests for targeting the poor and for providing welfare in these countries. Instead of encouraging use of means testing, some international organizations tend to support application of a proxy means test in developing countries.

UPSNP baseline survey report (2018) indicates that have considerably are below 18 years of age or older than 60 years old, have a health problem, have a lower educational background, tend to be divorced or be a widow/ widower, have insecure home ownership, live in poor housing conditions, own limited property, have insecure employment status, have the burden of caring,

than the population at large. The main purpose of baseline survey is to obtain a cut-off point that would determine whether a household is eligible for the main survey instrument or not, the results from listing exercise was used for recalibrating the PMT verification.

A paper published by FAO (2011), suggests that means testing works best only in settings where declared income is verifiable; but in developing countries where income information is notoriously difficult, proxy means testing becomes an alternative way to assess the wealth status of an individual or a household. According to a UN's publication (Ortiz 2007), proxy means testing is cheaper than means tests and allows wider participation opportunities for community groups and local governments. One of the World Bank's publications (Grosh & Baker 1995) indicates that, in targeting the poor, social workers gather many aspects of information, thus, systematic use of collected data may improve targeting outcomes and increase the fairness and transparency of social programmes. Chile is known as the first country where the proxy means test was originated (Kidd & Wyld 2011; Grosh & Baker 1995). The Chile model employed a form filled out by a social worker to collect information on household characteristics such as location, housing quality, household composition, and the works done by the household members. Answers to these questions are prescribed with scores which will help predict the poverty or income level of each household. Other developing countries such as Bangladesh (Sharif 2009), the Philippines (Mapa & Albis 2013), Uganda (Housson, Zeller, Alcaraz, Schwarze, & Johannsen 2007), and Peru (Johannsen 2006), then, adopted the proxy means testing as the method of eligibility assessment.

Most of the above indicators are the same and applied for household poverty level measurement before the implementation of Ethiopian UPSNP. Based on this applied the selected proxy means test indicators to measure PMT of households both UPSNP beneficiary households and non-beneficiary households for these research. These indicators consisted of educational levels, personal illness, age, marital status, the burden of caring, employment, debts, home ownership, housing conditions, and property owned. The proxy means test prescribed a score to each answer of each question (see in the annex). The score was, actually, the number of the answer choice. The total sum score of all items was a hint of the financial status of the respondent.

The selected PMT indicators are:

- Have a health problem
- Are below 18 years of age or older than 60 years old
- Have a lower educational background
- Tend to be divorced or be a widow/ widower
- Have insecure home ownership
- Live in poor housing conditions
- Own limited property
- Have insecure employment status
- Have the burden of caring
- Are in debt

Note: Each answer number represents the score of the item.

Persaud (2005) indicates the general regression equation to derive the proxy means test takes the form:

$Yi = B0 + Bi\ Xi + Bj\ Xj + \ldots\ldots\ldots\ldots\ldots B_nX_n.$

Hence the proxy means test of the household been calculated as:

$Yi = B0 + B_i X_{CPI} + B_i X_{AGE} + B_i X_{EDUC} + B_i X_{MARS} + B_j X_{ES} + B_j X_{PP} + B_j X_{DEBT} + B_j X_{ACCOM} + B_j X_{HOUC} + B_j X_{CARRIG}$ ……...……..(1)

Where:

- Y_i is the household Proxy means test score,
- X_i is a set of variables describing the household and demographic characteristics,
- X_j is a set of variables describing the economic environment of the household (these include employment status, durable/asset, the location variable etc.).
- Bi and Bj are parameters to be estimated.

And the explanatory variable (selected indicators) for the PMT survey:

- CPI = Current personal illness of household
- AGE = Age of household head
- EDUC = Educational background of household head
- MARS = Marital status of household head
- ES = Employment status of household head

- PP = Personal property of household
- DEBT= Debt burdens of the household
- ACCOM= Home ownership of the household head (Accommodation types)
- HOUC= Conditions of the house accommodation of household
- CARRIG = The burden of caring of household

3.3.2 The measurement of food security status of the households

The measurement of food security was based on the PMT scores of above and below the median of both beneficiaries and none beneficiaries. A questionnaire was used to gather the required data for the study. The Household Food Insecurity Access Scale (HFIAS) developed by the FANTA in (2006) was used to measure food security. There are two sub questions to the questionnaire, the first group of questions are called the nine occurrence questions and there are two response option available to the respondent 'yes' or 'no' (where no = 0 and yes =1). The second groups of questions refer to the nine frequency-of-occurrence questions; these types of questions are asked with the intentions of making a follow-up to the occurrence questions and to establish whether the condition (food insecurity) ever occurred. Next to the 'no' response option there is a skip code, meaning the interviewer can avoid the related frequency-of-occurrence follow-up question if the participant answers 'no' to the occurrence question (Coates et al., 2007:2).

The HFIAS score was calculated using the answers based on the nine frequencies of occurrence questions. Participants whose scores were 'rare', 'sometimes' and 'often' received a score of 1, 2, and 3 respectively. Therefore when adding them together the lowest score was 0 and the highest was 27, meaning that the higher the score the higher the probability of a household being vulnerable to food insecurity (Coates et al., 2007:18). According to the scheme recommended by the HFIAS indicator guide, the continuous score was divided into four categories, represented by food secure, mildly food insecure, moderately food insecure and severely food insecure. The four food security categories should be created sequentially, in the same order, to ensure that households are classified according to their most severe response. Calculate the Household Food Insecurity Access category for each household. 0 = food secure, 1=mildly food insecure access, 2=moderately food insecure access, 3=severely food insecure access

3.3.3 Ordered Logistic Regression

For this study, I used ordinal logistic regression model to determine the beneficiary households' food security status. According to A. Agresti, (2002), Ordinal logistic regression (OLR) is a type of logistic regression analysis when the response variable has more than two categorizes with having natural order or rank. In statistics, the ordered logit model (also ordered logistic regression or proportional odds model), is a regression model for ordinal dependent variable. It is natural to consider methods for more categorical responses having more than two possible values. The most well-known of these ordinal logistic regression methods is called the proportional odds model. The basic idea underlying the proportional odds model is re-expressing the categorical variable in terms of a number of variables based on internal cut points in the ordinal scale, A. Agresti, (2002).

The Model of Ordinal Logistic regression: $\ln(\theta_j) = \alpha_j - \beta_1 X_1 + \beta_2 X_2 \dots\dots\dots\dots\beta_8 X_8 \dots\dots\dots\dots\dots\dots (2)$

Where 'j' goes from 1 to the number of categories minus 1. This was the part really I want to find out. If we know that a category is ordinal then there are special models that tell us how independent variables relate to someone being higher or lower on the scale. I used the ordered logit model so that i used the categorized directly as dependent variable. Different links lead to proportional odds models or ordered probit models. The model cannot be consistently estimated using ordinary least squares; it is usually estimated using maximum likelihood. The /proportional odds model and the /partial proportional odds model are special cases of the cumulative logit model. This is a cumulative logit model that assumes that the odds of response below a given response level are constant regardless of which level i picked. This model allows separated intercepts for the cumulative logit, but restricted the parameter sets for the predictors to be the same across all logits. A proportional odds model that constrains some predictors to have common parameters and leaves other predictors free to have separate parameters is called a partial proportional odds model. The basic form of the generalized linear model:

$$link(y_j) = \frac{\theta_j - [\beta_1 X_1 + \beta_2 X_2 + \cdots \dots\dots + \beta_k X_k]}{\exp(\tau_1 Z_1 + \tau_2 z_2 + \cdots \dots + \tau_m z_m)} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (3)$$

Where, y_j is the cumulative probability for the j^{th}category, θ_j is the threshold for the j^{th}category, β_1, …, β_k are the regression coefficients, X_1, …, X_k are the predictor variables, and k

is the number of predictors. The numerator on the right side determined the location of the model. The denominator of the equation specifies the scale. The τ_1 ,…, τ_m are coefficients for the scale component and z_1,…, z_m are *'m'* predictor variables for the scale component (chosen from the same set of variables as the X's).

3.3.4.1 Fitting an Ordinal Logit Model

The quantity to the left of the equal sign is called a logit. If the spacing between levels of the ordinal response scale is known, so that numerical scores can reasonably be assigned to the response levels, then a mean response model can be fit. When we have more than two events, we can extend the ordinal logistic regression model. Suppose the underlying relationship to be characterized is: y_i = x'β+ε, (Agresti, 2002; Greene, 2003), where y_i is the exact but un observed dependent variable (perhaps the exact level of improvement by the patient); x is the vector of independent variables, and β is the vector of regression coefficients which we wish to estimate.

The Model fitting Information gives the -2 loglikelihood (-2LL) values for the baseline and the final model and a chi-square to test the difference between the -2LL for the two models.

The goodness of fit statistics indicated that the model fits much better than the location only model. From the observed and expected frequencies, we could compute the usual Pearson and Deviance goodnessof-fit measures.

The Pearson goodness of fit statistic is $x^2 = \Sigma\Sigma(\frac{Oij-Eij}{Eij})^2$ ……(4)

The deviance measure is $D = 2\,\Sigma\Sigma\, O_{ij} \ln\left(\frac{Oij}{Eij}\right)$ ……(5)

Both of the goodness-of-fit statistics should be used only for models that have reasonably large expected values in each cell. If we have a continuous independent variable or many categorical predictors or some predictors with many values, we may have many cells with small expected values.

There are several R^2 like statistics that can be used to measure the strength of the association between the dependent variable and the predictor variables. They are not as useful as the R^2 statistic in regression, since their interpretation is not straight forward. Three commonly used statistics are:-

Cox and Snell $R^2 = 1 - (^{(L(\beta(}(0)))/L^{(\beta))}\frac{2}{n}$ ……(6)

Nagelkerke's $R^2 = 1 - \frac{L(\beta^{(0)})2}{n}$ ……(7)

McFadden's $R^2 = 1 - \frac{L(\beta)}{(^{L}(\beta^{(0)}))}$ ……(8)

Where, L (β) is the log-likelihood function for the model with the estimated parameters and L($\beta^{(0)}$) is the loglikelihood with just the thresholds, and 'n' is the number of cases (sum of all weights).

3.3.4.2 Parameter Estimates of ordinal logistic regression

The model is usually estimates using maximum likelihood. The method of maximum likelihood corresponds too many well-known estimation methods in statistics. The proportional odds model assumes that the true β values are the same in all four models, so that the only difference in models is the intercept terms a_c, c = 0, 1, 2, 3. This means that the estimates from the four ordinal models could be pooled to provide just one set of β estimates. By exponentiation the pooled estimate relative to a given predictor, i.e. taking $e^{\beta j}$, we obtained an estimate of the common odds ratio (OR) that described the relative odds for y ≥ 4 for values of X_j differing by one unit. But the SPSS can't calculate the odd ratio directly.

Therefore, the cumulative proportions are calculated by cross tabulation, odds can be calculated directly from proportions by the formula p / (1-p).

Goodness of Fit and the Deviance: A most general way to detected lack of fit searches for any way the model fails. A goodness of fit test compared the model fit with the data. This approach regards the data as representing the fit of the most complex model possible the saturated model, which has a separated parameter for each observation. In certain cases, this test statistic has a large-sample chi squared null distribution.

3.3.4 Multicoliniarity test

One of the assumptions of ordinal regression is no multicollinearity. Multicollinearity occurs when you have two or more independent variables that are highly correlated with each other. This leads to problems with understanding which variable contributes to the explanation of the dependent variable and technical issues in calculating an ordinal regression. Determining whether there is multicollinearity is an important step in ordinal regression.

3.3.5 Variable of the study

The dependent variable was Household Food Insecurity Access Scale (HFIAS) status of the households, which was categorized as food secure (No), mildly food insecure (Rarely), moderately food insecure (Sometimes), and severely food insecure (Often).

Table 3.2: Nature of the dependent variable with the corresponding code

Categories	How often did this HFIAS happen for the last 4 weeks?	HFIAS scores of the household	Code
Food secure	If the answer is "No", in the last 4 weeks	0	0
Mildly food insecure	If the answer is "Rarely" (once or twice) in the last 4 weeks	1 to 9	1
Moderately food insecure	If the answer is Sometimes" (3 to 10 times) in the last 4 weeks	10 to 18	2
Severely food insecure	If the answer is "Often": (more than 10X) in the last 4 weeks	19 to 27	3

The independent variables that used in this study are proxy means test, sex, income, age, marital status, health status, and education level.

Table 3.3: List of independent variables with respective name and category codes

Variable	Description	Value labels	Variables type	Expected Sign
Sex	Gender of the household head	0=”Female”, 1=”Male”	Dummy	+/-
Age	Age of the household head	1=”above 60” 2=”19-40” 3=”41-59”	Continuous	+/-
Mars	Marital status of the household head	1=”Married”, 2=”Single” 3=”Divorced” 4=”Widowed”	Categorical	+/-
Income	Income of the household	1=”<600ETB”, 2=”601-900ETB” 3=”901-1500ETB” 4=”>1500ETB”	Continuous	-
HHS	Health status of the household head	1=”No health problem”, 2=” Have health problem”	Dummy	+
Educ	Education level of the household head	1=” Below primary education ” 2=”Secondary education” 3=”high school” 4=”Technical education” 5=”Degree and above”	Categorical	-
HHsize	number of family members in one household	1=’less than 4 2=’ more than 5	Cat dummy	+/-
PMT result	proxy means test result of the household	1=”Below 20%”, 2=”above 20%”	Cat dummy	-
	Personal illness	1=” yes(interferes with employment opportunities 2=” yes(doesn’t interferes with employment opportunities 3=” no personal illness		This all variable are calculated in PMT result
	Employment status	1=’ unemployed 2=’a causal/seasonal worker 3=’a Trader in a permanent location 4=’ government/private employee		
	Personal property	0=’not own 1=’receive it from someone 2=’Installment buying 3=’cash purchase		
	Debt burden	1=’ Indebted to both formal and money lenders’ loan 2=’ Indebted to only money lenders’ loan 3=’ Indebted to only formal loan 4=’ Debt free		
	Types of house accommodation	1=’Private rent 2=’Live free/dependent 3=’ Rent kebele 4=’ Owns		
	Conditions of house accommodation	1=’poor condition 2=’Temporal accommodation 3=’Acceptable condition/rather secure 4=’Hygienic condition and very secure		
	The burden of caring	1=’ no dependents 2=’ care provision for dependents		

Note: (+) sign indicates that as the explanatory variable increase, the probability of being HFIAS increases (the variable worsens food insecurity). (-) sign shows the inverse relationship that when the explanatory variable increases, the probability of being HFIAS score decreases.

Gender of household head (Sex): Benjamin and Joseph (2012:22) note that several studies conclude that female headed households are mostly affected by food insecurity than male-headed households. Therefore in this study it is anticipated that there is an increased likelihood that male-headed households are likely to be food secure and less vulnerable by severe food insecurity than their female counterparts. A dummy variable was used to represent this variable: Sex; Female = 0, Male= 1

Age of household head (Age): Age is said to have an effect on household food security. Kassie et al. (2012) observed that there is an inverse relationship between age of the household head and household food security. Age of the household head was used as an indicator for the experience of household food insecurity. In this study, age is measured in years because it is a continuous variable. Although depending on UPSNP client categories interms of their age, this question had three options for the participants (above 60, 19-40, and 41-59 years old).

Number of family members in one household (HHsize): It is argued that the larger the household size, the higher the anticipation of more food consumption in a household (Olayemi, 2012:137). In the study, it is expected that households with economically active and employed members are more food secure than household with members who are unemployed. Therefore depending on the outcome of the results, the household size will have a positive or negative effect on food attainment. Although depending on UPSNP client categories interms of their number of family members in one household, this question had two options (Dummy variable) for the participants (less than 4, and more than 5).

Marital status of household head (Mars): A study by Cancian and Reed (2009:21) concluded that a household with a head and a spouse has a greater chance of avoiding food insecurity, because the spouse is likely to contribute to the means of getting food. It is argued that single household heads bear a large burden on the attainment of food as they usually enjoy a limited support structure (Kaloi et al., 2005:70). There was a need to include this variable because limited information is known about the relationship between marital status and food security (Hanson et al., 2007:1460). Although this question had four options for the participants (Married, , Single, Divorced, and Widowed).

Education of Household head (Educ): Education is described as a social capital which has a positive effect on household food security (Babadunde et al., 2007:354). The level of education determines whether an individual has better access to job opportunities in the labour market (Kuwornu et al., 2013:35). It was expected that households heads with higher educational qualifications will have a higher chance of being food secure and lower chance of being to sever food insecure. The analysis on education was based on the household head only. Although depending on UPSNP client categories interms of their education status of household head, this question had 5 options for the participants (Below primary education, Secondary education, high school, Technical education, and Degree and above).

Total monthly income of a household (Income)=: Monthly income in the study refers to income received by members of a household from all sources within a month. Income is regarded as the most important determinant for food security in a household (Onomona et al., 2007:404). In this study total monthly income is expressed in Birr (ETB) and it is expected to positively affect household food security (if income decrease, increase households food insecurity). Monthly income was kept as a continuous variable. Although depending on UPSNP client categories interms of their total monthly income of a household, this question had 4 options for the participants (<600 birr, 601-900 birr, 901-1500 birr, and >1500 birr).

Health status of the household head (HHs): Health status of the household head in the study refers health conditions of the household to insure his food security. It helps to identify if the household has health problem and interferes with employment opportunities or doesn't interferes. It was expected that food security was seen differences with the health status of the household head. Although depending on UPSNP client categories interms of their health status of the household head, this question had two options (Dummy variable) for the participants (no health problem and have health problem).

Proxy Means Test result of the household (PMTresult): In this study the PMT result of the household is expressed in two ways (above and below the median score). This is decided after the sum of 10 PMT variables, and those score are changed to 100%, then categorize by their median score (cut point).

3.3.6 Analysis of qualitative data

The qualitative data (that would be obtained through key informant interview, focus group discussion and desk review) would be gone through interpretative analysis focusing on providing meanings and explanations to the perceptions of the informants so as to dig out issues under investigation. In general, this would be used to identify UPSNP implementation practices, particularly beneficiary targeting practices. This technique would also be used to investigate the implementation challenges experienced by the government and beneficiaries in regard to implication to food security would be addressed through interpreting the qualitative means.

CHAPTER FOUR: RESULTS AND DISCUSSION

This chapter presents a discussion of the results. The first section summarizes the results by using descriptive statistics such as percentage and frequencies to describe the socioeconomic and demographic characteristics of the sample households. The second section focuses on asses the UPSNP beneficiary targeting practices particularly the Proxy Means Test (PMT) score of beneficiaries. The third section focused on measuring of food security using Household food insecurity access scale in order to determine the food security status in the study area with the relationship between explanatory variables. The last part in this chapter presents the results from econometric analysis (OLM) to determine which of our independent variables (if any /the PMT scores) have a statistically significant effect on household food security.

4.1 Descriptive Statistics

4.1.1 Demographic and socio-economic characteristics

Table 4.1 Socio-economic and demographic characteristics of respondents (n=338)

Variables		Frequency	Percent
Sex of household head	Female	256	75.7
	Male	82	24.3
Age of household head	Above 60	71	21
	19 to 40	170	50.3
	41 to 60	97	28.7
Marital status of the household head	Married	122	36.1
	Single	53	15.7
	Divorced	55	16.3
	Widowed	108	32.0
Religion of the household head	Orthodox	268	79.3
	Muslim	45	13.3
	Protestant	25	7.4
Education level of the household head	Illiterate	95	28
	Elementary education	74	22
	Secondary education	25	7.4
	High school	21	6.2
	Technical education	58	17.2
	Degree and above	65	19.2
Health status of the household head	No health problem	229	67.8
	Have health problem	109	32.2

Source: field survey, 2019

In this study a total of 338 respondents were participated with rate of 100%. About 256(75.7%) of respondents were female-headed households and only 82(24.3%) were male-headed in the households. The above table indicate that half of total respondents, 170(50.3%) were 19-40 years age group, about 97(28.7%) were engaged to 41- 60 years age group, and 70(21%) were aged above 60 years. Majority of participants 268(79.3%) were orthodox, 45 (13.3%) Muslim, and 25(7.4%) were protestant religion followers.

From the total of respondents in the study, 122(36.1%) are married, 53(15.7%) were single, 55(16.3%) were divorced, and 108 (32.0%) were widowed. About 95(28%) participants are illiterate, 74(22%) participants had primary education, 25(7.4%), had secondary education, 21(6.2%) had high school, 58(17.2%) had technical education and 65 (19.2%) had degree and above. And off the total respondents 229 (67.8%) were no health problem and 109 (32.2%) participants were have health problem.

Table 4.2 Socio-economic characteristics of respondents (n=338)

Variables		Frequency	Percent
Income of household	below 600Birr	203	60.1
	601 to 900Birr	100	29.6
	901 to 1500Birr	23	6.8
	above 1500Birr	12	3.6
Proxy means test result of household	below 20%	236	69.8
	above 20%	102	30.2
HFIAS score of the household	Food secure	7	2.1
	Mildly food insecure	103	30.5
	Moderately food insecure	153	45.3
	Severely food insecure	75	22.2

Source: field survey, 2019

More of participant households, 203(60.1%) had average monthly income less than 600Birr, 100(29.6%) had 601-900Birr, 23(6.8%) had in between 901-1500Birr, and 12(3.6%) had greater than 1500Birr.

Regarding proxy means test score of the household about 236(69.8%) were scores below 20% and 102 (30.2%) were scores above 20%. And the HFIAS score of the household about 153(45.3%) were moderately food insecure, 103 (30.5%) were mildly food insecure 75 (22.2%) severely food insecure, and only 7 (2.1%) were food secure.

4.1.2 Household PMT score descriptive

All the 10 proxy means test indicators were, able to differential UPSNP clients from non-clients. In other words, the ten proxy means test indicators are capable of differentiating people in poverty from those who are more financially secure. Consequently, we can identify people in poverty without paying attention to their incomes but by using the 10 proxy means test indicators to assess their socioeconomic status instead.

The eligible clients were determined by their proxy means test score. The median score of 20 is the cut-off point. Clients, whose proxy means test scores are in the below the threshold of 20, are entitled to a UPSNP beneficiaries, and above median score of 20, or higher will be considered financially secure, thus, ineligible for the Program. However, the threshold or cut-out scores change corresponding to national socio-economic circumstances. This implies that the proxy means test scale and formulas must be adjusted from time to time.

Table 4.3Average Proxy Means Test Scores, median scores and Their Standard Deviations

	N	Min	Max	Mean	Median	Std. Deviation
Proxy means test result of the household (PW beneficiaries)	178	12	35	22.67	22.00	5.202
Proxy means test result of the household (DS beneficiaries)	84	9	22	14.67	15.00	3.331
Proxy means test result of the household (non-beneficiaries)	76	18	33	26.25	28.00	4.376
Proxy means test result of the household (PW and DS beneficiaries)	262	9	35	20.11	20.00	5.991
Proxy means test result of the household (all respondents)	338	9	35	21.49	22.00	6.218

Source: field survey, 2019

The above table shows mean scores, median and standard deviations of the UPSNP client group, the non-client group, and the whole sample group. The mean score of the UPSNP clients (both public work and direct support is approximately 20.11with a standard deviation of 5.991, and the median score is 20.00.

The non-client group who are also identified as a Poor but, they are not including in the UPSNP because of their poverty level and their average proxy means test score of 26.25, and median score 28.00 with the standard deviation of 4.376. This implies the UPSNP clients has below the PMT median score (20%), which is eligible and non UPSNP clients has above the PMT median score (28%) were ineligible to be benefited.

Table 4.4 PMT result and HFIAS score of the household by beneficiary types

Proxy means test result of the households in beneficiary type			HFIAS score of the hh				Total
			Food secure	Mildly food insecure	Moderately food insecure	severely food insecure	
Public work	below 20%	Count	2	23	86	30	141
		% within proxy means test result of the household	1.4	16.3	61.0	21.3	100
	above 20%	Count	2	6	25	4	37
		% within proxy means test result of the household	5.4	16.2	67.6	10.8	100
Direct support	below 20%	Count		27	16	36	79
		% within proxy means test result of the household		34.2	20.3	45.6	100
	above 20%	Count		0	5	0	5
		% within proxy means test result of the household		0.0	100	0.0	100
Non beneficiaries	below 20%	Count	1	10	2	3	16
		% within proxy means test result of the household	6.2	62.5	12.5	18.8	100
	above 20%	Count	2	41	16	1	60
		% within proxy means test result of the household	3.3%	68.3	26.7	1.7	100
Total		Count	7	103	153	75	338
		% within proxy means test result of the hh	2.1%	30.5	45.3	22.2	100

Source: field survey, 2019

The above table indicates that the household who is UPSNP client and those PMT scores below the median (21.3% in public work and 45.6% in direct support) were more vulnerable to severe food insecurity than non UPSNP client at18.8%. But, prevalence of sever food insecurity is high on the household who is non UPSNP client and those PMT scores below the median at 18.8% than UPSNP client and those PMT scores above the median at10.8%. From the UPSNP client 37

public work, 5 direct support beneficiaries total 42 households were have PMT scores above the median score. These happen because of wrongly targeted of the UPSNP.

However, the above table shows that, of the selected samples 42 beneficiary households were wrongly targeted (inclusion error). And the public work beneficiaries' accounts 37 and direct support beneficiaries were only 5. This implies the direct support beneficiaries have less targeting error than public work beneficiaries. And 16 households of the non-beneficiaries were wrongly excluded (exclusion error) registered. In general, the study shows that if the PMT scores has below 20 the percentage distribution of household food security more vulnerable to severely food insecurity than the PMT scores has above 20 at both beneficiaries and non-beneficiaries.

4.1.3 Food in/security status of households in the study area

Table 4.5 the relationship between household food security with independent variables

Variables	Category	HFIAS score of households %(n)				Test Statistics	
		Food secure	Mildly food insecure	Moderately food insecure	Severely food insecure	Chi-Square	P-value
Sex	Female	0.4 (1)	25.8 (66)	47.7 (122)	26.2 (67)	89.574[a]	.000
	Male	7.3 (6)	45.1 (37)	37.8 (31)	9.8 (8)		
Age	above 60		32.4 (23)	25.4 (18)	42.3 (30)		
	19 to 40	4.1 (7)	35.3 (60)	50 (85)	10.6 (18)	46.763[b]	.000
	41 to 59		20.6 (20)	51.5 (50)	27.8 (27)		
Marital status	Married.		42.6 (52)	50.8 (62)	6.6 (8)		
	Single	13.2 (7)	56.6 (30)	24.5 (13)	5.7 (3)	45.219[c]	
	Divorced		10.9 (6)	50.9 (28)	38.2 (21)		.000
	Widowed		13.9 (15)	46.3 (50)	39.8 (43)		
Education	Illiterate			30.5 (29)	69.5 (66)		
	primary education	1.4 (1)	31 (23)	67.6 (50)			
	secondary education		44 (11)	32 (8)	24 (6)	212.533[d]	.000
	high school		33.3 (7)	66. (14)			
	technical education		53.4 (31)	43 (25)	3.4 (2)		
	degree and above	9.2 (6)	41.5 (27)	47.7 (31)	1.5 (1)		
Income	below 600ETB	1.5 (3)	26.1 (53)	44.3 (90)	28.1 (57)		
	601 to 900 ETB	2 (2)	29 (29)	52 (52)	17 (17)		.000
	901 to 1500 ETB		56.5 (13)	39.1 (9)	4.3 (1)	275.988[c]	
	above 1500 ETB	16.7 (2)	66.7 (8)	16.7 (2)			
Health status	No health problem	3.1 (7)	31.4 (72)	52 (119)	13.5 (31)	42.604[a]	.000
	Have health problem		28.4 (31)	31.2 (34)	40.4 (44)		
Household size	Less than 4	2.5 (6)	40.7 (96)	52.1 (123)	4.7 (11)		.000
	More than 5	1.0 (1)	6.9 (7)	29.4 (30)	62.7 (64)	53.124[a]	

Source: survey data 2019

The above table briefly describes the relationship between dependent and independent variables. The relationships of each variable are illustrated in the annex (table 3.2 -3.9).

The relationship between gender and household food security presented in the above table is the results obtained suggest that gender plays a vital role in enhancing household food security, because food security varies substantially between male headed households (MHH) and female-headed households (FHH). MHH 6(7.3%) was more food secure than FHH 1(0.4%). Food insecurity is mostly prevalent in FHH with moderately and severely food insecurity of 47.7% and 26.2% respectively than MHH of 20.8% and 9.8%. D'Haese et al. (2011:66) observed that MHH experience less food insecurity than FHH; because women usually do not have sufficient access to productive resources and also have low educational levels. Gebre (2012:165) found increased vulnerability to food insecurity in households headed by females in Ethiopia. This is because women are not engaged in income-generating activities for food consumption. Furthermore, FHH spent a large proportion of their income on food than MHH; however they are still worse off in terms of food insecurity (De Cock, 2012:38).

Regarding to age, the above table indicates that, the condition of food insecurity varies with age. The severely food insecurity category showed that the level of food insecurity increases with an increase in age. The incidence of severe food insecurity is higher for the above 60 years old (42%), 41 - 60 (27.8%) and lower for those who are 19 - 40 years (10.6%). The results imply that older household heads are more food insecure than younger household heads. This is because of UPSNP context, older household heads clients are has not family support, they cannot able to work because of their age impact particularly above 60 years old. The results are inconsistent with similar studies (De Cock et al., 2013: 275 and Haile et al., 2005) which found high incidences of food insecurity in households headed by young people. This is because older household heads are likely to have better access to diversify their livelihood activities compared to younger household heads; thus improving food security for older household heads. Mwita et al. (2011:335) concluded that those households headed by people who are over 65 years of age are more food secure because they have more experience in social and physical environment.

Based on the above table, severe food insecurity is mostly linked to people who are widowed (39.8%) and divorced (38.2%) compared to single people (5.7%) and married people (6.6%). The difference in the percentages is that people who are divorced and widowed are most likely to be

large family size with less support structures from other family members, and also most likely to be dependent on one side household head supports. The result is consistent with a similar study by Cancian and Reed (2009:255), where household headed by people who are not married (widowed and divorced) were likely to rely on the earnings of one adult, thus increasing their likelihood of food insecurity.

Household food security was seen increasing with the educational attainment of the household head. Severe food insecurity is mostly frequent in households headed by people with lower levels of education and no formal schooling (Illiterate 28% than above elementary education). This is because better educated people are able to improve the quality of labour for generating-income. The findings are in line with Sakyi (2012:45) who indicated that severe food insecurity is directly linked with household headed by people with low educational levels and no formal education

The above table shows; the household income was categorized into four income groups. The results indicate that there is a strong relationship between food security and household income. Food security improves with a rise in household income. Where the household income increase <600birr, 601-900birr, 901-1500birr, and >1500birr, the incidence of food insecurity decreases from 28.1%, 17.0%, 4.3%, and 0% respectively. About 0% of households earning above1500birr per month are less vulnerable to severely food insecurity compared to those earning 901 to 1500birr at 4.3%, earning 601 to 900birr at 17.0%, and earning <600birr at 28.1%. The level of severe food insecurity is mostly prevalent in households that earn less income (<600birr) at 28.1%. Households which earn more than 1500birr did not experience severe food insecurity. The results are in line with Rudolph et al. (2012:14) who found a clear correlation between household income and food security: households in low income class experienced high incidences of food insecurity at 50% compared to households in high income class at 20%. The results are also similar to those of Oluyole et al. (2009:9), were it was observed that the proportion of the food secure tends to increase with a rise in household income.

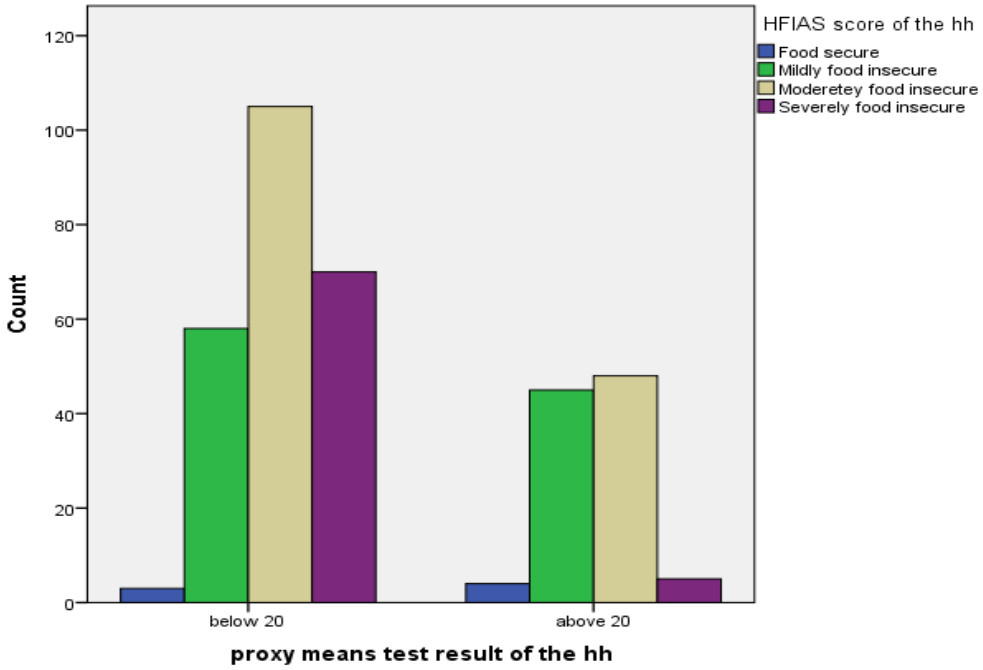
The above table indicates that, household food security was seen differences with the health status of the household head. Food insecurity is mostly frequent in households headed by people with chronic health problem. This is because people without chronic health problem are able to improve the quality of labour for generating-income.

From the above table indicates, approximately 62.7% of households with more than 5 members are severely food insecure. The results obtained necessarily indicate that food insecurity increases with the rise in household size. Households with more than 5 members actually experienced high incidences of severe food insecurity than those with 1 to 4 members (62.7% and 4.7% respectively). The difference in the level of food insecurity is that, larger household sizes have more people who have more food consumption than small family members. More of the UPSNP clients have a chronic health problem, old age, disables. This is because unable to involve income generating activities. The findings are inconsistent, Battersby, (2011:23) which showed a weak link between household size and food security. This is because food security decreased with an increase in household size.

4.2 Econometrics Model

The aim of this section is to determine which of our independent variables have a statistically significant effect on our dependent; thus looking at the potential for socio-economic and demographic variables to be used as predictors of food security.

Figure 4.1: Distribution of households categories of HFIAS score by PMT scores of households



Source: Survey data, 2019

A bar chart distribution of HFIAS score of households regarding to PMT score (Figure 4.1) showed that a large proportion of households are moderately food insecure (10-18HFIAS score) at 45.3%, mildly food insecure (1-9 HFIAS score) at 30.5%, severely food insecure (19-27 HFIAS score) at 22.2%, and only 2.1% were food secure. And the PMTs were 69.8% below the median score and 30.2 above the median score).

4.2.1 Ordered Logistic Regression Analysis

Ordered logistic regression was a type of logistic regression analysis that when the response variable is categorized more than two with having natural order or rank. That is, i can rank the values, but the real distance between categories is unknown. Under Ordinal Logistic Regression Analysis i can deal Model Fitting Information, Goodness-of-Fit, Pseudo R-Square, Parameter Estimates and Test of parallel lines. Logit link function is used in the analysis because it is evenly distributed categories and is reasonable choices when the changes in the cumulative probabilities are gradual and logit involves all levels of the response and dichotomizes the response scale.

Table 4.6: Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	627.783			
Final	432.635	195.148	19	.000

Link function: Logit. Source: Survey data, 2019

The Model Fitting Information table, which gives the -2 log likelihood for the intercept only and final models can be used in comparisons of nested models. The statistically significant chi-square statistic ($p<0.05$) indicates that the Final model gives a significant improvement over the baseline intercept only model. This tells us that the model gives better predictions than if i just guessed based on the marginal probabilities for the outcome categories.

Table 4.7:Goodness-of-Fit Goodness-of-Fit

	Chi-Square	Df	Sig.
Pearson	386.377	422	.892
Deviance	347.129	422	.997

Link function: Logit. Source: Survey data, 2019

From the above table the results, Pearson's chi-square values and the Deviance chi-square values were significant which indicated that the data and the model predictions were different in Pearson's and Deviance's chi-square. However reject the assumption of a good fit, conventionally if *p<.05*, then, from the above table the results for my analysis suggest the model does fit very well (p>0.05) (i.e. fail to reject the null hypothesis depending on the observed data). Also the model fits adequately.

Table 4.8: Pseudo R-Square

Cox and Snell	.439
Nagelkerke	.489
McFadden	.254

Link function: Logit.

Source: Survey data, 2019

For ordered logistic regression models, it is not possible to compute the same R^2 statistic as in linear regression so three approximations are computed instead. What constitutes a "good" R^2 value depends upon the nature of the outcome and the explanatory variables Here, the pseudo R^2 values (e.g. Nagelkerke = 48.9%) indicates that there is relatively large proportion of the variation in score between households. The fact that there is a statistically significant and relatively large difference in the household HFIAS score achieved by the households in terms of gender, marital status, age, education level, income, health status, and PMT score.

In the Parameter Estimates table 4.9 we can see the coefficients, their standard errors, the Wald test and associated p-values (Sig.), the 95% confidence interval of the coefficients and odds ratios. Since p-values less than alpha level they are statistically significant; otherwise not. The thresholds are shown at the top of the parameter estimates output, and the threshold coefficients are representing the intercepts, specifically the point (in terms of a logit) where food security status might be predicted into the four categories. The above figure shows that, there is a strong association between food in/security status, even when p-values are less than alpha level. The independent variables that have significant for PMT scores, gender, age, marital status, education level, income and health status, household size and no significance association with religion, and responsibility of the household. In these coefficients the negative sign indicates that those

variables have negative effects on food in/security status from the table indicates that; age, education level, marital status and household size are the factors that have negative effects on food in/security status.

Table 4.9 Parameter Estimates of Ordinal Logistic Regression

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[HFIAS score = 0]	-3.682	1.712	4.624	1	.032	-7.038	-.326
	[HFIAS score = 1]	.923	1.689	.299	1	.045	-2.388	4.234
	[HFIAS score = 2]	3.968	1.698	5.460	1	.019	.640	7.296
Location	[PMT result=1]	.773	.334	5.344	1	.021	.118	1.428
	[PMT result=2]	0[a]	.	.	0	.	.	.
	[Gender=0.]	1.513	.418	13.104	1	.000	.694	2.332
	[Gender=1.]	0[a]	.	.	0	.	.	.
	[Age=1]	-1.149	.378	9.252	1	.002	-1.889	-.409
	[Age=2]	-.295	.313	.890	1	.045	-.908	.318
	[Age=3]	0[a]	.	.	0	.	.	.
	[Mars=1.]	-1.052	.380	7.675	1	.006	-1.797	-.308
	[Mars=2.]	-3.346	.451	54.952	1	.000	-4.231	-2.462
	[Mars=3.]	-.145	.359	.163	1	.047	-.849	.559
	[Mars=4.]	0[a]	.	.	0	.	.	.
	[Educ=1]	1.313	.410	10.248	1	.001	.509	2.117
	[Educ=2]	.448	.555	.654	1	.019	-.638	1.535
	[Educ=3]	.267	.603	.196	1	.048	-.914	1.448
	[Educ=4]	-.606	.408	2.203	1	.038	-1.406	.194
	[Educ=5]	0[a]	.	.	0	.	.	.
	[HHs=1.]	-.665	.309	4.642	1	.031	-1.270	-.060
	[HHs=2.]	0[a]	.	.	0	.	.	.
	[Income=1]	1.821	.745	5.967	1	.015	.360	3.282
	[Income=2]	1.399	.744	3.537	1	.010	-.059	2.856
	[Income=3]	1.175	.817	2.070	1	.030	-.426	2.775
	[Income=4]	0[a]	.	.	0	.	.	.
	[HHsize=1]	-2.943	.341	74.474	1	.000	-3.611	-2.275
	[HHsize=2]	0[a]	.	.	0	.	.	.
	[Resp=1.]	.632	1.344	.221	1	.638	-2.003	3.267
	[Resp=2.]	-1.031	1.324	.607	1	.436	-3.627	1.564
	[Resp=3.]	0[a]	.	.	0	.	.	.
	[Rel=1.]	.703	.497	1.998	1	.157	-.272	1.678
	[Rel=2.]	.385	.603	.408	1	.523	-.797	1.567
	[Rel=3.]	0[a]	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Source: Survey data 2019

Table 4.10 Odds ratio for HFIAS category separately for each independent variable

	Food secure	mildly food insecure	moderately food insecure	severely food insecure
Gender				
Odds ratio female/male	0.05	0.44	1.5	3.64
Odds ratio male/female	20	2.3	0.7	0.3
Age				
Odds ratio above 60/ 19-40 years old	0	0.9	0.34	6.08
Odds ratio 19-40 / 41-59 years old		1.8	0.9	0.3
Odds ratio 41-59 / above 60 years old		0.6	3.2	0.55
Education attainment				
Odds ratio below primary education / secondary education		0.25	1.6	1.875
Odds ratio secondary education / high school	0	1.6	0.25	
Odds ratio high school / technical education	0	0.4	2.5	
Odds ratio technical education / degree and above		1.6	0.9	2
Odds ratio degree and above / primary education and below		3.5	1.125	0.033
Income				
Odds ratio below 600ETB / 601 to 900 ETB	0.75	0.875	0.74	2
Odds ratio 601 to 900 ETB / 901 to 1500 ETB		0.3	1.7	4.4
Odds ratio 901 to 1500 ETB / above 1500 ETB		0.65	3.2	
Odds ratio above 1500 ETB / below 600ETB	13.3	5.7	0.25	
Marital status				
Odds ratio Married / Single		0.57	3.8	1.17
Odds ratio Single / Divorced		10.8	0.26	0.1
Odds ratio Divorced / widowed		0.75	1.16	0.9
Odds ratio widowed / Married		0.2	0.86	10
Health status				
Odds ratio No health problem/have health problem		1.15	1.07	1.5
Odds ratio have health problem / No health problem		0.9	0.9	0.4
Household size				
Odds ratio less than 4/ above 5		11.36	3.3	0.003
Odds ratio above 5 / less than 4		0.088	0.3	33.6
PMT result				
Odds ratio beneficiaries/non beneficiaries above 20	8.6	0.15	0.03	6
Odds ratio beneficiaries/non beneficiaries below 20	0.11	6.375	35.4	1.5
Odds ratio below 20/ above 20	0.9	1.16	6	16

Source: Survey data 2019

The findings indicate that food in/security status (HFIAS score) of a respondent is associated with sex, age, education level, marital status, income, health status, household size and PMT scores, and the independent variables that have no significance association with religion and responsibility of the household. And so age, education level, marital status, health status and PMT score are found to be more significantly associated with food in/security status (HFIAS score) of respondents.

In SPSS ordinal regression the model is parameterized as $y = a - bx$. so that positive coefficients tell you that higher values of the explanatory variable are associated with higher outcomes, while negative coefficients tell you that higher values of the explanatory variable are associated with lower outcomes. The table 3.2 in the annex indicates that the cumulative logit for female at 'mildly food insecurity+' is -3.682- (1.513) = -5.195, at moderately food insecure + it is .923 - (1.513) = -0.59, and at severely food insecurity, it is 3.968 - (1.513) = 2.455.

The cumulative logit for income presented in table 3.5 in the annex indicates that**, for** the income category 601birr -900birr at 'mildly food insecurity+' is -3.682- (1.821) = -5.503, at moderately food insecure + it is .923 - (1.821) = -0.898, and at severely food insecurity, it is 3.968 - (1.821) = 2.147. Income (901 – 1500birr) at 'mildly food insecurity+' is -3.682- (1.399) = -5.081, at moderately food insecure + it is .923 - (1.399) = -0.476, and at severely food insecurity, it is 3.968 - (1.399) = 2.569. And income (>1500birr) at 'mildly food insecurity+' is -3.682- (1.175) = -4.857, at moderately food insecure + it is .923 - (1.175) = -0.252, and at severely food insecurity, it is 3.968 - (1.175) = 2.793.

Then, the cumulative proportions are calculated by cross tabulation, odds can be calculated directly from proportions by the formula p / (1-p). Therefore the cumulative odds of female at mildly food insecurity are 0.258/(1-.258) = 0.35; the cumulative odds at moderately food insecurity are 0.477/ (1-0.477) =0.9, and cumulative odds at severely food insecure are 0.262/ (1-0.262) =0.4.

Similarly cumulative odds, income (<600birr) of beneficiaries at mildly food insecurity are 0.261/(1-.262) = 0.35; the cumulative odds at moderately food insecurity are 0.443/ (1-0.443) =0.8, and cumulative odds at severely food insecure are 0.281/ (1-0.281) =0.4. Cumulative odds, income (601-900birr) of beneficiaries at mildly food insecurity are 0.29/(1-.0.29) = 0.4; the

cumulative odds at moderately food insecurity are 0.52/ (1-0.52) =1.08, and cumulative odds at severely food insecure are 0.17/ (1-0.17) =0.2. Cumulative odds, income (901-1500birr) of beneficiaries at mildly food insecurity are 0.667/(1-0.0.667) = 2; the cumulative odds at moderately food insecurity are 0.391/ (1-0.391) =0.64, and cumulative odds at severely food insecure are 0.043/ (1-0.043) =0.045. Cumulative odds, income (>1500birr) of beneficiaries at mildly food insecurity are 0.565/(1-0.565) = 1.3; the cumulative odds at moderately food insecurity are 0.167/ (1-0.167) =0.2, and cumulative odds at severely food insecure are 0.043/ (1-0.043) =0.045. And all the independent variable cumulative odd were calculated. Therefore; calculated odds ratios all the categorical and ordinal variables used for these analysis were listed from table 3.2 to 3.9, in the annexes.

However; from the result listed in table 4.10 shows, the value of the odd ratio for gender 3.64 for severely food insecure indicates that female headed household has 3.64 times chance to be severely food insecure than male headed household. And also the value of the odd ratio for gender 20 for food secure indicates that male headed household has 20 times chance to be food secure than female headed household.

The value of the odd ratio for age above 60 years old 0.9, 0.34 and 6.08 for mildly, moderately and severely food insecure indicates that the above 60 years old household has 0.9, 0.34 and 6.08 times chance to be mildly, moderately and severely (respectively) food insecure than those age of household 19-40 years old.

Similarly the value of the odd ratio for income below 600ETB 2 for severely food insecure indicates that the household income below 600ETB has 2 times chance to be severely food insecure than household income > 601ETB. But, the value of the odd ratio for income >1500ETB 13.3 for food secure indicates that the household income above 1500ETB has 13.3 times chance to be food secure than household income < 600ETB.

The value of the odd ratio for Education attainment of primary education and below 1.875 for severely food insecure indicates that the household Education level primary education and below has 1.875 times chance to be severely food insecure than household Education level above secondary education.

Similarly the value of the odd ratio for marital status married people 1.17 for severely food insecure indicates that the married household has 1.17 times chance to be severely food insecure than single household. But, the value of the odd ratio for marital status widowed people 10 for severely food insecure indicates that the widowed people has 10 times chance to be severely food insecure than married people.

The value of the odd ratio for a household size more than 5 family members 33.6 for severely food insecure indicates that a household have more than 5 family members are 33.6 times chance to be severely food insecure than a household have less than 4 family members.

The value of the odd ratio for PMT for UPSNP beneficiaries above the median score (20) 6 for severely food insecure indicates that the beneficiary household PMTs >20 has 6 times chance to be severely food insecure than non UPSNP beneficiary household PMTs >20. In general the value of the odd ratio for PMT for UPSNP beneficiaries below the median score (20) 35.4 and 16 for moderately and severely food insecure (respectively) indicates that the beneficiary household PMTs <20 has 35.4 and 16 times chance to be moderately and severely food insecure than non UPSNP beneficiary household PMTs <20. In general the odds for beneficiaries' PMT score above and below the median were vulnerable to severely food insecurity than the odds for non-beneficiaries, as proportionately more beneficiaries the highly vulnerable to food insecurity than non-beneficiaries.

Test of Parallel Lines: The test of parallel lines evaluates the proportional odds assumption. The test checks the assumption that model parameters (estimates of slope coefficients or values) are the same for all categories of the response variable.

This test enables comparison of the estimated model with one set of the model coefficients for all categories to a model with a separate set of coefficients for each category (SPSS, 2006; Hosmer & Lemeshow, 2000). It was assumed that with the same slope throughout the categories of HFIAS score and different intercepts, log-linear equations of the relationship of an explanatory variable with food consumption groups, if plotted on a plane with the logits of HFIAS as the dependent variable and levels of a factor as the independent variable would result in parallel lines.

Table 4.11 Test of Parallel Lines[a]

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	432.635			
General	349.551[b]	83.084[c]	38	.000

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

b. The log-likelihood value cannot be further increased after maximum number of step-halving.

c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

Source: Survey data, 2019

This test compares the ordinal model which has one set of coefficients for all thresholds (labelled Null Hypothesis), to a model with a separate set of coefficients for each threshold (labelled General), the general model gives a significantly better fit to the data than the ordinal (proportional odds) model (i.e. if $p<.05$) then, reject the assumption of proportional odds. This is the conclusion given the significant value as shown below ($p<.000$). Analysis of the results from the ordinal logistic regression showed that at least 8 explanatory variables could accurately predict food insecurity.

4.2.2 Multicolloniarity analysis

The multicoliniarity table (in the annex) shows, there is no correlation between all independent variables. Because VIF values for all variables are small (less than 10). Hence, there is no multicollinearity problem.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The aim of the study was to assess the targeting practices in UPSNP and its implications to households' food security using PMT score, socio economic, and demographic data gathered from 338 of the beneficiary and non-beneficiaries households in *woreda* 05, Addis ketema sub-city in Addis Ababa.

The result indicates that the odds for beneficiaries' PMT score above and below the median were vulnerable to severely food insecurity than the odds for non-beneficiaries, as proportionately more beneficiaries the highly vulnerable to food insecurity than non-beneficiaries. The result is consistent with UPSNP baseline surveys (2018). The HFIAS score was conducted to establish the level of food insecurity in the households. The result shows that, about 153(45.3%) were moderately food insecure, 103 (30.5%) were mildly food insecure 75 (22.2%) severely food insecure, and only 7 (2.1%) were food secure. Gender plays a vital role in enhancing household food security. Food insecurity is mostly prevalent in FHH than MHH, and consistence with D'Haese et al. (2011:66), Gebre (2012:165) and (De Cock, 2012:38). And also the results imply that older household heads are more food insecure than younger household heads. This is because in UPSNP client context, older household heads are don not have family support, they cannot able to work because of their age impact particularly above 60 years old.

Food insecurity is mostly linked to people who are widowed and divorced than single and married people. The difference in the percentages is that people who are divorced and widowed are most likely to be large family size with less support structures from other family members, and also most likely to be dependent on one side household head supports. In line with similar studies where household headed by people who are not married (widowed and divorced) were likely to rely on the earnings of one adult, thus increasing their likelihood of food insecurity. There is a strong relationship between food security and household income, household size, education level. Food security improves with a rise in household income, small family members, and increase education attainment of the household head. The results are in line with Rudolph et al. (2012:14), Oluyole et al. (2009:9.

In this analysis I have looked at ordered logit model that can be applied when the outcome is represented by an ordinal variable. In order to establish the determinants of household food security, eight explanatory variables were fitted to the model. The findings indicate that food security status of a household is significantly associated with sex, income, age, marital status, education attainment, income, health status, household size and Proxy Means Test (PMT) score of the household. The independent variables that have no significance association with food security status of a household are religion of a household, and responsibility of a household head.

5.2 Recommendation

Based on the results of this study, I recommend a number of interventions to be put in place in the study area to ensure food security of urban poor. These include:-

- The Federal Urban Job Creation and Food Security Agency should give emphasis on households Proxy Means Test indicators depending on city's situation
- It is important that the government assist to empower women by providing them with professional education with regards to ways of improving food access.
- Policy initiatives in urban areas should be directed towards entrepreneurial programmes and employment creation, as well as skills development to unlock the potential of households to insure their food security.
- Government should reconsider policies in Ethiopia that directe towards food security.
- The household size was a significant determinant for household food security; therefore it is important to educate the community about family planning in order to encourage households to plan for smaller family sizes (incompatible with for their income), particularly for female headed households.
- Local government at (city, sub city, and woreda level) should consider and strengthen the performance and impact of the UPSNP among the intended outcome of the programe.
- Further research is recommended to follow and assess the contributions of the interventions to the food security situation in Addis Ababa as well as to other UPSNP beneficiary cities in Ethiopia.

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Annex-1A: Questionnaire

A QUESTIONNAIRE FOR THE SELECTED COMMUNITY MEMBERS IN KETENAS WITH IN THE WOREDA

Dear respondent,

My name is Yeabsira Birhanu. The main objective of this questionnaire is to collect primary data to undertake an assessment on targeting practices in urban productive safety net program and its implications to household food security in *woreda* 05, Addis ketema sub-city, Addis Ababa, Ethiopia. Your responses to the questions are valuable and will be held in utmost confidentiality to be used only for the analysis of this research. If you accept to participate in this research, you will be doing so voluntarily and there will not be any monetary returns. This interview will take about 30 minutes of your time to respond to the questions.

Thank you in advance for your cooperation.

Part 1: Demographic and socio-economic related questions

No	Questions	Category	Code	Remark
1	Sex of respondent	Male	1	
		Female	0	
2	Responsibility to the respondent in the household?	Head	1	
		Spouse	2	
		Other (specify)_____	3	
3	Age of the respondent?	Write in full year: _____	(____)	
4	Marital status of the respondent?	Married	1	
		Single	2	
		Divorced	3	
		Widowed	4	
5	Religion of the respondent?	Orthodox Christian	1	
		Muslim	2	
		Protestant	3	
		Catholic	4	
		Other (specify): _____	5	
6	Education level of the respondent?	Below Primary education	1	
		Secondary education	2	
		High school	3	
		Technical education	4	
		University/College degree and above	5	
7	Health status	No health problem	1	
		Have health problem	2	
8	Number of family members in one household	Less than 4	1	
		More than 5	2	
9	How many is your income?	Daily per-capita income, or		
		Monthly per-capita income, or		
		Annual per-capita income		

Part II: Proxy Means Test Questions score

1) Current personal illness
   1. Yes, and it interferes with employment opportunities
   2. Yes, but it does not interferes with employment opportunities
   3. No personal illness

2) Employment status
   1. Unemployed
   2. A causal worker/seasonal worker/pieceworker
   3. A trader in the permanent location
   4. A government or private employee

3) Personal property

Personal property owned	Not own (0)	Acquisition method			score
		Receive it from someone (1)	Installment buying (2)	Cash purchase (3)	
Refrigerator					
TV					
Satellite Dish					
Mobile phone					
Car					
Bicycle					
Sofa					
Kerosene Stove					
Electric/Bio Stove					
Total score of number 3					

4) Age
   1. Over 60 or below 18 2. 21-40 years old 3. 41-60 years old

5) Educational background
   1. Primary education or lower
   2. Secondary education
   3. high school
   4. technical education or equivalent
   5. Higher than senior technical education

6) Marital status
   1. Divorced/widow/widower 2. Married or living together 3. Single

7) Debt burdens
   1. Indebted to both formal and moneylenders' loans
   2. Indebted to only moneylenders'
   3. Indebted to only formal loans
   4. Debt free

8) Type of accommodation
   1 Private Rent.
   2. Live with a relative or an employer or friend (Live Free/dependant)
   3. Rented accommodation or live in a house built on legally permitted land (Rent Kebele)
   4. Live in a house built on personal land (Owns)

9) Conditions of the accommodation (assessed by professional worker)
   1. Poor condition 2. Temporal accommodation
   3 Acceptable condition or rather secure. 4. Hygienic condition and very secure

10) The burden of caring
   1. No dependant (obtain a score of 1)
   2. Care provision for ---- dependents' (fill a number in the blank)

The score is computed by multiplying the number of dependants by -1.
Dependants mean infants, children in educational institution, totally disabled persons including the elderly, partially disabled persons including the elderly.

Note: Each answer number represents the score of the item. Total score

Part III: Household Food Insecurity Access Scale (HFIAS) questions

	Household Food Insecurity Access Scale (HFIAS)				Remark
	(rarely: once or twice; sometimes: 3 to 10 times; Often: more than 10X in the last 4 weeks)				
1	In the past four weeks, did you worry that your household would not have enough food? **(if answer is No, skip to Q2)**	1: Yes	0: No		
1a	How often did this happen?	1: Rarely	2: Sometimes	3: Often	
2	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources? **(if answer is No, skip to Q3)**	1: Yes	0: No		
2a	How often did this happen?	1: Rarely	2: Sometimes	3: Often	
3	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources? **(if answer is No, skip to Q4)**	1: Yes	0: No		
3a	How often did this happen?	1: Rarely	2: Sometimes	3: Often	
4	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food **(if answer is No, skip to Q5)**	1: Yes	0: No		
4a	How often did this happen?	1: Rarely	2: Sometimes	3: Often	
5	In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food? **(if answer is No, skip to Q6)**	1: Yes	0: No		
5a	How often did this happen?	1: Rarely	2: Sometimes	3: Often	
6	In the past four weeks, did you or any other household member have to eat fewer meals in a day because there was not enough food? (if answer is No, skip to Q7)	1: Yes	0: No		
6a	How often did this happen?	1: Rarely	2: Sometimes	3: Often	
7	In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food? **(if answer is No, skip to Q8)**	1: Yes	0: No		
7a	How often did this happen?	1: Rarely	2: Sometimes	3: Often	
8	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food? **(if answer is No, skip to Q9)**	1: Yes	0: No		
8a	How often did this happen?	1: Rarely	2: Sometimes	3: Often	
9	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	1: Yes	0: No		
9a	How often did this happen?	1: Rarely	2: Sometimes	3: Often	

Part IV: Questions for qualitative data

Questionnaires (including guidelines and checklists)

A) Key informants (City administration of AAUJCFSA, Sub city and *woreda* UJCFS office) – checklist of topics Key informants are likely to include: Director General, directors, and senior experts

1) Describe the training & dissemination of the project implementation manual (PIM) about any city's instructions and local adaptation of targeting;
   a) Targeting guidelines,
   b) Any processes or household criteria that differ from the national guideline?
2) What instructions or training undertaken about on how to select sub cities, *woredas* and ketenas for the UPSNP?
3) Who (what kinds of people) do you consider the priority target groups for the UPSNP in this city/sub city/*woreda?*
4) After the first and second year of implementation, what changes or improvements can you suggest to the a, UPSNP PIM ?
5) Describe the practices, process or story of how the UPSNP beneficiary was targeted and benefited in this city/sub city/*woreda* in the past year (i.e. since the programme started until now).
6) How many targeting exercises have been carried out, and when? What happened at the sub-city, *Wereda*, *ketena*, and community levels?
7) In this city/sub city/*woreda*, how did you decide the numbers of PW and DS beneficiaries? Is there is a quota? If yes, how was it decided or where did it come from?
8) In your opinion, how successful has the UPSNP been in reaching the priority target groups, in its first and second year in this city?
9) Do you think there are any people who have been excluded from the UPSNP, but who should be included? What kinds of people, where and why?

10) Approximately how many (i.e. is this a major problem affecting large numbers, or relatively small?)
11) Do you think there are any people who have been wrongly included in the UPSNP? What kinds of people, where and why? Approximately how many (i.e. is this a major problem affecting large numbers, or relatively small?)
12) What mechanisms or processes exist to make targeting processes transparent?

a) Do beneficiaries know why and how they were selected for participation in the UPSNP?

b) Do Proxy means test (PMT)?

b) Are names of beneficiaries posted at the local level?

c) Are names of beneficiaries read out at local meetings?

d) Are there other ways transparency mechanisms operating?

13) How accountable is the targeting process? How accountable is the appeals process? How transparent are the procedures and processes of targeting and appeals to beneficiaries?
14) Are formal procedures and criteria as set out in the PIM and targeting manual and other guidelines being followed?
15) Who engages in decision making about targeting or appeals?

a) Is it the KTC, AC or the *woreda* cabinet?

b) What is the role of city administration of UJCFSA, sub-city UJCFS office, WUJCFS office, KTC and AC decision making processes?

16) How 'participatory' is the targeting process in a particular community / *ketena* /?
17) Are particular groups of individuals within a community marginalized from this process? If so, who and why?
18) Are there any cases of mismanagement or corruption in targeting (e.g. bribes or extortion for inclusion as a beneficiary)? If so what are the details and how widespread and robust are the allegations?

COMMENTS AND RECOMMENDATIONS

My research objective has been asked to assess the implication of targeting practices in urban productive safety net program (UPSNP) to food security enhancement among the urban poor households. Do you have any suggestions or observations to help us? Any other comments?

B) FGD participants (KTC and AC in the selected *woreda (two committee members from each ketena)*

1) Who are the members of the KTC and AC?
2) How were the members of the KTC and AC selected?
3) How many members are women in each committee? If none or few, why?
4) What are the responsibilities of the KTC and AC?
5) In your view, what is the purpose of the UPSNP?
6) Under the UPSNP, who should receive "direct support" (DS), i.e. permanent and temporary DS without working?
7) In your view, who should participate in the public works (PW) component of the UPSNP?
8) In this city, sub-city, *Woreda*, and *ketena*, how did you decide the numbers of PW and DS beneficiaries? Is there is a quota? If yes, how was it decided or where did it come from?
9) This is a national guideline, but conditions and culture are different in different regions and *weredas.* How have you adapted the guideline to the realities in this *wereda*? Do you have any suggestions for improvements or adjustments to the PIM or guidelines to all components including targeting guidelines?

COMMENTS AND RECOMMENDATIONS

My research objective has been asked to assess the implication of targeting practices in urban productive safety net program (UPSNP) to food security enhancement among the urban poor households. Do you have any suggestions or observations to help us? Any other comments?

Annex-1B: Questionnaire in Amharic Translation

በአዲስ አበባ ዩኒቨርስቲ
የልማት ጥናት ኮሌጅ
የምግብ ዋስትና ጥናት የትምህርት ክፍል

በአዲስ አበባ ከተማ አስተዳደር አዲስ ከተማ ክ/ከተማ ወረዳ 05 ለሚገኙ የከተማ ልማታዊ ሴፍቲኔት ተጠቃሚዎች እና ተጠቃሚ ያልሆኑ ቤተሰቦች የሚሞላ መጠይቅ

ውድ የዚህ ጥናት ተሳታፊዎች፡

የአብስራ ብርሀኑ እባላለሁ፡፡ በአዲስ አበባ ዩኒቨርስቲ የልማት ጥናት ኮሌጅ በምግብ ዋስትና ጥናት የትምህርት ክፍል የምረቃ ተማሪ ስሆን ለማስተርስ ዲግሪ ማሟያ ጽሁፌ በአዲስ አበባ ከተማ አስተዳደር በአዲስ ከተማ ክ/ከተማ ወረዳ 05 የከተማ ልማታዊ ሴፍቲኔት ፕሮግራም የተጠቃሚዎች ልየታ አተገባበር በከተማ በዝቅተኛ የኑሮ ደረጃ የሚኖሩ ዜጎችን የምግብ ዋስትና ለማረጋገጥ ያለው አንድምታ ምን እንደሚመስል ለመገምገም ሲሆን ትንተና ለማከናወን እርስዎ የሚሰጡት ትክክለኛ መልስ ለጥናቱ ውጤት አስተማማኝነት ወሳኝ ነው፡፡ ለቃለ መጠይቁ የሚሳተፉት በእርስዎ ፍቃደኝነት ሲሆን አጠቃላይ 30 ደቂቃ ሊወስድብዎት ይችላል፡፡

ስለትብብርዎ በቅድሚያ አመሰግናለሁ!!

ክፍል 1፦ ከማሕበራዊና ሰብዓዊ ሁኔታዎች ጋር የተያያዙ ጥያቄዎች ፦

ተ/ቁ	ጥያቄዎች		ኮድ	ምርመራ
1	ፆታ	ወንድ	1	
		ሴት	2	
2	በቤተሰቡ ውስጥ ያለው ሀላፊነት?	አባወራ	1	
		እማወራ	2	
		ሌላ (ይገለጽ)_____	3	
3	ዕድሜ	_____	(_____)	
4	የጋብቻ ሁኔታ	ያገባ/ች	1	
		ያላገባ/ች	2	
		የተፋታ/ታች	3	
		በሞት የተለያት	4	
5	ሀይማኖት	ኦርቶዶክስ ክርስቲያን	1	
		ሙስሊም	2	
		ፕሮቴስታንት	3	
		ካቶሊክ	4	
		ሌላ (ይገለጽ)_____	5	
6	የትምህርት ደረጃ	1-8 እና ማንበብና መጻፍ የማይችል	1	
		ሁለተኛ ደረጃ እና (9-10)	2	
		መሰናዶ ትምህርት (11-12)	3	
		ቴክኒክና ሙያ	4	
		ዩንቨርሲቲ/ኮሌጅ እና ከዚያ በላይ	5	
7	የጤና ሁኔታ	ጤነኛ	1	
		አካል ጉዳተኛ/ህመምተኛ	2	
8	የቤተሰብ ብዛት	ከ4 አባላት በታች	1	
		ከ5 አባላት በላይ	2	
9	የገቢ መጠን	የቀን ገቢ ወይም		አንዱን የገቢ ዓይነት መውሰድ
		ወርሀዊ ገቢ ወይም		
		ዓመታዊ ገቢ		

ክፍል 2

የኑሮ ደረጃ ምዘና ጥያቄዎች ነጥብ

1) የግለሰቡ የጤና ሁኔታ
   - 1. የጤና ችግር ያለበት እና በስራ ላይ ተጽዕኖ የሚያሳድር
   - 2. የጤና ችግር ቢኖርም በስራ ላይ ተጽዕኖ አያሳድርም
   - 3. ምንም የጤና ችግር የለም

2) የስራ ሁኔታ
   - 1. ስራ የሌለው/የሌላት
   - 2. ጊዜያዊ /ወቅታዊ ስራ
   - 3. በቋሚ ቦታ ላይ አነስተኛ ንግድ ወይም ሌላ ስራ የሚሰራ
   - 4. የመንግስት ስራ ወይም የግል ስራ ላይ የተሰማራ/ች

3) የግለሰቡ /የቤተሰቡ ሀብት

ግለሰቡ ያለው ሀብት	የለም (0)	ሀብቱ የተገኘበት መንገድ			ነጥብ
		ከሌላ ሰው በስጦታ የተገኘ (1)	በብድር/በረጅም ጊዜ ክፍያ የተገዛ (2)	በካሽ የተገዛ (3)	
1. ፍሪጅ					
1. ቴሌቪዥን					
2. ዲሽ					
3. ሞባይል ስልክ					
4. መኪና					
5. ብስክሌት					
6. ሶፋ					
7. ቡታ ጋዝ					
8. የኤሌክትሪክ ምድጃ					
ጠቅላላ የተራ ቁጥር 3 ነጥብ ድምር					

4) ዕድሜ
   - 1. ከ 60 በላይ ወይም ከ18 በታች
   - 2. ከ21-40 ዕድሜ ክልል
   - 3. ከ41-60 ዕድሜ ክልል

5) የትምህርት ደረጃ
   - 1. ማንበብና መጻፍ የማይችል
   - 2. አንደኛ ሳይክል መጀመሪያ ደረጃ (1-4)
   - 3. ሁለተኛ ሳይክል መጀመሪያ ደረጃ (5-8)
   - 4. ሁለተኛ ደረጃ (9-10)
   - 5. መሰናዶ ትምህርት (10-12)
   - 6. ዩንቨርሲቲ/ኮሌጅ እና ከዚያ በላይ

6) የጋብቻ ሁኔታ?
   - 1. የተፋታ/ች/በሞት የተለዩ
   - 2. ያገባ/ች እና አብሮ የሚኖር
   - 3. ያላገባ/ች

7) የዕዳ መጠን
   - 1. ከመደበኛ እና ከአራጣ አበዳሪዎች ዕዳ ያለበት
   - 2. ከአራጣ አበዳሪዎች ብቻ ዕዳ ያለበት
   - 3. ከመደበኛ ብድር ብቻ ዕዳ ያለበት
   - 4. ምንም ዕዳ የሌለበት

8) የመኖሪያ ቤት ዓይነት
   - 1. ከግለሰብ ኪራይ.
   - 2. ጥገኛ
   - 3. የቀበሌ ቤት
   - 4 . የግል ቤት

9) የመኖሪያ ቤት ሁኔታ (በባለሙያ የተገመገመ ወይም የተገመተ)
   - 1. በጣም ደካማ
   - 2. ደካማ
   - 3. ደህና
   - 4. በጣም ደህና እና ንጽህናው የተጠበቀ

10) እንክብካቤ/እርዳታ የሚያስፈልጋቸው ሰዎች መኖር (ህጻናት፣ መስራት የማይችል አካል ጉዳተኛ ወይም በዕድሜ የገፉ ሰዎች)
   - 1. አሉ
   - 2. የሉም

ጠቅላላ ነጥብ

Note: Each answer number represents the score of the item

ክፍል 3 ከቤተሰብ የምግብ ዋስትና ጋር ተያያዥ ጥያቄዎች

	Household Food Insecurity Access Scale (HFIAS)				ምርመራ
	(አልፎ አልፎ: 1 እስከ 2 ጊዜ፣ ***አንዳንድ ጊዜ:*** 3 እስከ 10፣ ***ሁልጊዜ:*** ከ10 ጊዜ በላይ)				
1	ባለፈው 4 ሳምንት ቤተሰቡ በቂ ምግብ ባለማግኘቱ የተጨነቀበት ቀን አለ? ወይም ምግብ ለማግኘት የተጨነቀበት ቀን አለ? ***(ከሌለ ወደ ጥያቄ 2 ይሂዱ)***	1: አዎ	0: የለም		
1a	በየምን ያህል ጊዜ ይከሰታል?	1: አልፎ አልፎ	2: አንዳንድ ጊዜ	3: ሁልጊዜ	
2	ባለፈው 4 ሳምንት ማንኛውም የቤተሰቡ አባል በሪሶርስ/በሀብት እጥረት ምክንያት የሚስማማውንና የሚወደውን በቂ ምግብ ማግኘት ያልቻለ አለ? ***(ከሌለ ወደ ጥያቄ 3 ይሂዱ)***	1: አዎ	0: የለም		
2a	በየምን ያህል ጊዜ ይከሰታል?	1: አልፎ አልፎ	2: አንዳንድ ጊዜ	3: ሁልጊዜ	
3	ባለፈው 4 ሳምንት ማንኛውም የቤተሰቡ አባል በሪሶርስ/በሀብት እጥረት ምክንያት ውስን የምግብ ዓይነት (limited variety) የተመገበ አለ? ***(ከሌለ ወደ ጥያቄ 4 ይሂዱ)***	1: አዎ	0: የለም		
3a	በየምን ያህል ጊዜ ይከሰታል?	1: አልፎ አልፎ	2: አንዳንድ ጊዜ	3: ሁልጊዜ	
4	ባለፈው 4 ሳምንት ማንኛውም የቤተሰቡ አባል በሪሶርስ/በሀብት እጥረት ምክንያት ጥቂት የምግብ ዓይነት ብቻ የተመገበ እና ሌሎች የምግብ ዓይነቶችን መመገብ የማይፈልግ አለ? ***(ከሌለ ወደ ጥያቄ 5 ይሂዱ)***	1: አዎ	0: የለም		
4a	በየምን ያህል ጊዜ ይከሰታል?	1: አልፎ አልፎ	2: አንዳንድ ጊዜ	3: ሁልጊዜ	
5	ባለፈው 4 ሳምንት ማንኛውም የቤተሰቡ አባል በቂ ምግብ ባለመኖሩ ምክንያት ከሚያስፈልገው በታች ትንሽ የምግብ ዓይነት ብቻ የተመገበ አለ? ***(ከሌለ ወደ ጥያቄ 6 ይሂዱ)***	1: አዎ	0: የለም		
5a	በየምን ያህል ጊዜ ይከሰታል?	1: አልፎ አልፎ	2: አንዳንድ ጊዜ	3: ሁልጊዜ	
6	ባለፈው 4 ሳምንት ማንኛውም የቤተሰቡ አባል በቂ ምግብ ባለመኖሩ ምክንያት በቀን ከሚያስፈልገው በጣም ያነሰ ምግብ የተመገበ አለ? ***(ከሌለ ወደ ጥያቄ 7 ይሂዱ)***	1: አዎ	0: የለም		
6a	በየምን ያህል ጊዜ ይከሰታል?	1: አልፎ አልፎ	2: አንዳንድ ጊዜ	3: ሁልጊዜ	
7	ባለፈው 4 ሳምንት ማንኛውም የቤተሰቡ አባል በሪሶርስ/በሀብት እጥረት ምክንያት ፈጽሞ ምግብ ያላገኘ አለ? ***(ከሌለ ወደ ጥያቄ 8 ይሂዱ)***	1: አዎ	0: የለም		
7a	በየምን ያህል ጊዜ ይከሰታል?	1: አልፎ አልፎ	2: አንዳንድ ጊዜ	3: ሁልጊዜ	
8	ባለፈው 4 ሳምንት ማንኛውም የቤተሰቡ አባል በቂ ምግብ ባለመኖሩ ምክንያት እንደራበው የተኛ አለ? ***(ከሌለ ወደ ጥያቄ 9 ይሂዱ)***	1: አዎ	0: የለም		
8a	በየምን ያህል ጊዜ ይከሰታል?	1: አልፎ አልፎ	2: አንዳንድ ጊዜ	3: ሁልጊዜ	
9	ባለፈው 4 ሳምንት ማንኛውም የቤተሰቡ አባል በቂ ምግብ ባለመኖሩ ምክንያት ሙሉ ቀንና ሌሊት ምንም ዓይነት ምግብ ያልተመገበ አለ?	1: አዎ	0: የለም		
9a	በየምን ያህል ጊዜ ይከሰታል?	1: አልፎ አልፎ	2: አንዳንድ ጊዜ	3: ሁልጊዜ	

Annex 2: The relationship between household food security with independent variables

Table 2.1 Food Security and Gender

			HFIAS score of the hh				Total
			Food secure	Mildly food insecure	Moderately food insecure	Severely food insecure	
sex of respondent	Female	Count	1	66	122	67	256
		% within sex of respondent	0.4%	25.8%	47.7%	26.2%	100.0%
	Male	Count	6	37	31	8	82
		% within sex of respondent	7.3%	45.1%	37.8%	9.8%	100.0%
Total		Count	7	103	153	75	338
		% within sex of respondent	2.1%	30.5%	45.3%	22.2%	100.0%

Source: Survey data, 2019

Table 2.2; Age and HFIAS score of the household

			HFIAS score of the hh				Total
			Food secure	Mildly food insecure	Moderately food insecure	Severely food insecure	
Age of the hh	above 60	Count	0	23	18	30	71
		% within age of respondent	0.0%	32.4%	25.4%	42.3%	100.0%
	19 to 40	Count	7	60	85	18	170
		% within age of respondent	4.1%	35.3%	50.0%	10.6%	100.0%
	41 to 60	Count	0	20	50	27	97
		% within age of respondent	0.0%	20.6%	51.5%	27.8%	100.0%
Total		Count	7	103	153	75	338
		% within age of respondent	2.1%	30.5%	45.3%	22.2%	100.0%

Source: Survey data, 2019

Table 2.3: Marital status and HFIAS score of household head

			HFIAS score of the hh				Total
			Food secure	Mildly food insecure	Moderately food insecure	Severely food insecure	
Marital status	Married.	Count	0	52	62	8	122
		% within marital status	0.0%	42.6%	50.8%	6.6%	100.0%
	Single	Count	7	30	13	3	53
		% within marital status	13.2%	56.6%	24.5%	5.7%	100.0%
	Divorced	Count	0	6	28	21	55
		% within marital status	0.0%	10.9%	50.9%	38.2%	100.0%
	widowed	Count	0	15	50	43	108
		% within marital status	0.0%	13.9%	46.3%	39.8%	100.0%
Total		Count	7	103	153	75	338
		% within marital status	2.1%	30.5%	45.3%	22.2%	100.0%

Source: Survey data, 2019

Table **2.4**: Educational level and HFIAS score of household head

			HFIAS score of the hh				Total
			Food secure	Mildly food insecure	Moderately food insecure	Severely food insecure	
Education level	primary education and below	Count	1	27	75	66	169
		% within education level	0.6%	16.0%	44.4%	39.1%	100.0%
	secondary education	Count	0	11	8	6	25
		% within education level	0.0%	44.0%	32.0%	24.0%	100.0%
	high school	Count	0	7	14	0	21
		% within education level	0.0%	33.3%	66.7%	0.0%	100.0%
	technical education	Count	0	31	25	2	58
		% within education level	0.0%	53.4%	43.1%	3.4%	100.0%
	degree and above	Count	6	27	31	1	65
		% within education level	9.2%	41.5%	47.7%	1.5%	100.0%
Total		Count	7	103	153	75	338
		% within education level	2.1%	30.5%	45.3%	22.2%	100.0%

Source: Survey data, 2019

Table **2.5**: Household Income and HFIAS score of the household

			HFIAS score of the hh				Total
			Food secure	Mildly food insecure	Moderately food insecure	Severely food insecure	
Income of the household	below 600ETB	Count	3	53	90	57	203
		% within income of the household	1.5%	26.1%	44.3%	28.1%	100.0%
	601 to 900 ETB	Count	2	29	52	17	100
		% within income of the household	2.0%	29.0%	52.0%	17.0%	100.0%
	901 to 1500 ETB	Count	0	13	9	1	23
		% within income of the household	0.0%	56.5%	39.1%	4.3%	100.0%
	above 1500 ETB	Count	2	8	2	0	12
		% within income of the household	16.7%	66.7%	16.7%	0.0%	100.0%
Total		Count	7	103	153	75	338
		% within income of the household	2.1%	30.5%	45.3%	22.2%	100.0%

Source: Survey data, 2019

Table **2.6 H**ealth status and HFIAS score of the household

			HFIAS score of the hh				Total
			Food secure	Mildly food insecure	Moderately food insecure	Severely food insecure	
Health status	Normal	Count	7	72	119	31	229
		% within health status	3.1%	31.4%	52.0%	13.5%	100.0%
	Disabled	Count	0	31	34	44	109
		% within health status	0.0%	28.4%	31.2%	40.4%	100.0%
Total		Count	7	103	153	75	338
		% within health status	2.1%	30.5%	45.3%	22.2%	100.0%

Source: Survey data, 2019

Table 2.7 Household size and HFIAS score of the household

			HFIAS score of the hh				Total
			0	1 to 9	10 to 18	19 to 27	
Number of family members in one household	1-4	Count	6	96	123	11	236
		% within Number of family members in one household	2.5%	40.7%	52.1%	4.7%	100.0%
	Above 5	Count	1	7	30	64	102
		% within Number of family members in one household	1.0%	6.9%	29.4%	62.7%	100.0%
Total		Count	7	103	153	75	338
		% within Number of family members in one household	2.1%	30.5%	45.3%	22.2%	100.0%

Source: Survey data, 2019

Annex-3: Regression Analysis

Table 3.1 Multicolloniarity analysis (Coefficients[a])

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.744	.318		5.493	.000		
	proxy means test result of the hh	-.093	.085	-.056	-1.092	.276	.583	1.715
	sex of respondent	-.436	.094	-.243	-4.654	.000	.557	1.796
	age of respondent	.112	.047	.101	2.395	.017	.843	1.186
	education level	-.079	.024	-.171	-3.267	.001	.553	1.809
	income of the household	-.123	.045	-.123	-2.737	.007	.749	1.335
	marital status	.105	.028	.172	3.718	.000	.705	1.419
	health status	.128	.075	.078	1.715	.087	.734	1.362
	Number of family members in one household	.725	.070	.432	10.385	.000	.875	1.142
	responsibgility of the hh head	-.437	.097	-.232	-4.485	.000	.565	1.770
	Religion	-.046	.054	-.035	-.851	.395	.888	1.126
a. Dependent Variable: HFIAS score of the hh								

Source: survey data 2019

Table 3.2 Cumulative odds for HFIAS category separately for females and males

Gender	Food secure	mildly food insecure	moderately food insecure	severely food insecure	
Female					
Cumulative N	1	66	122	67	
Cumulative proportions	0.004	0.258	0.477	0.262	
Cumulative odds (p/1- p)	0.004	0.35	0.9	0.4	
Cumulative logits		-3.682	0.923	3.968	
Male					
Cumulative N	6	37	31	8	
Cumulative proportions	0.073	0.451	0.378	0.098	
Cumulative odds(p/1- p)	0.08	0.8	0.6	0.11	
Cumulative logits		-5.195	-0.59	2.455	
Odds ratio female/male	0.05	0.44	1.5	3.64	
Odds ratio male/female	20	2.3	0.7	0.3	

Source: survey data 2019

Table 3.3 Cumulative odds for HFIAS category separately for age categories

Age	Food secure	mildly food insecure	moderately food insecure	severely food insecure	
Above 60 years old					
Cumulative N	0	23	18	30	
Cumulative proportions	0.0	0.324	0.254	0.423	
Cumulative odds (p/1- p)	0	0.5	0.34	0.73	
Cumulative logits		-3.682	0.923	3.968	
41-59 years old					
Cumulative N	0	20	50	27	
Cumulative proportions	0.0	0.206	0.515	0.278	
Cumulative odds(p/1- p)	0	0.3	1.1	0.4	
Cumulative logits		-3.387	1.218	4.263	
19-40 years old					
Cumulative N	7	60	85	18	
Cumulative proportions	0.041	0.353	0.50	0.106	
Cumulative odds(p/1- p)	0.04	0.55	1	0.12	
Cumulative logits		-2.533	2.072	5.117	
Odds ratio above 60/ 19-40 years old	0	0.9	0.34	6.08	
Odds ratio 19-40 / 41-59 years old		1.8	0.9	0.3	
Odds ratio 41-59 / above 60 years old		0.6	3.2	0.55	

Source: survey data 2019

Table 3.4 Cumulative odds for HFIAS category separately for Education level categories

Education attainment	Food secure	mildly food insecure	moderately food insecure	severely food insecure	
primary education and below					
Cumulative N	1	27	75	66	
Cumulative proportions	0.006	0.16	0.444	0.391	
Cumulative odds (p/1- p)	0.006	0.2	0.8	0.6	
Cumulative logits		-3.682	0.923	3.968	
secondary education					
Cumulative N	0	11	8	6	
Cumulative proportions	0.0	0.44	0.32	0.24	
Cumulative odds(p/1- p)		0.8	0.5	0.32	
Cumulative logits		-4.995	-0.39	2.655	
high school					
Cumulative N	0	7	14	0	
Cumulative proportions	0.0	0.333	0.667	0.0	
Cumulative odds(p/1- p)		0.5	2		
Cumulative logits		-4.13	0.475	3.52	
technical education					
Cumulative N	0	31	25	2	
Cumulative proportions	0.0	0.534	0.431	0.034	
Cumulative odds(p/1- p)		1.15	0.8	0.04	
Cumulative logits		-3.949	0.656	3.701	
degree and above					
Cumulative N	6	27	31	1	
Cumulative proportions	0.092	0.415	0.477	0.015	
Cumulative odds(p/1- p)	0.1	0.7	0.9	0.02	
Cumulative logits		-3.076	1.529	4.574	
Odds ratio primary education and below / secondary education		0.25	1.6	1.875	
Odds ratio secondary education / high school	0	1.6	0.25		
Odds ratio high school / technical education	0	0.4	2.5		
Odds ratio technical education / degree and above		1.6	0.9	2	
Odds ratio degree and above / primary education and below		3.5	1.125	0.033	

Source: survey data 2019

Table 3.5 Cumulative odds for HFIAS category separately for income categories

Income	Food secure	mildly food insecure	moderately food insecure	severely food insecure	
below 600ETB					
Cumulative N	3	53	90	57	
Cumulative proportions	0.015	0.261	0.443	0.281	
Cumulative odds (p/1- p)	0.015	0.35	0.8	0.4	
Cumulative logits		-3.682	0.923	3.968	
601 to 900 ETB					
Cumulative N	2	29	52	17	
Cumulative proportions	0.02	0.29	0.52	0.17	
Cumulative odds(p/1- p)	0.02	0.4	1.08	0.2	
Cumulative logits		-5.503	-0.898	2.147	
901 to 1500 ETB					
Cumulative N	0	13	9	1	
Cumulative proportions	0.0	0.565	0.391	0.043	
Cumulative odds(p/1- p)		1.3	0.64	0.045	
Cumulative logits		-5.081	-0.476	2.569	
above 1500 ETB					
Cumulative N	2	8	2	0	
Cumulative proportions	0.167	0.667	0.167	0.0	
Cumulative odds(p/1- p)	0.2	2	0.2		
Cumulative logits		-4.857	-0.252	2.793	
Odds ratio below 600ETB / 601 to 900 ETB	0.75	0.875	0.74	2	
Odds ratio 601 to 900 ETB / 901 to 1500 ETB		0.3	1.7	4.4	
Odds ratio 901 to 1500 ETB / above 1500 ETB		0.65	3.2		
Odds ratio above 1500 ETB / below 600ETB	13.3	5.7	0.25		

Source: survey data 2019

Table 3.6 Cumulative odds for HFIAS category separately for marital status categories

Marital status	Food secure	mildly food insecure	moderately food insecure	severely food insecure	
Married					
Cumulative N	0	52	62	8	
Cumulative proportions	0.0	0.426	0.508	0.066	
Cumulative odds (p/1- p)		0.74	1	0.07	
Cumulative logits		-3.682	0.923	3.968	
Single					
Cumulative N	7	30	13	3	
Cumulative proportions	0.132	0.566	0.245	0.057	
Cumulative odds(p/1- p)	0.15	1.3	0.26	0.06	
Cumulative logits		-2.63	1.975	5.02	
Divorced					
Cumulative N	0	6	28	21	
Cumulative proportions	0.0	0.109	0.509	0.382	
Cumulative odds(p/1- p)		0.12	1	0.62	
Cumulative logits		-0.336	4.269	7.314	
Widowed					
Cumulative N	0	15	50	43	
Cumulative proportions	0.0	0.139	0.463	0.398	
Cumulative odds(p/1- p)		0.16	0.86	0.7	
Cumulative logits		-3.357	1.068	4.113	
Odds ratio Married / Single		0.57	3.8	1.17	
Odds ratio Single / Divorced		10.8	0.26	0.1	
Odds ratio Divorced / widowed		0.75	1.16	0.9	
Odds ratio widowed / Married		0.2	0.86	10	

Source: survey data 2019

Table 3.7 Cumulative odds for HFIAS category separately for Health status categories

Health status	Food secure	mildly food insecure	moderately food insecure	severely food insecure	
Normal					
Cumulative N	7	72	119	31	
Cumulative proportions	0.031	0.314	0.52	0.135	
Cumulative odds (p/1- p)	0.03	0.46	0.48	1.08	
Cumulative logits		-3.682	0.923	3.968	
Disabled					
Cumulative N	0	31	34	44	
Cumulative proportions	0.0	0.284	0.312	0.404	
Cumulative odds(p/1- p)		0.4	0.45	0.7	
Cumulative logits		-3.017	1.588	4.633	
Odds ratio Normal / Disabled		1.15	1.07	1.5	
Odds ratio Disabled / Normal		0.9	0.9	0.4	

Source: survey data 2019

Table 3.8 Cumulative odds for HFIAS category separately for household size categories

Household size	Food secure	mildly food insecure	moderately food insecure	severely food insecure	
1 to 4 (less than 4)					
Cumulative N >20	6	96	123	11	
Cumulative proportions	0.027	0.427	0.547	0.047	
Cumulative odds (p/1- p)	0.03	0.75	1.2	0.05	
Cumulative logits		-3.682	0.923	3.968	
Above 5					
Cumulative N <20	1	7	30	64	
Cumulative proportions	0.009	0.062	0.265	0.627	
Cumulative odds(p/1- p)	0.009	0.066	0.36	1.68	
Cumulative logits		-0.739	3.866	6.911	
Odds ratio 1-4/ above 5		11.36	3.3	0.003	
Odds ratio above 5 / 1-4		0.088	0.3	33.6	

Source: survey data 2019

Table 3.9 Cumulative odds for HFIAS category separately for PMT result categories

PMT result for Beneficiaries	Food secure	mildly food insecure	moderately food insecure	severely food insecure	
Above 20					
Cumulative N	2	6	30	4	
Cumulative proportions	0.054	0.162	0.676	0.108	
Cumulative odds (p/1- p)	0.06	0.2	0.352	0.12	
Cumulative logits		-3.923	0.923	3.968	
Below 20					
Cumulative N	2	50	102	66	
Cumulative proportions	0.014	0.505	0.813	0.669	
Cumulative odds(p/1- p)	0.014	1.02	4.35	2.02	
Cumulative logits		-4.455	0.15	3.195	
Odds ratio above/below	4.3	0.2	0.08	0.6	
Odds ratio below/above	0.23	5.1	12.4	16.8	
PMT result Non beneficiaries					
Above 20					
Cumulative N	2	41	16	1	
Cumulative proportions	0.033	0.683	0.267	0.017	
Cumulative odds(p/1- p)	0.034	2.15	0.4	0.02	
Cumulative logits		-3.923	0.923	3.968	
Below 20					
Cumulative N	1	10	2	3	
Cumulative proportions	0.062	0.625	0.125	0.188	
Cumulative odds(p/1- p)	0.07	1.7	0.14	0.23	
Cumulative logits		-4.455	0.15	3.195	
Odds ratio above/below	0.5	1.3	3	0.1	
Odds ratio below/above	2.1	0.8	0.35	11.5	
Odds ratio beneficiaries/non beneficiaries above 20	8.6	0.15	0.03	6	
Odds ratio beneficiaries/non beneficiaries below 20	0.11	6.375	35.4	1.5	
Odds ratio below 20/ above 20	0.9	1.16	6	16	

Source: survey data 2019