COLLEGE OF DEVELOPMENT STUDIES
CENTER FOR FOOD SECURITY STUDIES

IMPACT OF CASH SUPPORT TO DROUGHT AFFECTED HOUSEHOLDS' FOOD SECURITY AND COPING STRATEGIES: THE CASE OF MEISO WOREDA, OROMIA REGION, ETHIOPIA

MAHLET MULUGETA (GSE/0255/12)

A THESIS SUBMITTED TO CENTER FOR FOOD SECURITY STUDIES, COLLEGE OF DEVELOPMENT STUDIES, ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN FOOD SECURITY AND DEVELOPMENT

ADDIS ABABA, ETHIOPIA

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Declaration

Under my guidance and knowledge, Mahlet Mulugeta has done the thesis entitled “Impact of cash support to drought affected households’ food security and coping strategies”. I evaluated the thesis and certified its submission for public defense.

Declared By: Mahlet Mulugeta

Signature:

Date:

Place: Addis Ababa University College of Development Studies, Center for Food Security Studies

This is to certify that the above declaration made by the candidate is correct to the best of my knowledge as an advisor.

Desalegn Yayeh (Ph. D) _____ _____

Examination Board Approval

As the member of Board of Examiners of the MSc Thesis Open Defense, we certify that we read and evaluated the thesis prepared Mahlet Mulugeta has done the thesis entitled “Impact of cash support to drought affected households’ food security and coping strategies”. We recommended that this thesis acceptance as fulfilling the requirements for the Degree of Master of Science (MSc) in Food Security and Development.

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Internal Examiner	Date	Signature
_____	_____	_____
External Examiner	Date	Signature
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Abbreviation and Acronyms

ATE:	Average Treatment Effect
CSI:	Coping Strategy Index
CTs:	Cash Transfers
CVA:	Cash and Voucher Assistance
DFID:	Department for International Development
DRC:	Democratic Republic of the Congo
EU:	European Union
FANTA:	Food and Nutrition Technical Assisstance
FAO:	Food and Agriculture Organization
FCS:	Food Consumption Score
FFA:	Food Assistance for Assets
GoE:	Government of Ethiopia
HFIAS:	Household Food Insecurity Access Scale
HRP:	Humanitarian Response Plan
IFAD:	International Fund for Agricultural Development
IDP:	Internally Displaced People
IOM:	International Organization for Migration
IPC:	Integrated Food Security Phase Classification
LSCI:	Livelihood Coping Strategies Index
MoA:	Ministry of Agriculture
NDRMC:	National Disaster Risk Management Commission
NGOs:	Non-Governmental Organizations
OCHA:	Office for the Coordination of Humanitarian Affairs
PSM:	Propensity Score Matching
PSNP:	Productive Safety Nets Program
RCSI:	Reduced Coping Strategy Index

TLU:	Tropical Livestock Unit
UNHCR:	United Nations High Commissioner for Refugees
UNICEF:	United Nations Children's Fund
USAID:	United States Agency for International Development
WFP:	World Food Programme

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Abstract

Food security remain as the major challenges to achieve economic development in Ethiopia where drought is one of the key driving factors for food insecurity. The scaling up of humanitarian cash assistance in recent years has been significant. Therefore, the study was conducted to assess the Impact of the cash support to drought affected Household food security status and coping strategies of Meiso woreda. Accordingly, data were collected from 280 sample households selected using multistage sampling method. Besides, focus group discussion and key informant interview were used to collect data to triangulate the questionnaire survey. Household Food Insecurity Access Scale (HFIAS) and Food Consumption Score (FCS) were used to determine the food security status of households while ordered logistic regression model were used to analyze the determinant factors which affect food security of sampled household. Moreover, a Propensity Score Matching (PSM) method was applied to assess the impact of the cash on household food security status. The result of the HFIAS shows that out of the total surveyed households, approximately 11% households were categorized as food secure, 20% as mildly food insecure, 66% as moderately food insecure and 4% as severely food insecure. On the other hand, the FCS results indicated that 58% of HHs are under acceptable food consumption whereas 26% and 16 % of HHs are under borderline and poor food consumption category respectively. The ordinal logistic regression model revealed that independent variables namely, cash beneficiary household, livestock holding, female livestock ownership, income generating activities, total annual income and access to credit were found to be statistically significant predictor for household food security. Majority or 79% percent of the food insecure households have used emergency coping strategies to combat food shortage and meet their immediate needs. According to the average treatment effect (ATT) on treated, the cash intervention has a positive and significant influence on household food security status where the difference between treatment and control group is 14.7%. Based on the findings, the author recommends the cash support to be strengthened as medium solution, facilitate access to credit, creating employment opportunities to increase the total income of the household and enhancing the livestock production.

Key words: Food insecurity, determinants, coping mechanisms, cash transfer humanitarian support

CHAPTER ONE: INTRODUCTION

1.1. Background And Justification

While in the 1970s the term "food security" was used to refer to the availability of food, there was a significant shift in how it was conceptualized in the 1980s and 1990s, which is represented in the definition that was universally agreed upon at the 1996 World Food Summit. Food security is defined as the situation “when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO, 2009). According to Gerster-Bentaya (2013), food security is present when the whole population can have sufficient access to healthy food to act in response to fulfill their nutritional necessities.

Food security has been one of the highest priorities on the international development agenda at least since the hike in international food prices in 2007–2008. The number of people in the world affected by hunger continued to increase in 2020 under the shadow of the COVID-19 pandemic. UNICEF (2021) report shows that about one in five people (21 percent of the population) was facing hunger in Africa in 2020 – more than double the proportion of any other region. This represents an increase of 3 percentage points in one year. Moreover, it is estimated that between 702 and 828 million people in the world (corresponding to 8.9 and 10.5 percent of the world population, respectively) faced hunger in 2021. In 2021, there were 46 million more people affected by hunger than there were in 2020, and there were 150 million more people affected by hunger overall since 2019, before the COVID-19 pandemic (based on the middle points of the projected ranges, which reflect the additional uncertainty caused by the lingering effects of the pandemic) (FAO, 2022).

Food security is a sustainable development challenge particularly in developing countries. Estimates indicate that more than one billion people worldwide continue to live on less than $1.25 per day which 80 percent of this one billion is found in Sub-Saharan Africa (415 million) and South Asia (399 million) are in developing countries (Van Ittersum *et al*., 2016). Moreover, one in five people in Africa (20.2 percent of the population) was facing hunger in 2021, compared to

9.1 percent in Asia, 8.6 percent in Latin America and the Caribbean, 5.8 percent in Oceania, and less than 2.5 percent in Northern America and Europe (FAO et al., 2022). Given its current reliance on cereal imports, fast population increase, and sluggish agricultural productivity, Sub-Saharan Africa is the region most at risk of food insecurity. By 2050, the population will have increased 2.5-fold, and food demand will have tripled while the current grain consumption levels are already heavily reliant on imports (Van Ittersum *et al*., 2016).

Droughts are caused by low precipitation over an extended period of time. Atmospheric conditions such as climate change, ocean temperatures, changes in the jet stream, and changes in the local landscape are all factors that contribute to drought. Today's climate change, driven by increased emissions of heat-trapping gases, is playing a major role in the increasing severity of drought through its influences on both rainfall and evaporation (Noami, 2021). Other factors that can lead to drought include deforestation, overgrazing, and land use changes. These activities can reduce the amount of vegetation cover and increase soil erosion, which can lead to reduced water availability. Climate change can have major effects on food security as it can potentially reduce food production to the point where local populations are in danger of not having access to enough foodstuff at reasonable costs. Africa is widely regarded as a climate-vulnerable region (FAO, 2005), with forecasts indicating that warming will be more than the world yearly average, with an average increase of 3–4°C over the next century (Boko *et al.*, 2009). This climate change will reduce crop yields and in turn will increase the price of food that force people to change production and consumption patterns and directly will reduce calorie intake (EU, 2009).

Ethiopia is one of the most disaster-prone countries in Africa, with drought, floods and pest infestation frequently wreaking havoc on crop and livestock production. Drought risk remains one of the key drivers of food insecurity in Ethiopia. According to Woldeamlak (2009), once every 3 or 4 years is a drought year in Ethiopia. Integrated Food Security Phase Classification (2020) reported that 4 million people who entirely depend on *Meher* (Spring) production faced acute food insecurity and depend on humanitarian aid. Among these food insecure population, about 23 percent were found in Oromia region.

The scaling up of humanitarian cash assistance in recent years has been significant, with CVA increasing from USD 2.8 billion in 2016 to USD 6.3 billion in 2020, constituting one-fifth of international humanitarian assistance (Development Initiatives, 2021). Cash-based response gives the aid beneficiary more control of their life. It can help recipients gain dignity, autonomy, and the ability to prioritize their own needs. When consumers get in-kind commodities that do not match their needs, they frequently sell them, causing local markets to be distorted (OECD, 2017). The cash transfers (CTs) whether it is unconditional cash transfer or cash for work programme enables vulnerable households to meet their immediate needs while rehabilitating productive infrastructure.

To address food insecurity problem, the government of Ethiopia is taking a strong leadership role with programs that meet the varying needs of vulnerable households. It is making major investments and strides, particularly through its productive safety net program, and agriculture-led economic growth linked to improved livelihoods and nutrition has the potential to be a long-term solution to Ethiopia's chronic poverty and food insecurity. The fourth phase of the program (PSNP IV), which has commenced in July 2015, targeted about 8 million food-insecure households in eight regions (WFP, 2019). PSNP, as a food security, social protection, and development program, provides a range of services that aim, improving food and nutrition security, and helping households become food self-sufficient while strengthening resilience among the target communities. In addition, different humanitarian patterns like NGOs and UN agencies are also supporting the food security situation with cash based responses.

In 2019, FAO has piloted shock-responsive cash transfer using the scalability approach of the social protection system in Meiso woreda of Oromia Region so that beneficiaries can meet their immediate needs and invest in productive activities. This shock responsive pilot work includes transfer of cash to beneficiaries in the project target woredas.

1.2. Statement of the Problem

In Ethiopia Food insecurity is rampant and undermine the asset background and response capacity of the wider community and individual households. Conflict and climatic shocks contribute to elevated emergency needs and population displacement in Ethiopia, according to the country's 2020 Humanitarian Needs Overview. As per the 2022 Humanitarian Response Plan (HRP), more than 20 million people are estimated to need humanitarian assistance in Ethiopia where nearly three quarters of them are women and children. In West Haraghe zone, out of the 450,068 people that are food insecure, 21,941 are found in Meiso woreda (NDRMC, 2022).

With the PSNP program, the Ethiopian government offers financial assistance to chronically food-insecure households for six months allowing these households to strengthen their resistance to shocks like drought or an increase in food prices, which typically result in food emergencies requiring enormous financial assistance. The woreda is covered by PSNP where its 30 kebeles are included. According to FAO (2019), the woreda has 33,480 PSNP 4 beneficiaries and 19,698 humanitarian beneficiaries in 2019. Moreover, the woreda informants have indicated that 37 percent of the woreda population were supported by PSNP and relief programmes. In 2019, FAO has piloted a project in Oromia Regions that aimed at strengthening the Productive Safety Net Programme (PSNP 4). As part of the strategy to pilot an improved shock-responsive social protection system in selected Woredas, the project implemented cash transfer to PSNP beneficiaries using the PSNP delivery system for the targeting and the cash value. As part of strengthening the shock responsive social protection system and in order to fine-tune the associated methodology and tools, the project recommended a new livelihood transfer approach and value entailing the provision of USD 300 instead of USD 200 as Livelihood grants to PSNP clients. For Oromia region, 800 drought-affected HHs in 14 kebeles of Meiso woreda were supported with the cash so that the beneficiaries will meet their immediate needs and invest in productive activities.

Studies conducted in different countries have shown the impact of the cash transfer on household food security. For example, according to a comprehensive global review by the Department for International Development of the United Kingdom, about half the value of a cash transfer is spent

on food where the impact varies depending on the duration over which the transfer is received, age of the recipient, and size of the transfer (Arnold *et al*., 2011). Moreover, Cunha et al. (2018), indicated that the cash transfer increases available resources where the total food share of the household budget declines almost three percentage points, indicating that households are moving along the food Engle curve, as would be predicted after a gain in income.

A study conducted in Ethiopia on beneficiary views on cash and in-kind payment shows that the overwhelming majority of the beneficiary households stated that they prefer their payments only or partly in food. However, these preferences are neither homogeneous nor stable. Higher food prices induce shifts in stated preferences towards in-kind transfers but more food secure households, those closer to food markets and to financial services are more likely to prefer cash (Hirvonen and Hoddinott, 2021). According to the post distribution assessment conducted CARE Ethiopia in Somali and Borena zone of Oromia region, it is evident that cash response was relevant to the need of the target beneficiary which helped the beneficiary to meet their immediate need. Moreover, the study found that the cash support improved the access to safe water, sanitation and hygiene facilities, increased the food security and dietary diversity, reduced the negative coping strategies, and enhanced the protection and dignity of the beneficiaries (CARE, 2021). Study conducted in East and West Wollega zones of Oromia region to assess the feasibility of CVA for addressing the needs of IDPs and host communities in East and West Wollega zones of Oromia region, found that CVA was feasible and appropriate for meeting the basic needs, supporting livelihoods, and strengthening social cohesion of the affected population (IOM, 2021).

Though, different assessment, monitoring and evaluation missions were conducted to follow up the implementation of the cash interventions, to the knowledge of writer of this article, the impact of the cash transfer on household food security status in Meiso Woreda has never been investigated. Therefore, this paper aims to assess the impact of the cash support to drought affected Households' food security and identify the coping strategies that the drought affected households used to meet the food gap in Meiso Woreda. and coping strategies of Meiso woreda.

1.3. Objectives

1.3.1. General Objective

The general objective of this study was to assess the impact of cash support to drought affected households' food security in Meiso Woreda, Oromia Region

1.3.2. Specific Objectives

The specific objectives of the research are to:

- describe FAO case support practices to drought victim households
- determine the magnitude of household food security and food coping response of drought affected households,
- identify the determinant factors of household food security
- analyze the impact of cash support to drought affected household's food security

1.4. Research Questions

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

1. What is the magnitude of household food security in the research area?
2. What are the key determinant factors of household food security?
3. What level of coping strategies did the insecure household used to meet the food gap?
4. How does the cash support the household food security?

1.5. Significance

Food insecurity in Meiso is a contemporary issue that requires immediate attention. The aim of the study is to analyze whether the cash support has contributed to reduce household food insecurity status. Identifying the impact of the cash support, outlining which coping mechanisms people has employed to deal with drought and Early Actions suitable to curb negative coping mechanisms

will guide mainly decisions makers to select better approaches and allocate resource efficiently to improve the livelihood of the household or a community mainly in the longer term and design appropriate development programme. The research's findings would also enrich the limited research done so far on the impact of cash on the household food security status. Furthermore, the research findings will also be useful for policymakers as they require information to formulate suitable policies with regard to the major factors that contribute to the household food insecurity status.

1.6.Scope of the Study

The study is primarily focus on assess the impact of the cash support on the drought induced household food security and coping strategies in Meiso woreda in Oromia region. Accordingly, the nature of cash support, household food security status, food coping responses will be assessed in a representative sample kebeles. Data will be collected from sample cash support beneficiaries and non-beneficiaries' households, key informants and stakeholders.

1.7.Limitation

Food security is a complex issue and hence, could be caused by socio-cultural, economic and demographic factors. However, due to time and resources constricts this study is limited to assess the status of household food security based on cash support. There may be social desirability bias and recall bias that might have affected this study. To minimize recall bias, the study has used multiple food security analysis including tool which use one-month duration such as HFIAS, one-week duration CSI & FCS. The participants were given a thorough explanation of the study's objectives in order to reduce social desirability bias.

1.8. Structure of the study

This thesis is composed of five chapters. Chapter one deals with introduction, statement of the problem, objectives, research question, significance, scope of the study and limitations, while chapter two presents the literature review. In the third chapter, methods of data collection, data analysis sample size determination and sampling techniques were discussed. Chapter four presents the findings of the study and discussion and finally chapter five propose conclusion and recommendation.

CHAPTER TWO: REVIEW OF LITERATURE

2.1.Conceptual Foundation

Food security is a multidimensional, multifaceted phenomenon. Its definition and conceptualization have changed significantly in recent decades (Burchi and De Muro, 2016a). While during the 1970s food security was a synonym for food availability, during the 1980s and 1990s, there was a radical shift in its conceptualization, reflected by the widely accepted definition given at the 1996 World Food Summit. This definition was slightly revised in 2001, when food security was defined as: 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. (FAO, 2001). Household food security is the application of this concept to the family level, with individuals within households as the focus of concern. A common framework utilized by scholars to highlight the different dimensions of food security is a four-tier categorization–availability of food; access to food, which refers to the ability of households to obtain food from the market or own production or gifts; utilization of food; and stability, which is the ability of households to withstand risks and shocks that erode any of the other three dimensions (Webb *et al*., 2006)

Food insecurity may be chronic or transitory. Chronic food insecurity is characterized by a lack of proper diet and nutrition as a result of the household's inability to obtain food. Chronic food insecurity affects households that are unable to buy food or generate their own food on a regular basis. Poverty is at the foundation of chronic food insecurity (Sen, 1981). On the other hand, transitory food insecurity results from a temporary decline in household access to food mainly due to instability in food prices, production, household income or a combination of these factors (Reutlinger and Holst, 1986).

Cash-based response is the use of cash or vouchers as a means of enabling households to meet their basic needs for food, non-food items and/or services or to buy assets essential to resume economic activity. CTs can immediately boost economic access to food. They provide extra income to targeted individuals that could be used directly to increase food consumption, and in particular calorie intake. It can also boost food consumption indirectly, by impacting on other means for food security. Having a regular, predictable income may influence decisions taken by

household members about their participation in the labor market, as well as their labor productivity. Households adopt various behavioral and material responses to cope with during food shortage crises, notably transitory food insecurity. Household responses involve trade-off between and within various coping options. In other words, different households within a community stand at different points along the continuum and their response to threat varies depending on their resource endowment, access to community support and access to public intervention (Webb and Von Braun, 1994). The different coping strategies behaviors used by households in an emergency are used to estimate the severity of food insecurity.

2.2.Theoretical Related Literature

There have been so many theories proposed to explain about food insecurity. The major theories considered in this study are Food Entitlement Decline (FED) and Sustainable Livelihood Framework.

Food Entitlement Decline model was developed by Sen Amartya (1981). As Sen argues the mere presence of food in the economy or in the market does not entitle a person to consume and famine could persist without aggregate availability decline. Sen profoundly believes that it is access to food that plays a crucial role in securing command over food. The food entitlement decline theory of food security shifts the causes of food insecurity from supply side factors to demand side factors. This theory claims that food security depends on household access to food. The main impact of the cash support is to enhance the household's access to food through boosting the purchasing power as well as contributing to building sustainable livelihoods. According to Ejiga (2006), endowments are classified as tangible resources such as land, animals, machinery, water resources, trees, forests and common property resources; and intangible resources include labor power, skill and the rights attached to membership in a community.

The sustainable livelihoods approach is a holistic approach that tries to capture, and provide a means of understanding, the fundamental causes and dimensions of poverty without collapsing the focus onto just a few factors (e.g. economic issues, food security, etc.). It enables to identify and

understand a multiple of natural, cultural, social, economic, and political factors that enhance or constrain peoples living situation in general and household food security in particular; and it offers more attention and priority on human environment. It is used to understand the sustainability of the quality of life and food security of the poor and recognizes the complexity, diversity and continuous change of people's activities and their strategies over time.

2.3. Empirical Related Literature

Different literatures indicate the impact of climate change on food security and malnutrition is highest among Sub Saharan African Countries where most of the population depends on climate sensitive Agro economic activities. Ethiopia has made important development gains over the past two decades, reducing poverty and expanding investments in basic social services. However, food insecurity and undernutrition still hinders economic growth. As per the 2021 Humanitarian Response Plan (HRP), an estimated 12.9 million people are food insecure (NDRMC and OCHA, 2021). Ethiopia is a country with a population of over 110 million, of which about 80 percent is engaged in subsistence farming in rural areas (CSA, 2017).

Empirical evidences have also shown that many factors are responsible for household food insecurity. For instance, a case study conducted in Dire Dawa in 2003 investigated family size, annual income, amount of credit received, irrigation use, age of household head, status of education, cultivated land size, livestock ownership and number of ox owned to be the most determinants of food insecurity (Abebaw, 2003). In addition, a study conducted in Oromia has shown family size, number of oxen owned, use of chemical fertilizer, size of cultivated land, farm credit use, total annual income per adult equivalent, food consumption expenditure, livestock owned and off-farm income per adult equivalent to be the major causes of food insecurity (Tesfaye, 2005). Moreover, a study conducted in Fedis woreda of Oromia region shows that having larger number of family size, owning a large size farmland and earning a better income from off-farm income have increased the chance of being food secure household (Mulugeta *et al*., 2018)**.**

According Arnold et al. (2011), about half the value of a cash transfer is spent on food. Impacts vary depending on the duration over which the transfer is received, age of the recipient, and size of the transfer. In Malawi, Miller et al. (2011) demonstrate large effect sizes that are statistically significant on food expenditure, consumption, food adequacy, and diet diversity. These large effect sizes are explained in part by the size of the cash transfer, which on average accounted for sixty percent of per capita total household expenditure. Moreover, study conducted by Daidone et al. (2019) indicates that participation in a cash transfer programme led to an increase in food expenditure of 10 to 30 per cent in Zambia, Kenya and Malawi, a part of which was spent on significantly larger amounts of animal-based foods, particularly meat and dairy, contributing to increased dietary diversity among beneficiaries.

Burchi et al. (2018) reported that CTs also affect agricultural and other income-generating activities to diversify their incomes and hence reduce their vulnerability to external shocks. They often represent a significant share of household income, and most beneficiaries live in rural areas, where they depend on subsistence agriculture and where markets for financial services (e.g., loans and insurance), labor, goods, and inputs are either nonexistent or do not function well. The findings also show that the impacts of cash transfers on livestock ownership/purchase, agricultural productive assets, purchase/use of agricultural inputs and savings were statistically significant.

Cunha et al. (2018), indicated that the cash transfer increases available resources where the total food share of the household budget declines almost three percentage points, indicating that households are moving along the food Engle curve, as would be predicted after a gain in income. Among beneficiary children, there was an 8.2 percentage point increase in parents feeding their children (ages 6 to 60 months) eggs and a 6.9 percentage point increase in dairy as well as some indication of greater frequency of meat and fish consumption (although not precisely estimated) during the previous week compared with children in non-program villages. Moreover, Cunha et al. (2018) documents price increases in local markets from a cash infusion into the local economy. The average price increases are modest and do not affect purchasing power but are significantly larger for remote communities, where prices of basic food goods increase on the order of 6 percent. Similarly, Doen et al. (2018) shows that the cash influx increased aggregate income in the treatment villages by 9 percent. This increase in cash resources did not affect the prices of storable

and easily traded food goods but increased the local prices of protein-rich perishable foods, such as eggs and fresh fish, by 6 to 8 percent. Bastagli et al. (2016) reported that there is strong empirical evidence of short-term impacts of cash transfer programs, including impacts on monetary poverty, education, health, and nutrition, but that evidence is weaker for longer-term outcomes.

Subramanian and Deaton (1996) find that food expenditure elasticity with respect to total expenditure is driven by elasticity of calories and the elasticity of price of calories in equal measure. So, “A 10% increase in food spending is connected with a 5% increase in calorie consumption and a 5% rise in the price paid per calorie," according to the study. To put it another way, as people's money rises, they tend to replace less expensive, coarser foods with more expensive, refined calories that taste better. Nielsen and Olinto (2007) estimate the impact of conditional cash transfers in Nicaragua and Honduras on three kinds of private transfers: remittances, food transfers, and food/money donations from NGOs. They find no effect on remittances in either country but an impact on food transfers in Nicaragua.

CTs can influence food security outcomes is women’s empowerment and an improvement in household decision-making processes. Women’s larger access to economic resources can ensure more investments in productive activities, thereby increasing household income. Even more important may be the impact of women’s economic empowerment on the intra-household distribution of resources (Van den Mold, *et al*., 2013).

FAO has provided 4,500 drought-affected pastoral households in the Somali region of Ethiopia with unconditional cash transfers to meet their immediate needs and invest in productive activities. The findings show that the cash transfers have helped to improve food security, restore livelihoods, and minimize the need to resort to negative coping mechanisms through enabling the beneficiaries to purchase the goods and services they need most (FAO, 2020). When CTs are made in a regular fashion, they may help households to overcome obstacles they encounter in accessing loans and thus improve the accumulation of productive assets (Asfaw, *et al*., 2014).

2.4. Conceptual Framework of the Study

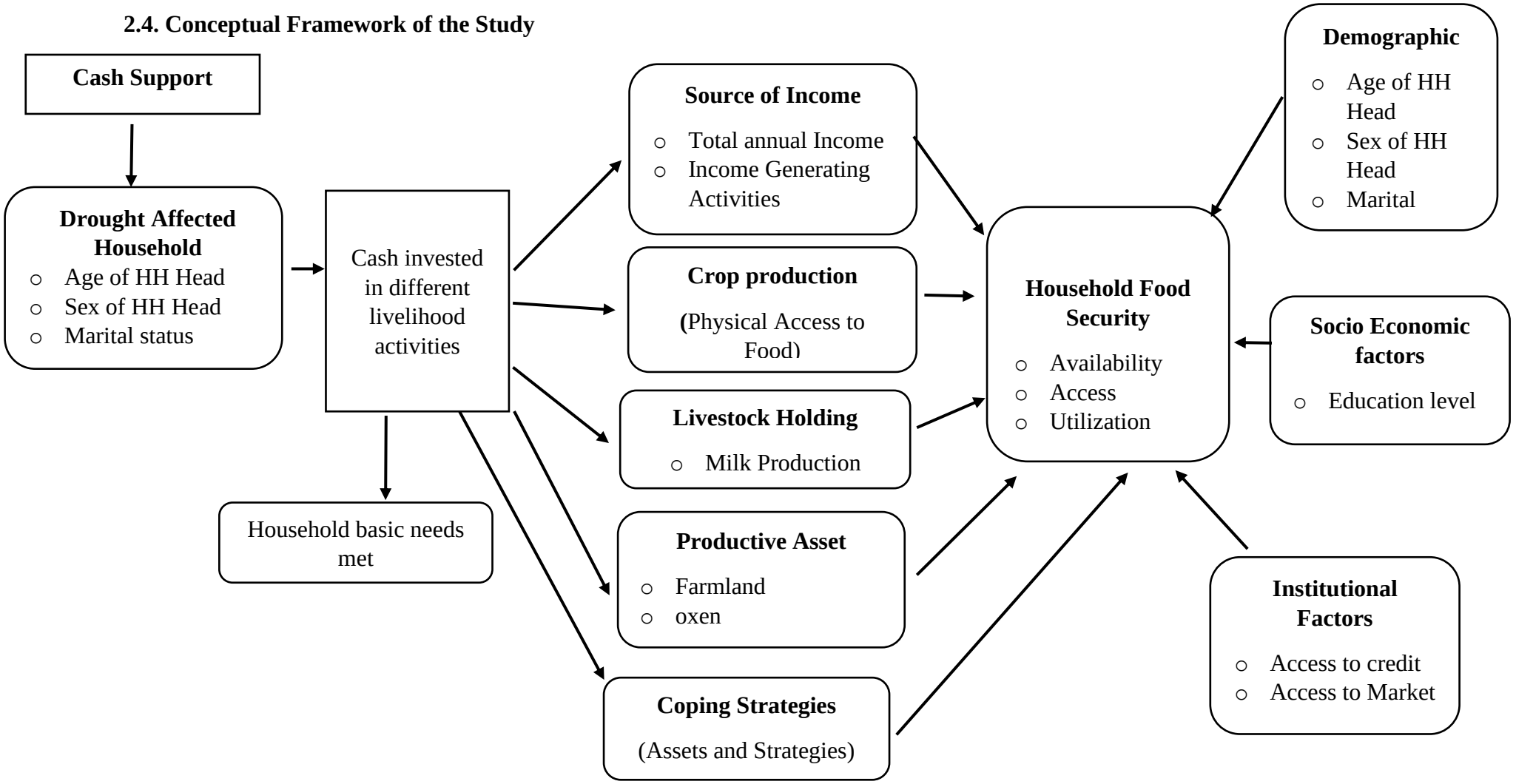

Figure 1:Conceptual Framework

Adopted from Integrated Food Security Phase Classification Analytical Framework (2019)

CTs provide extra income to targeted individuals that could be used directly to purchase food and also enhance the access to market. CTs also affect agricultural and other income-generating activities, often represent a significant share of household's income live in rural areas. As result it can immediately boost economic access to food.

The presence of more and better agricultural assets helps in turn to raise crop production. Burchi et al. (2018) shows the impact of Cash transfers on livestock ownership/purchase, agricultural productive assets, purchase/use of agricultural inputs and savings were statistically significant. These will directly affect the food availability through production.

When not anchored to conditionality's, CTs have hardly any direct impact on the utilization dimension of food security. However, they may have an indirect effect through access to health services: if people use health services more often thanks to the CTs they receive, they are exposed to more information on nutrition and health.

CHAPTER THREE: DESCRIPTION OF THE STUDY AREA, RESEARCH DESIGN AND METHODOLOGY

3.1.Description of the Study Area

Meiso Woreda is one of the woreda in the Oromia Region's West Hararghe zone. It is located at 9.23333°N, 40.75°W and has a height of 1394 meters above sea level. The woreda is located 400 Km east of Addis Ababa on the high way to Dire Dawa. Meiso woreda borders with Afar Regional State and Somali Regional States. The altitude of Meiso ranges from 1107 to 3106 meters above sea level. The total land area of the woreda is 196,026 ha of which 22,487ha (~12 percent) are considered suitable for agriculture (Abebe, 2011). This shows that the area is much of a range land where livestock rearing is a major activity. Agro ecologically, the woreda is classified as Kolla (lowland). Based on the digital data, mean annual temperature is around 21^0C, while average annual rainfall is between 635 and 945 mms. The area receives a bimodal rainfall where the small rains are between March and April while the main rains are between July and September

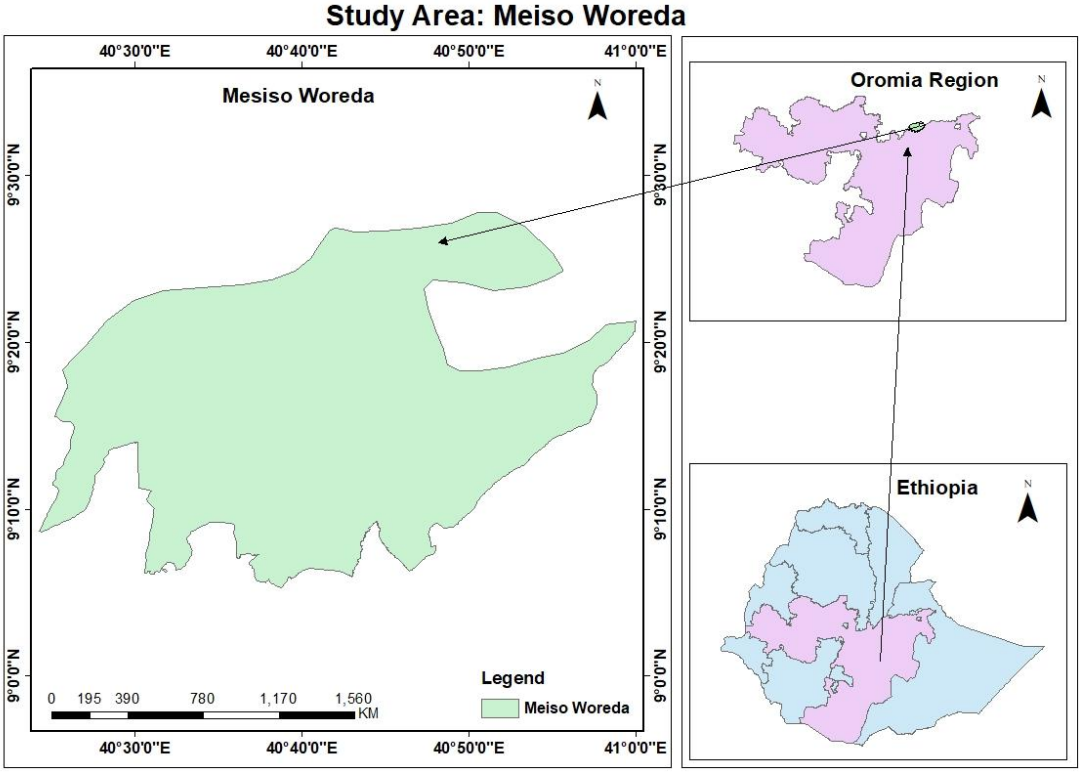

Figure 2: Map of the Study Area

Source: Drawn by the researcher using ArcGIS

3.2.Research Design

The study used both descriptive and explanatory research designs to determine the magnitude of food security status of the household, identify the coping strategies employed and explain the impact of cash support on household food security status. The research used both quantitative and qualitative research approaches to gather and analyze data. From the quantitative research approach, data such as household socioeconomic and demographic characteristics, key livelihood activities for which cash support was used, coping strategies employed, and data on household food intake were collected. The qualitative research approach was used to analyze the intervention's perception, the impact of the support on household food security status, and significant areas for future improvements.

3.3.Research Methods

3.1.1. Sampling Technique and Sample Size

Sampling Technique

In order to have representative sample household, a multi-stage sampling technique was used. In the first stage, Meiso Woreda was selected purposively on the basis of food security situation and Cash support interventions. In the second stage, for the treatment group, three kebeles from the total 14 kebeles that received cash support were selected purposively on the basis of probability of having high number of beneficiaries, having a comparable comparison group sharing similar characteristics, accessibility and minimal security risks. Then the sample size was distributed proportionate to the size of each kebele's population. Similarly, for the comparison group, three kebeles that have similar characteristic to the Cash supported kebeles were selected purposively. Then to do comparison, the same sample size with that of treatment group was used but for the distribution, it was done proportionate to the size of each kebele's population. In the third stage, Households from the selected kebeles were selected randomly. This is because, according to Creswell (2012), this sampling technique is rigorous and gives individuals equal probability of being selected from the population. Hence, sample findings can be generalized.

For the qualitative approach, a purposive sampling technique were used to explore more information from a specific and relevant institutions. For this, a total of six Focus Group Discussion and three Key Informant Interview were conducted.

Sample Size

For the Cash Supported kebeles (Treatment group)

In order to decide the sample size, Yamane (1967) formula was adopted as presented below: where n sample size; N Total population of the three kebeles that received cash in Meiso Woreda and e maximum variability or margin of error 5% (0.05), 1=probability of the event occurring.

N = As per the list of the beneficiaries, the total population of the three kebeles that received cash in Meiso Woreda is 188 HHs,

$$n = \frac{N}{1 + N(e)^2}$$

e = 0.5

Based on the above sample size determination calculation, 128 sample households were obtained for the treatment group. To provide for the likely non-response, 10% of the total sample size that i.e. 13 respondents have served as reserve respondents. Hence, the total sample size for the Cash supported kebeles (Treatment group) were 141 respondents.

For the Non- Cash Supported kebeles (Comparison group)

Same sample size that was allocated for the Cash supported kebele was used to do comparison. As result, total sample size for the comparison group was 141 HHs as well. Considering both the cash supported and Non – cash supported sample size, the subtotal sample size was 282 respondents.

Table 1: Number of Sampled Households per Kebele

Kebeles	Number of Sample Households from Beneficiary group	Number of Sample Households from Non - Beneficiary group
Takuma	38	0
Sodoma Misira	52	0
Gulufa	51	0
Denba hunde	0	15
Orfo	0	14
Oda Keneni	0	27

Source: Information obtained from study Woreda and own computation result, 2022

3.1.2. Data Sources and Tools

Source: Information obtained from study woreda and own computation results, 2022

Both primary and secondary data were collected. Household survey was the main technique used to generate the primary data. To enrich the cross-sectional household level survey of the primary data, the researcher also applied secondary data that was collected from published and unpublished documents from different partners including Government, NGOs and UN Agencies.

For the qualitative approach, field observations, key informant interviews and Focus Group Discussion were used while for the quantitative approach, questionnaire was mainly used.

Household Survey: Questionnaire based household surveys with 282 sample households was conducted in the study area. Questionnaire survey was conducted using Kobo tool which is a free open-source tool for mobile data collection. Eight enumerators were selected from the woreda who knows the local language as well as the context to collect the data. One-day training was provided to enumerators and then pre- test was conducted on 20 households in one of the kebele that is not selected in the sample size. After essential correction was made based on the feedback obtained from the pretest, sampled households were interviewed to collect data related to demography, socioeconomic, food security situation and coping strategies used when respondents had no food or have not had enough money to buy food.

Key Informant Interview: key informant interview was conducted to generate additional information that is not addressed by the questionnaire and to support the quantitative data. For this, three key informant interviews were carried out with the head of Meiso Woreda Agriculture, with head of Meiso woreda Disaster Risk Management office and CARE Ethiopia which is implementing on food security and livelihoods interventions. The key informant interviews were conducted to assess the impact of cash support to the drought affected household food security status to enrich the quantitative results.

Focus Group Discussion (FGD): Six FGDs were conducted, one in each of the six chosen kebeles, with participation from at least eight male and female headed households from both beneficiary households and non-beneficiary groups. Topics related to causes of food insecurity, the effects of program in enhancing households' food security status, perception of participant and non-participant towards the intervention, targeting and key activities the cash invested on were discussed and the required information was collected. This method was used to check the reliability of the data collected through survey questionnaire and key informant interviews.

Secondary Data Review: A desk review of related literature was collected to understand previous works done cash support impact on the household food security status. Books, journal articles, reports, reviews, working papers, guidelines, dissertations, and internet sources were reviewed.

3.1.3. Data Analysis Methods

Both Descriptive and Inferential statistics were used to analyze the collected data. In descriptive statistics, measures of central tendency (mean, median and mode) and measure of dispersion (variance and standard deviation) was calculated. Inferential statistics such as chi-square test (for categorical variables and t-test (for continuous variable) were applied. For the qualitative data (that would be obtained through key informant interview, focus group discussion and desk review) the analysis was done using interpretative analysis focusing on providing meanings and explanations to the perceptions of the informants to dig out issues under investigation.

Objective No. 1.: Describing FAO case support practices to drought affected households which was done using descriptive statistical method qualitatively**.**

Objective No. 2: Determining the magnitude of household food insecurity and food coping response of drought affected households.

For this paper, Household food security was determined using Household Food Insecurity Access Scale and Food Consumption Score.

Food Insecurity Access Scale Score (HFIAS): provides a simple and user-friendly approach for measuring the impacts of development food aid programs on the access component of household food insecurity. HFIAS is a continuous measure of the degree of food security (access) in the household in the past four weeks (30 days). Based on the analysis of HFIAS households or respondents can be categorized into four levels of household food insecurity (access): (1) food secure, (2) mild, (3) moderately and (4) severely food insecure. HFIAS scores will be calculated for each household based on answers to nine frequency-of-occurrence questions designed to capture different components of the household experience of food insecurity in the previous four weeks. The higher the score, the more food insecurity (access) the household experienced. The lower the score, the less food insecurity (access) a household experienced. The maximum score for a household is 27 (the household response to all nine frequency-of-occurrence questions was “often”, coded with response code of 3); the minimum score is 0 (the household responded “no” to all occurrence questions, frequency-of-occurrence questions were skipped by the interviewer, and subsequently coded as 0 by the data analyst).

Table 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

Source: FANTA and USAID (2007)

Food Consumption Score (FCS)

It is an index that was developed by the World Food Programme (WFP) in 1996. It is a composite score based on dietary diversity, food frequency, and relative nutritional importance of different food groups. Food items are grouped into nine standard food groups with a maximum value of 7 days/week. To calculate FCS, group food items in the specified food group, sum all the consumption frequencies of food items within the same group, multiply the value of each food by it weight then sum the weighted food group scores to obtain FCS finally determine the household's food consumption status. For instance, food groups containing nutritionally dense foods, such as animal products, are given greater weight than those containing less nutritionally dense foods, such as tubers.

Based on this score, a household's food consumption can be further classified into one of three categories: poor, borderline, or acceptable using thresholds: 1-28: poor; 28.5-42: Borderline; >42: Acceptable. The food consumption score is a proxy indicator to measure caloric intake and diet quality at household level, giving an indication of food security status of the household if combined with other household access indicators.

Reduced Coping Strategy Index (RCSI):

When livelihoods are negatively affected by a shock /crisis, households may adopt various mechanisms (strategies) which are not adopted in a normal day-to-day life, to cope with reduced or declining access to food. Coping Strategy Index (CSI) is often used as a proxy indicator of household food insecurity and is thought to be most useful in early onset crises when households change their food consumption patterns to respond to shocks, but not in protracted emergencies when households are likely to have already exhausted some coping mechanisms.

Maxwell D, (2008) pointed out that there are four sets of coping strategies that the households practice when they face food insecurity and don't have money or any other resources to buy food. The first one is households may change their diet for preferred food to less preferred substitutes. Second option is attempting to increase supplies to using short term strategies such as borrowing, begging, consuming wild foods and the like. Third option is to reduce the number of people that they have to feed by sending some of them to other relatives or neighbors. The fourth and the most common is managing the shortfall by rationing the food available to the household through such actions cutting portion size, the number of meals, favoring certain household members over others, or skipping the whole day without eating (Maxwell, 2017). There are no universal thresholds for RCSI. But the higher the RCSI, the more severe the coping is applied by a household. First, each of the five strategies is assigned a standard weight based on its severity. These weights are: Relying on less preferred and less expensive foods (=1.0); Limiting portion size at meal times (=1.0); Reducing the number of meals eaten in a day (=1.0); Borrow food or rely on help from relatives or friends (=2.0); Restricting consumption by adults for small children to eat (=3.0). Household CSI scores are then determined by multiplying the number of days in the past week each strategy was employed by its corresponding severity weight, and then summing together the totals. Based on the country's context, the total CSI score is the basis to determine and classify the level of coping: into three categories: No or low coping (CSI= 0-3), medium (CSI = 4-9, high coping (CSI ≥10).

Objective No. 3: Identifying the determinant factors of household food insecurity

Ordinal Logistic Regression Model

The other model employed in the research was ordered logit. This is used to identify the determinants of food security. In this variable has four outcomes hence the ordered logit categories dependent variables in to four 0, 1, 2, and 3. 0 Food secured, 1 for mild food insecure, 2 moderate food insecure and 3 severe food insecure according to (Stata. C, 2013) the model whereas follow

Where y(x) = status of food security condition of farm household

The ordered logit model is used to predict an ordinal dependent variable given one or more independent variables. Ordinal regression was enabling us to determine which of our independent variables (if any) have a statistically significant effect on our dependent variable. The following Assumptions checked. The dependent variable is measured on an ordinal level. The four independent variables are categorical or ordinal, Non multi-collinearity while, the independent variables are highly correlated with each other, proportional odds i.e. that each independent variable has an identical effect at each cumulative split of the ordinal dependent variable (Gujarati, 2004).

The order Logit model becomes for each category or order =ß0+ß1 sex + ß2 age + ß3 marital +ß4 education + ß5 livestock holding + ß6 distance to market + ß7 access to credit + ß8 engagement in IGA + ß9 total annual income + ß10 protection of productive asset + ß12 cash support + Ui

Where: ß0 = Y-intercept

ß1, ß2 ---------- ß are the slopes of the equation in the model

U = disturbance term/Error term

For this analysis post-estimation test were done after logistic regression. In order to test the existence of multi-collinearity, both continues and discrete explanatory variables were checked using Variance Inflation Factor (VIF). This statistical analysis indicates that there is no strong association among the variables. As a rule of thumb, if the VIF of a variable exceeds 10 that variable is said to be highly collinear and it can be concluded that multi-collinearity is a problem (Gujarati, 1995). And also, link test and goodness -of- fit test was calculated to auto correlation and appropriateness of data with model.

Marginal effect

The marginal effect of a predictor in a categorical response model estimates how much the probability of being food secured being the predictor variables changes as the predictor change. For a continuous predictor, the marginal effect is a partial derivative of the probability of being food secure respect to the predictor of interest. For a binary categorical predictor, it is the change in event probability when the predictor is changed between its levels. A measure of the overall effect of the predictor is the Average of the Marginal Effects (AME). It is also evident that there might be interaction among qualitative variables, which could lead to the problem of multi-collinearity. To detect this problem, contingency coefficients were computed for each pair of qualitative variables.

The Coping Strategy Index (CSI) is applied to analyze the main household coping strategies to food shortage. The idea of using this indicator is point out the most practiced coping strategy in the study area whenever food shortages occur.

Objective No. 4: Analyzing the impact of cash support to drought affected household food security

A propensity score matching method was applied to assess the impact of cash support on households' food security status.

Propensity Score Matching model (PSM): PSM is a quasi-experimental method in which the researcher uses statistical techniques to construct an artificial comparison group by matching each treated unit with a non-treated unit of similar characteristics. Based on Rosenbaum and Rubin (1983), propensity score can be defined as the conditional probability of receiving a treatment given pre-treatment characteristics. Let YiT and YiC are the outcome variable for participant's who received cash support and those that didn't receive the cash support respectively. The difference in outcome between treated and comparison groups can be seen from the following mathematical equation:

$$\Delta = Y_i^T - Y_i^C$$

Y_i^T : Outcome of treatment of the i^{th} household, when he/she is participant,

Y_i^C : Outcome of the non-participant individuals of the i^{th} household when he/she is non beneficiary

Δ_i : Change in the outcome as a result of participation in cash intervention or being a beneficiary household for the i^{th} household.

Let the above equation be expressed in causal effect notational form, by assigning $D_i = 1$ as a treatment variable taking the value 1 if the individual received the treatment and 0 otherwise. Then the Average Treatment Effect (ATE) of an individual i can be written as:

$$ATE = E\left(Y_i^T \mid D_i = 1\right) - E\left(Y_i^C \mid D_i = 0\right)$$

Where, ATE (Average Treatment Effect) is the effect of treatment on the outcome variables:

$E\left(Y_i^T \mid D_i = 1\right)$: Average outcomes for individual, with treatment, if he/she would be participant $\left(D_i = 1\right)$.

$E\left(Y_i^C \mid D_i = 0\right)$: Average outcome of untreated, when he/she would be non-participant, or absence of treatment $\left(D_i = 0\right)$.

The Average Effect of Treatment on the Treated (ATT) for the sample households is given:

$$ATT = E\left(Y_i^T - Y_i^C \mid D_i = 1\right) = E\left(Y_i^T \mid D_i = 1\right) - E\left(Y_i^C \mid D_i = 1\right)$$

The fundamental evaluation problem in estimation of impact is that it is impossible to observe a person‘s outcome for with and without treatment at the same time, while the post-intervention outcome is $E\left(Y_i^T \mid D_i = 1\right)$.

$E\left(Y_i^T \mid D_i = 1\right)$ is possible to observe, however, the counterfactual outcome of the i^{th} household when she/he does not use the treatment is not observable in the data. Thus, estimation of ATE can give a seriously biased result, due to the fact that the population can differ among the comparison group, not only in terms of treatment status, but even

in terms of other characteristics: this problem is often referred to as the fundamental problem of causal inference. Thus, simple mean comparison between the treated and non-treated can be misleading yet taking the mean outcome of non-participants as an approximation is not advisable, since participants and non-participants usually differ even in the absence of treatment (Caliendo and Kopeinig, 2008). A solution to this problem is to construct the unobserved outcome which is called the counterfactual outcome that households would have experienced, on average, had they not participated (Rosenbaum and Rubin, 1983), or a beneficiary's outcome in the absence of the intervention would be its counterfactual and this is the central idea of matching. To mention some of the recent studies that applied PSM in program evaluation, Gilligan and Hoddinott (2006) have used a PSM technique in their study on ―Is there Persistence in the Impact of Emergency Food Aid? Evidence on Consumption, Food Security, and Assets in Rural Ethiopia. Moreover, Mendola (2007) also applied a PSM technique to evaluate the impact of agricultural technology on household poverty in rural Bangladesh. The study found that the adoption of high yield variety of rice has a positive impact on farm household wellbeing.

The main pillars of PSM in this study was the randomly selected households and the treatment (cash transfer). The idea is to match households that received cash support with that of a comparison group (households that are not supported with the cash support) sharing similar observable characteristics. Then, the mean effect of cash support was calculated as the average difference in outcome variables between cash supported and non-cash supported i.e. the impact is the change in the outcome indicators. Likewise, both qualitative and quantitative outputs of the analysis will be systematically presented, tabulated and triangulated for better understanding.

3.4.Ethical Consideration

In this research, thorough attention was given to meet basic ethical principles. To secure approval of the research participants and concerned administrative structures in the study area during data collection, an introductory letter from Addis Ababa University was used. Then a verbal approval was obtained from Meiso Woreda office before going to each kebeles. Finally, after explaining the purpose and process of the research to the study subjects, informed consent was obtained from participants of each household. The confidentiality of participants' response was maintained.

CHAPTER FOUR: RESULTS AND DISCUSSION

This chapter presents and discusses the results of the study. The Data collected on demographic and household characteristics analyzed using descriptive and inferential statistics like means, standard deviation and mean differences. The first section of the chapter presents the descriptive results of the demographic, socioeconomic and households characteristics of the study, the second section shows household food security status measured by HFIAS and FCS and the coping mechanism applied by the household using reduced coping strategy index, the third section discusses the determinants of food security status while the last section discusses the impact of cash on household food security status.

The cash intervention has supported a total of 800 beneficiary in the 14 kebeles of Meiso woreda. Looking at the sex disaggregation, 69% (549 HHs) were Male headed HHs while the remaining 31% (251 HHs) were Female headed HHs.

Out of the total sample size of 282 HHs, a total of 280 households have participated (99%) with 2 non response. A total of 141 HHs from Cash beneficiary and 139 from Cash non-beneficiary households were interviewed in six kebeles. From the beneficiary households, 35% (50 HHs) are female headed HHs while 65 % (91 HHs) are Male headed HHs. From the non-beneficiary households, 34% (47 HHs) are Female headed HHs while 66% (92 HHs) are Male headed HHs. The average age of the household is 43 while the minimum is 18 and the maximum is 79 years. Looking at the beneficiary households, the average age of the household is 41 while the minimum is 20 and the maximum is 78 years.

From the total of respondents in the study, 248 (88%) were married, 3(1%) were single, 6(2%) were divorced, 2(1%) were separated, and 21 (8%) were widowed. Among these, from beneficiary households, 114 (81%) are married, 3(2%) were single, 6(4%) were divorced, 2(2%) were separated, and 16 (11%) were widowed.

About 211(75%) participants don't have education, 15 (5%) participants had Adult education/can read and write, 50(19%) participants had primary education and 4 (1%) had secondary education. Among these, from beneficiary households, 116 (82%)

participants don't have education, 5(4%) participants had Adult education/can read and write, 17(12%) participants had primary education and 3 (2%) had secondary education.

Table 3: Demographic and Socioeconomic Characteristics for Dummy Variables

Name of the variables	**Category**	**Beneficiary HHs (N = 141)**		**Non Beneficiary HHs (N = 139)**		**Chi2 -value (probability)**
		Frequency	**%**	**Frequency**	**%**	
Sex	Male	91	65	92	66	0.211
	Female	50	35	47	34	
Education level	No Education	116	82	95	68	0.126
	Adult education	5	4	10	7	
	Primary	17	12	33	24	
	Secondary	3	2	1	1	
Marital Status	Single	5	4	0	0	0.000*
	Divorced	6	4	0	0	
	Married	114	81	134	96	
	Widowed	16	11	5	4	
Access to Agriculture Land	Yes	140	99	133	96	0.400
	No	1	1	6	5	
Access to Credit	Yes	8	6	8	6	0.027*
	No	133	94	131	94	
Ownership of Female Livestock	Yes	65	46	58	42	0.001*
	No	76	54	81	58	
Engaged in IGA	None	0	0	121	87	0.000 *
	Shoat Rearing	52	37	10	7	
	Cattle Rearing	53	38	3	2	
	Agriculture Activities	36	25	5	4	

Source: Own survey data computed using STATA 14 (2022)

Table 4: Demographic and Socioeconomic Characteristics for Continuous Variables

Name of the variables	Beneficiary HHs		Non Beneficiary HHs		T - Value	P - Value
	Mean	Std. Dev.	Mean	Std. Dev.		
Age (Year)	40.8489	12.23082	45.41844	12.40804	-3.1030	0.0021*
Livestock Holding (TLU)	1.678849	1.042131	1.694184	.952712	-0.1285	0.8978
Milk Production (Litre)	.2364539	.4829258	.0538849	.1578318	-4.2394	0.0000*
Proximity to Market (Minutes)	99.53901	46.93803	100.8633	81.33383	0.1672	0.8570
Total Annual Income (Birr)	29304.96	10386.89	21405.04	11849.08	-5.9348	0.0000*

Source: Own survey data computed using STATA 14 (2022)

4.1. Description of Study Variables

Dependent variable

In this study food security is determined using Household Food Insecurity Access Scale (HFIAS). The quantitative value of this variable was determined based on the study participants' response to nine standard questions. The determination of the dependent variable was done as per the method described in section 3.3.3 and was categorized as food secure (No), mildly food insecure (Rarely), moderately food insecure (Sometimes), and severely food insecure (Often).

Independent Variables

Sex of Household Head (Sexhhh): It refers to the sex of the household head taking a value of 1 for Male and 0 for Female.

In consonance with Baten and Khan (2010) finding, female-headed households can find it difficult than men-headed households to gain access to valuable resource, which could capacitate them to improve production and gain more income, that would decrease their probability of being food insecure. They do not actively participate in the labor market or other livelihood activities, even if they wanted.

Age of Household Head: The age of the family head is an essential factor in decision-making for the family. The literature has shown a direct association between the age of the head of the household and farm food production (Khan *et al*., 2012). An increase in age decreases food production and inversely affects household food security, as compared to the younger age group.

Educational status of Household Head: It is a catagorical variable measured in years of schooling of the household head. Educational status is recognized to be associated with household food insecurity where it mainly plays a significant role in improving the household's income and access to food and also provides employment opportunities. Amaza et al. (2006) argued that households with higher years of schooling are less likely to be food insecure as it enables them to produce more and consume more. Thus, higher years of schooling was expected to affect extent of food insecurity negatively.

Access to Agriculture Land: It is a dummy variable taking a value of 1 for the household who have access to agricultural land and 0 for otherwise. One of the factors that contributes to crop production and access to food grains, which improves the status of family food security, is access to agricultural land. As a result, greater production and availability of produced grains contribute to ensuring households' food security (Asmelash, 2015). Thus, it was anticipated that access to agricultural land would have a negative effect on the severity of food insecurity.

Cereal Stocks: It is a dummy variable taking a value of 1 for the household who have cereal stocks and 0 for otherwise. Stock is essential for ensuring that the food supply, prices, and food needs are all met. The availability of cereal stocks in the households has an impact on their level of food security, with those with food/cereal stocks having a higher likelihood of being food secured.

Livestock Holding: It is a continuous variable measured by the number of Tropical Livestock Unit (TLU). Livestock is an important safeguard of food security. They are

a source of food, a source of wealth and income in pastoral communities, and a means of diversifying livelihoods. Therefore, households that own mixed livestock are more likely to have high food security.

Milk Production: The fact that pastoralists rely on livestock production as their main livelihood would enable them to be food secure either through the income earned from selling the livestock or direct impact on individual nutrition through the consumption of milk by household members, especially children. Moreover, selling of livestock and livestock products is one of the coping mechanisms utilized when there is a food shortage. Hence, it is believed that those households with livestock products, such as milk, are likely to be food secured.

Access and Proximity to Market: it refers to the distance between the farmer's home and nearest to market center that the household usually made transaction. The proximity to the market center provides non-farm employment opportunities and easy access to the transportation of inputs, resulting in access to additional income. Households near the market center were expected to be more likely to improve their food security status than households not near the market center.

Total annual household income: one of the key factor that is proved to affect food security is financial access. An increase in annual income will increase the probability of being food secured. This is due to the fact that as a household's income increases, its purchasing power increases, enabling the household head to purchase food from the market and ultimately increasing the possibility that the household would have adequate food.

Access to Credit: It is a dummy variable which takes a value of 1 if households have access to credit and 0 otherwise. Access to cash credits increases the purchasing power of households and increases their potential for food security. Households with credit access have the opportunity to share other income paid employment, starting with small businesses. This reduces the chances of seasonal food insecurity (Islam et al.,2014).

Cash Support: Cash transfers to vulnerable households give the opportunity to meet their basic needs in the local market. If the market and financial sector are functioning, cash transfers have been shown to be one of the effective way to achieve food security outcomes. The WFP's Food Assistance for Assets (FFA) initiative addresses immediate food needs through cash, voucher or food transfers, while at the same time it promotes

the building or rehabilitation of assets that will improve long-term food security and resilience (WFP, 2021).

Incoming Generating Activities: access to financial income overcomes food insecurity when economic factors are the root cause of food insecurity, food is available in local markets but lack of money is the main difficulty for vulnerable people. Therefore, households engaged in various income-generating activities are more likely to generate more income, thus ensuring food security.

Productive Asset: Food insecurity can lead to extreme vulnerabilities and can lead to the loss of productive assets of the household. As a result of serious food insecurity levels, households may sell their productive assets such as livestock or farm implements to purchase food or other necessities. Protecting productive assets has a positive impact on food security potential, as ownership of productive assets are known to alleviate food shortages in low-income households.

Table 5: Description of explanatory variable with expected sign

Variables	Description	Variable type	Expected Sign
Sexhhh	Sex of Household Head	Dummy	+/-ve
Agehhh	Age of Household Head	Continuous	+ve
Educationhhh	Education level of Household Head	Category	+ve
Maritalstatus	Marital Status	Category	
Stocks	Cereal Stocks	Dummy	+ve
Accc.Ag.land	Access to Agriculture Land	Dummy	+ve
Acc.credit	Amount of Money	Continuous	+ve
Acc.Market	Minutes to go to market	Continuous	+ve
Liv.own (TLU)	Livestock Ownership:	Continuous	+ve
Milk Produc.	Milk Production	Continuous	+ve
Totincome	Total Annual Income	Continuous	+ve
Cash Rec.	Cash Recipient Household	Dummy	+ve
IGA	Participation in Multi Incoming Generating Activities	Dummy	+ve
Prod.Asset	Productive Asset	Dummy	+ve

Source: Own definition based on literature (2022)

4.2. Magnitude of Household Food Insecurity Status

4.2.1. Household Food Insecurity Access Scale (HFIAS)

Among the total survey participants (including both beneficiaries and non-beneficiaries), about 10% and 90% were food secure and food insecure households. Among food insecure households, 20 % were mildly food insecure, 66% were moderately food insecure and 4% were severely food insecure.

However, looking the disaggregated result of cash beneficiary versus non-beneficiary households' food security status, nearly, 4% of beneficiary HHS fall under severely food insecure, 52% under Moderate food insecure, 26% under Mild Food insecure and 18% under Food secure HFIAS category. On the other hand, 4% of non-beneficiary HHS fall under severely food insecure, 80% under Moderate food insecure, 13% under

Mild Food insecure and 3% under Food secure HFIAS category nearly. The Marginal effect HFIAS show that being a beneficiary household have increased the chance of a household to be food secure by 11%.

The food security status among cash beneficiary household is better than that of the non-beneficiary households as those household that received cash were able to meet their immediate food needs apart investing in different livelihood activities. The finding is similar to that of Burchi et al. (2018) who reported that cash transfer affects agricultural and other income-generating activities to diversify their incomes and hence reduce their vulnerability to external shocks. Moreover, a study conducted in southern and central Somalia also found that UNICEF's unconditional cash transfer and voucher response had a measurable effect on reducing hunger, improving food security and enabling a more rapid recovery for beneficiaries (Kerren et al.,2013). According to a study on the impact of cash transfers on food security in Zimbabwe, the program had a statistically significant impact on scores for diet diversity and food security, but null to low impacts on food consumption. However aggregate food consumption hides dynamic activity taking place within the household where the cash is used to obtain more food from the market and rely less on food received as gifts. The cash in turn gives beneficiaries greater choice in their food basket, which improves diet diversity (Bhalla *et al.,* 2018).

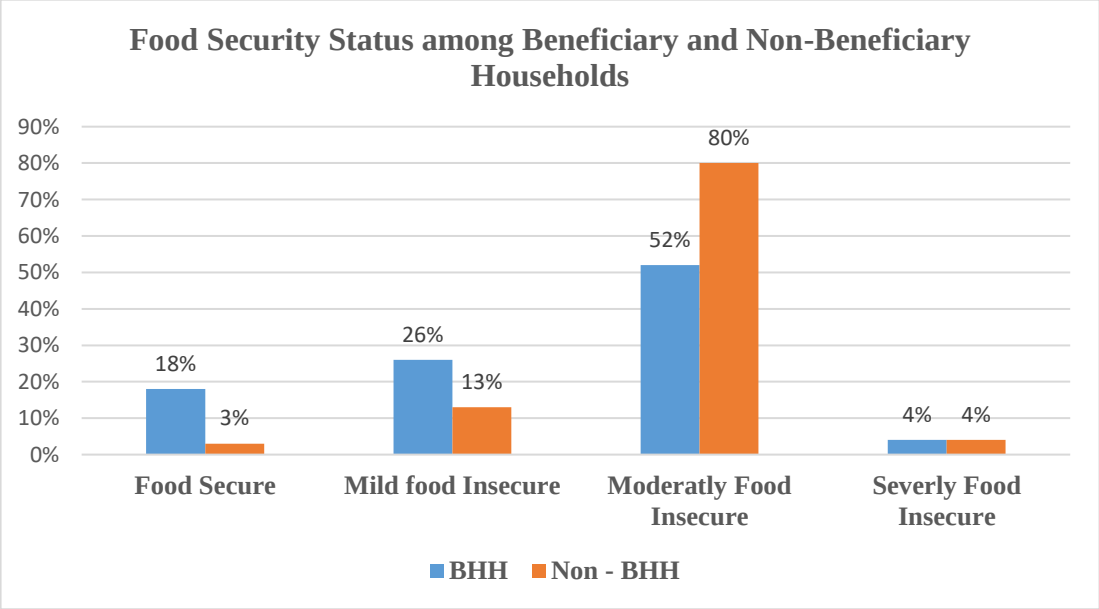

Figure 3:Household Food Security Status using Household Food Insecurity Access Scale

Source: Own survey data computed using STATA 14 (2022)

4.2.2. Food Consumption Score

The average FCS for the surveyed households is 42.86. The survey results further indicated that 58% of HHs are under acceptable food consumption whereas 26% and 16 % of HHs are under borderline and poor food consumption category respectively.

Looking at the beneficiary versus non-beneficiary's household food security status, nearly 64% of Beneficiary HHs fall under Acceptable, 28% under Borderline and 8% under Poor FCS category. On the other hand, nearly 52% of Non-Beneficiary HHS fall under Acceptable, 24% of the HHs under Borderline and 24% of the HHs under Poor FCS category. The Marginal effect, from the model result, indicated that being a beneficiary household increased the likelihood of household's extent of food security by 16%.

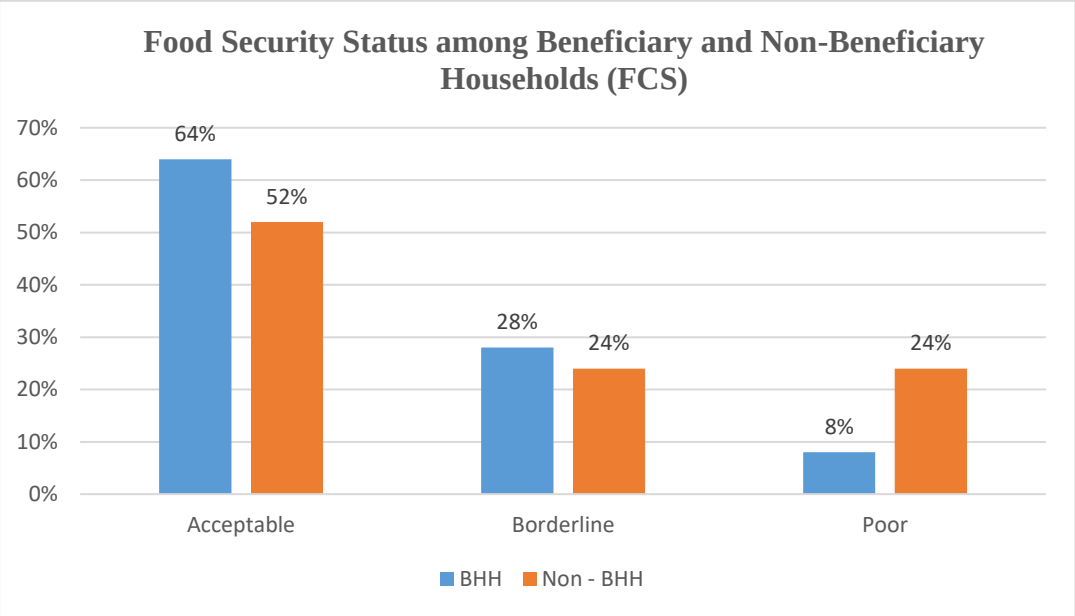

Figure 4: Household Food Security Status using Food Consumption Score

Source: Own survey data computed using STATA 14 (2022)

The recent study conducted in DRC also found that food consumption scores improved on average by 30%, and there was an increase in the proportion of households above the 'poor' consumption threshold, from 59% to 79%. Beneficiary households also increased dietary diversity, especially meat and dairy, and were less likely than comparison households to have gone to bed hungry and to have gone a whole day without food (Bailey et al., 2017). Studies of UNHCR multi-purpose cash and UNICEF cash grants in Jordan have also found a positive impact on the dietary diversity of

recipients; specifically, UNHCR cash recipients were found to be more likely to report increased consumption of fruit, eggs and meat than non-recipients (UNHCR, 2017h).

4.3. Coping Strategies Implemented By Households For Seasonal Food Shortage (Multiple response is possible)

The reduced coping strategy finding shows that a total of 79% of the households have used high coping strategies while 6% and 15% of the household have used medium and no or low coping strategies respectively. Looking at the disaggregation among the beneficiary household versus non – beneficiary household, 22% of the beneficiary household have used no or low coping strategies while for the non-beneficiary it is 7%. 9 % of the beneficiary household have used medium coping strategies while for the non-beneficiary it is 4%. Lastly, 70% of the beneficiary household have used high coping strategies while for the non-beneficiary it is 89%. The marginal effect findings of rCSI shows that being a beneficiary household has supported the household to use low or No coping strategies by 15%.

Cash transfer can influence coping strategies by providing households with additional income and reducing their vulnerability. It will also help beneficiaries from adopting negative coping strategies, such as selling their core breeding animals or other productive assets to cope with food shortage. The major goal of the assistance was for the household to use the funds for livelihood activities such as business and trading investments, livestock and productive asset purchases, and permitting labor on their own farms. In this aspect, cash assistance in turn can help in increasing future household income and making households more resilient. The finding is similar to that of the study (Harvey & Pavanello, 2018) that concludes saying multi-purpose cash can improve household food security as well as the social, care and health environments and therefore redress some of the underlying causes of malnutrition. The study conducted in DRC also proves that the other outcome of the cash transfer impact on overall food security situation is that prevention of negative responses to food insecurity such as skipping meals (Bailey et al., 2017).

Table 6: Frequency of reduced coping strategy index

Coping strategies	Beneficiary HHs	Non-Beneficiary HHs
	Frequency	Frequency
Rely on less preferred and/or less expensive food	107	118
Borrow food or rely on help from friends or relatives	28	45
Limit portion sizes at mealtime	100	127
Reduce the number of meals eaten in a day	102	117
Restrict consumption by adults so children could eat	85	98

Source: Source: Own survey data computed using STATA 14 (2022)

Beneficiary households' three most typical coping tactics were to eat less desired or less expensive foods, limit portion sizes at mealtime, and reduce the number of meals eaten in a day. Non-benefiting households, on the other hand, have utilized three common coping strategies: limiting portion sizes at mealtime, relying on less desired or less expensive food, and reducing the number of meals eaten in a day.

4.4. Determinants of Food Insecurity

The other model employed in the research was ordered logit. This is used to identify the determinants of food insecurity. The ordered logit divides the dependent variables into four groups 1, 2, 3, and 4 because the dependent in this study has four outcomes. 1 for Food secured, 2 for mild food insecure, 3 for moderate food insecure, and 4 for severe food insecure according to (Stata. C, 2013) the model follows

Where y(x) = status of food security condition of farm household

The ordered logit model is used to predict an ordinal dependent variable given one or more independent variables. Ordinal regression was enabling us to determine which of our independent variables (if any) have a statistically significant effect on our dependent variable. The following Assumptions were checked. The dependent variable is measured on an ordinal level. The four independent variables are categorical or ordinal, Non multi-collinearity while, the independent variables are highly correlated with each other, proportional odds i.e. that each independent variable has an identical effect at each cumulative split of the ordinal dependent variable (Gujarati, 2004).

The order Logit model becomes for each category or order =ß0+ß1 sex + ß2 age + ß3 marital +ß4 education + ß5 livestock holding + ß6 female livestock holding + ß7 distance to market + ß8 access to credit + ß9 engagement in IGA + ß10 total annual income + ß11 protection of productive asset + ß12 cash support + Ui

Where: ß0 = Y-intercept

ß1, ß2 ---------- ß are the slopes of the equation in the model

U = disturbance term/Error term

Model diagnosis test results

The study carried out all required model diagnosis tests, including model specification tests for multi-collinearity and overall model fit (goodness of fit). The explanatory variables were checked for the existence of multi-collinearity or association between the dependent variables to identify the determinant factors affecting household food security status. In the estimation process data from the two groups, cash beneficiary and non-beneficiary were pooled and the dependent variable takes value of 1 if the household was beneficiary and 0 otherwise. Before running the regression model, the explanatory variables were checked for the existence of multi-collinearity.

Multicollinearity refers to the case in which two or more explanatory variables in the regression model are highly correlated, making it difficult or impossible to isolate their individual effects on the dependent variable. The variable included in the model were tested for problem of multicollinearity using the variable inflation factor. As a rule of thumb, a variable with a VIF value less than 10 is believed not to have a multicollinearity problem whereas, if the VIF of a variable is found to be more than 10 such variable is said to be subjected to multicollinearity problem. The VIF analysis showed that all exploratory variables in the model have VIF values less than 10 (Annex: 2). Consequently, all the 14 variables have not multicollinearity problem and were used safely in the estimation of the model. The model goodness of fit test of the logistic regression justify that the model is robust enough to explain the dependent variable. The Pseudo R2 statistic of the model is 1 and evidence that the variable is well fit for the model and the independent variable could explain the dependent variable.

Table 7: Test Estimation

Tests	Test name	Factors of participation
estat gof	Pearson>chi2	1
VIF	Multi-collinearity	1.53

Source: Own survey data computed using STATA 14 (2022)

Ordered Logit Result

As indicated in Table 7, the number of observations is 280. The LR Chi-squared test with a value of 75.473 (P value =0.000) shows that models fit the data well as compare to the null. The Pseudo R2 = 0.141. The result of STATA indicates that, being a beneficiary household, Marital Status of the household head, Access to credit, Total Annual income, Female Livestock ownership, Livestock holding (TLU) and Income Generating activities are statically significant. The rest of the variables namely Sex, Age and Educational Level of the household head, Access to Agriculture land, Cereal stocks, Proximity to Market, Milk production and Asset Accumulation are not significant.

Table 8: Logistic regression analysis using Household Food Insecurity Access Scale

HFAIS	Coef.	St.Err	t-value	p-value	[95% Conf Interval]		Sig
Beneficiary HH	-2.452	.449	-5.46	0	-3.332	-1.572	***
Sex	.399	.307	1.30	.194	-.203	1.001	
Age	.011	.011	1.01	.31	-.011	.034	
Marital status	-.632	.323	-1.96	.051	-1.265	.001	*
Educational level	.254	.18	1.41	.157	-.098	.607	
Access to Ag. Land	.252	.926	0.27	.786	-1.564	2.067	
Cereal stocks	.174	.431	0.40	.686	-.67	1.018	
TLU	-.296	.145	-2.04	.041	-.581	-.012	**
Milk Production	-.035	.402	-0.09	.931	-.823	.753	
Proximity	0	.002	-0.22	.823	-.005	.004	
Access to credit	-1.478	.624	-2.37	.018	-.2 7	-2.55	**
Total Annual	0	0	-2.58	.01	0	0	**

Income							
IGA	.673	.226	2.98	.003	.23	1.117	***
Constant	-4.265	1.37	.b	.b	-6.951	-1.58	
Constant	-2.611	1.347	.b	.b	-5.252	.03	
Constant	2.195	1.373	.b	.b	-.496	4.886	

Mean dependent var	1.636	SD dependent var	0.721
Pseudo r-squared	0.141	Number of obs	280
Chi-square	75.473	Prob > chi2	0.000
Akaike crit. (AIC)	493.614	Bayesian crit. (BIC)	555.406

*** $p<.01$, ** $p<.05$, * $p<.1$

Source: Own survey data computed using STATA 14 (2022)

Marginal effect

The marginal effect of a predictor in a categorical response model estimates how much the probability of being food secure as the predictor variables change. For a continuous predictor, the marginal effect is a partial derivative of the probability of being food secure respect to the predictor of interest. For a binary categorical predictor, it is the change in event probability when the predictor is changed between its levels. A measure of the overall effect of the predictor is the Average of the Marginal Effects (AME). It is also evident that there might be interaction among qualitative variables, which could lead to the problem of multi-collinearity. To detect this problem, contingency coefficients were computed for each pair of qualitative variables.

Table 9: Marginal effects after ordered logit model

Variables	Marginal effect dy/dx for Food Secure	Marginal effect dy/dx for Mild food Insecure	Marginal effect dy/dx for Moderate food Insecure	Marginal effect dy/dx for Severe food Insecure
Beneficiary HH	.1682289	.2847588	-.3868543	-.0661335
Sex	-.0253276	-.054228	.0712865	.0082691
Age	-.0006878	-.0015393	.0019765	.0002507
Marital status	.0378675	.0847451	-.1088103	-.0138023
Educational level	-.0152471	-.0341222	.0438118	.0055574
Access to Agric. Land	-.0167434	-.0347343	.0465652	.0049125
Cereal stocks	-.0110414	-.0237612	.031217	.0035856
Livestock Holding (TLU)	.017762	.0397504	-.0510383	-.0064741
Milk Production	.0021015	.0047031	-.0060387	-.000766
Proximity to Market	.0000292	.0000654	-.000084	-.0000107
Access to credit	.052845	.1464855	-.1359004	-.0634301
Total Annual Income	2.35e-06	5.26e-06	-6.75e-06	-8.57e-07
IGA	-.0403562	-.0903149	.1159616	.0147095

Source: Own survey data computed using STATA 14 (2022)

Demographic and Socioeconomic characteristics of the Household Head

Sex

With a P value larger than 0.05, the sex of the household was proven to be a non-determinant factor for household food security (0.182). Other research, however, discovered that the gender of the family head was a determinant factor for the household food security status. For example, a study conducted by Wondim (2022) discovered that male-headed households are more food secure than female-headed households. In

contrast, Sekhampu (2013) found that female-headed households had greater food security than male-headed households due to better resource utilization.

Age

The average age of the study's household heads was 40 years for beneficiaries and 45 years for non-beneficiaries. Because the P value is greater than 0.05, the age of the household head is also shown to be a non-determinant factor for the family food security status. It contradicts the findings of a study conducted by Bogale and Shimeles (2009), which show that the more households aged and matured, the more experience they have in farming and agriculture-related activities, the more income they accumulate, and the better planning they use, the more likely they are to become food secure. However, the current study does not support this, which could be because in pastoral areas all age group of people are engaged in animal rearing and unlike the agriculture farming, being elderly may not necessary contribute to food security status.

Marital Status

This variable has a statistically significant and positive effect on household food security at 1% (P=0.051) as indicated in Table 7 above. It indicates those household who were married are more food secure than those that are single. The marginal effect in Table 8 shows that married household head keeping other variables constant, the probability to be in the food secure and mildly food insecure level increases (more likely in also two categories) by 4% and 8%, the probability in moderate and severely food insecure category decreases (less likely in also two categories) by 11 % and 1 %. The finding is in line with a study conducted by Feleke and Bogale (2009) who found that married households had a positive and significant impact on household food security status due to the economic scale of consumption items purchased and pooling available resources in one way or another, and that married households may reduce expenditure that would have been spent separately.

Education

Educational status of the households is also found to be a non-determinant factor for the household food security status. In many researches it was reported that an increased household education attainment was associated with an increased probability of being food security. For example, study conducted Getaneh et al. (2022) showed that

educated household heads usually practice family planning programmes thereby limiting their family size when compared with their counterparts and become able to manage food demands of their households. Moreover, they engage themselves and their family members in various non-farm income generating activities. Nevertheless, the findings do not confirm this reality, and one possible explanation is that in pastoralism, endogenous education conveyed from the family is prominent in conducting their livelihood operations.

Access to Agriculture Land

In contrast to other studies, and as indicated in the order logit regression model in Table 7, access to agricultural land was found to be insignificant with P value greater than 0.05 (.69), implying that it is not a determinant factor for the households' food security status. This could be because the area is well recognized for being pastoralist, with a few agro pastoralists. As a result, the majority of households rely on food purchases as their primary source of income, with just a small minority of the community engaged in farming.

Cereal Stocks

According to the study findings, cereal stocks is not a determining factor for the household food security status. This could be because the majority of households' main source of income is livestock rearing and their primary source of food is purchasing.

Beneficiary Household (Cash Recipient)

The result of ordered logit regression model in Table 7 above shows that, being a beneficiary household or being a cash recipient of the intervention has a statistically significant positive relationship with household food security at $P<0.01$ or 1% ($P=0.000$). It indicates that if a sampled household receives cash, they are more likely to fall into the category of food security and less likely to fall into that of food insecurity. The marginal effect in Table 8 demonstrates that, while controlling for all other factors, being a beneficiary household increases the likelihood of being in the food secure and mildly food insecure HH category by 17% and 28% while the probability in moderate and severely food insecure category decreases (less likely in also two categories) by 38 % and 8 %. In the study area, the majority of the households have spent the cash on rearing shoats, cattle fattening, and petty trade. Those households that were engaged in

rearing shoats sold their livestock and purchased additional goats and earned some money. With the extra money earned, the households were able to purchase different foods and also spent on non-food items. The study's findings are consistent with a German study by Camacho and Kreibaum that found strong evidence that receiving monetary results in increases in expenditure on food, in the amount of food purchased, and in household dietary diversity (Camacho and Kreibaum, 2017).

Livestock Holding (TLU)

This variable has a statistically significant and positive effect with household food security at 5% (P=0.032). It indicates that households that had better livestock ownership measured in TLU were food secure than those with a lower number of livestock. The marginal effect in Table 8 shows those households who own a larger number of livestock keeping other variables constant, the probability to be in the food secure and mildly food insecure level increases (more likely in also two categories) by 2% and 4%, the probability in moderate and severely food insecure category decreases (less likely in also two categories) by 5 % and 1 %. Livestock, besides its direct contribution to subsistence needs and nutritional requirements, is a vital input into crop production as it provides manure, and serves to accumulate wealth that can be disposed of during times of need, especially when food stocks in the household diminish. The findings are similar to the study conducted in Fedis woreda of Oromia region (Mahlet *et al.,* 2018), which indicated that cattle ownership is one of the primary predictors of household food security. This result is also consistent with findings by Bogale and Shimelis, 2009 and Ayele et al., 2020 who found a negative relationship between TLU and the likelihood of experiencing food insecurity.

Female Livestock Ownership

The ordered logit regression model result in Table 8 shows that, ownership of female livestock has a statistically significant positive relationship with household food security at P<0.01 or 1% (P=0.000). It indicates those households that have female livestock more likely to fall into the category of food security and less likely to fall into that of food insecurity. Nevertheless, the marginal effect in Table 9 shows in household that have female livestock keeping other variables constant, the probability to be in the food secure and mildly food insecure household decreases by 5% and 12%, while the probability in moderate and severely food insecure category decreases by 15 % and 2

%. Ownership of female livestock appears to have an impact on the household's level of food security; given that the majority of households are pastoralists and that livestock product is one source of food. Households with female livestock seems to have easier access to animal products, which has improved their level of food security. However, the study's findings show that owning female livestock reduces family food security because most households only have a small number of female animals of indigenous breeds, and their production has little impact on household food consumption. The milk production variable, which is determined to be insignificant, is supported by this result as well.

Participation in the Income Generating Activities

One of the most important determinants of food security is participation in various income-generating activities. As a result, the household will have increased income, enabling or boosting the household's purchasing power to spend some of the invested money on food items and meet the household's immediate food demands. According to the study's results shown in Table 8, , there is a positive relationship between household food security and income generating activities at $P<0.01$ ($P=0.003$). It indicates those household that are engaged in different income generating activities are more likely to fall into the category of food security and less likely to fall into that of food insecurity. Nevertheless, the marginal effect in Table 9 shows those household that had opportunities for different income generating activities keeping other variables constant, the probability to be in the food secure and mildly food insecure HH category decreases by 4% and 9% while the probability in moderate and severely food insecure category increases by 12 % and 1 %. This result disagrees with a study conducted in Assosa zone, western Ethiopia (Sani and Kemaw, 2019) that founds that income-generating activities result in an increase in household dietary diversity. This is because households in the study area who earn money through a variety of income-generating activities would rather save it than utilize it to buy food to meet their immediate needs.

Access to Credit

Credit availability reduces cash constraints and boosts household purchasing power. The survey results revealed that, access to credit is significant and positively associated with food security. Looking at the marginal effect in Table 9, it shows that having access to credit, keeping other variables constant, the probability to be in the food

secure and mildly food insecure HH level increases by 5% and 15% while, the probability in moderate and severely food insecure category decreases by 14 % and 6 %. Though most pastoralists in the study area seek credit for multiple forms of livelihood investments, they used some amount of money to fulfill the immediate household food needs. The result is in line with the study conducted in the Wara Jarso woreda of North Shewa Zone of the Oromia region (Berhanu, 2021), which discovered that rural credit service influenced household food security that is statistically significant.

Total Annual Income:

As expected, the variable has a statistically significant and positive influence on the level of household food security at status 5% (P=0.000) as indicated in Table 8 above. This implies that households who had higher annual income had a high chance to be food secure than those who had less annual income. Furthermore, the marginal effect in Table 9 confirms that a unit increase in total annual income raises the likelihood of households being food secure and suffering from just mild food insecurity while lowering the likelihood that such families will experience moderate or severe food insecurity. This is because a household's purchasing power will increase as income rises, allowing the household head to buy more food items from the market, increasing the likelihood that the household will have enough food in the long run. This study is in line with the findings of study conducted in North Shewa zone of Amhara Region (Fikire and Zegeye, 2022) indicating that household food security increases with higher level of a household monthly income.

4.5. Impact of Cash on Household Food Security

The Propensity to Score Matching (PSM) model was used to estimate the impact of cash transfer on household food security status. The validity of the model was checked and found binding to observe the causal effect of dependent and outcome variables in controlling selection bias. Because there was no baseline data to assess the impact cash on household food security status of the beneficiary household in the study area, the possible option was to compare beneficiary household with non-beneficiary households on the outcome variable (household food security status), using propensity score matching model. This model is used to answer the question, what would be the

household food security status of the beneficiary households had they not received the cash support. Moreover, in order to ensure similarity in observable household characteristics, selected independent variables and different matching estimators were applied. To estimate the average treatment effect on treated (ATT) using the PSM method, the following steps such as estimation of the propensity scores, choosing a matching algorithm, checking on common support region and testing the matching balance were employed.

Propensity Scores

In the estimation process, data was collected from cash beneficiary household and non-beneficiary households. The dependent variable was a dummy variable indicating whether the household was a beneficiary household which takes a value of 1 and 0, otherwise. The explanatory variables used are variables that explain cash support intervention participation characteristics of the households. In the first step, logit model is used to estimate the propensity scores for matching purpose Baker (2000). Accordingly, in this study four explanatory variable were identified and used to fulfill the criteria of the balancing propensity.

Matching of Beneficiary (treated) with non-beneficiary (control) households determine the common support region. The common support region is the area within the minimum propensity scores of participants and maximum propensity scores of non-participants households groups, respectively. This is done by cutting off those observations whose propensity scores are smaller than the minimum and greater than the maximum of participants and non-participants groups respectively. (Caliendo & Kopeinig, 2008). The distribution of households with respect to estimated propensity scores against control households displayed in figure 5.

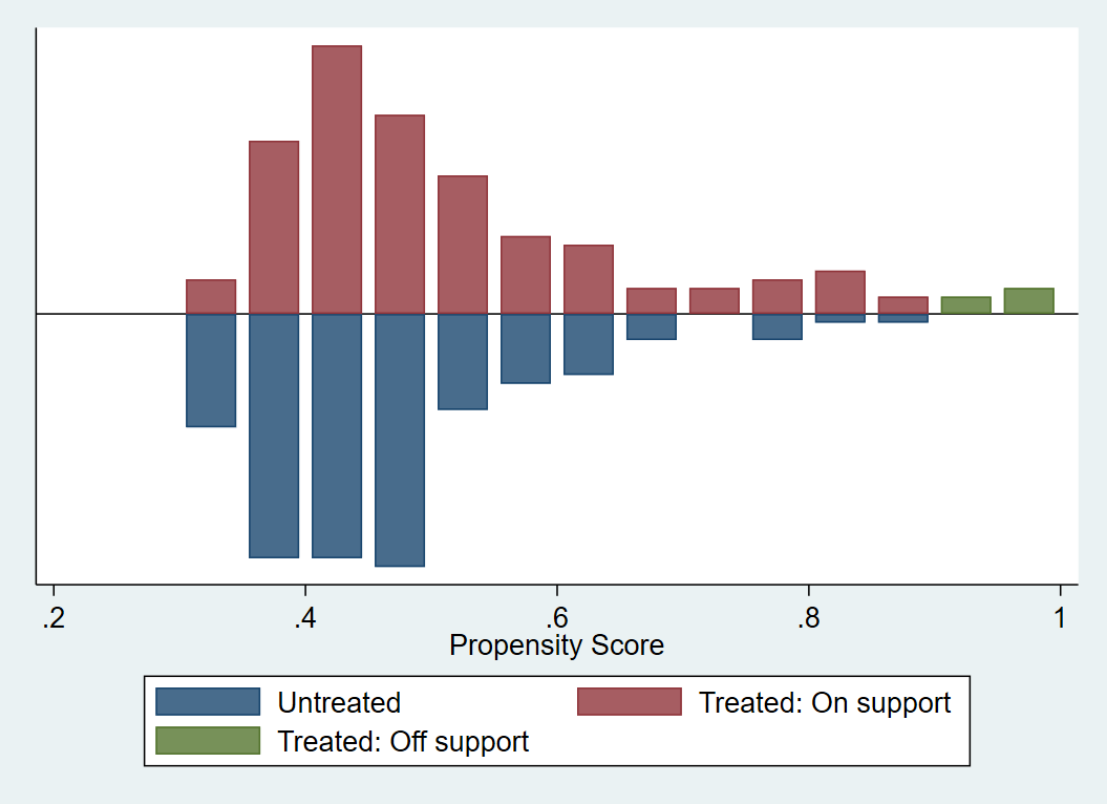

Figure 5: Histogram of Propensity Score

Source: Computed from own survey data

The below figure indicated that the standardized % bias across covariates (unmatched with matched covariates).

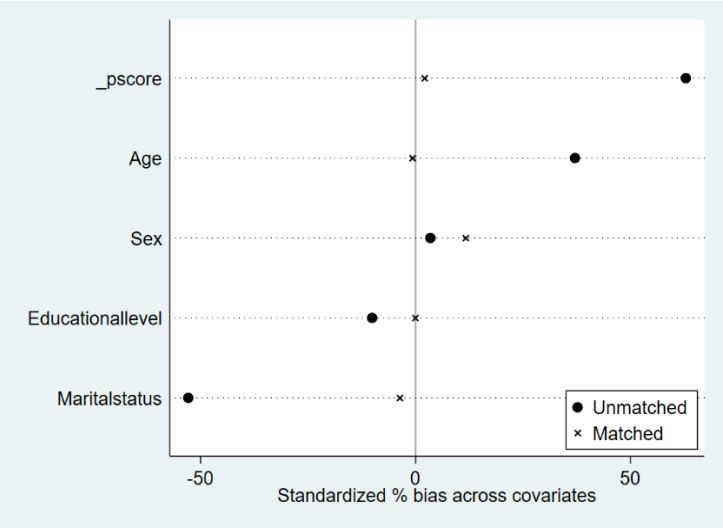

Figure 6: Unmatched and Matched standardized % bias across covariates

Source: Computed from own survey data

Matching of Beneficiary and Non Beneficiary Household

As reported in Table 10, the propensity scores vary between 0.329 and 0.97 for beneficiary households with the mean of 0.549, whereas the score varies between 0.281 and 0.853 for non-beneficiary households with the mean score of 0.457. Then, the common support lies between 0.329 and 0.853. This means that a household with a propensity score that is less than the minimum (0.329) but greater than the maximum (0.853) are not considered for matching purposes. Based on this procedure, 20 households were discarded from the study for the impact assessment procedure. Households for which no match is found are dropped because no basis exists for comparison.

Table 10: Distribution of estimated propensity scores

Variable	Beneficiary and non-beneficiary Households				
	Observation	Mean	St.d	Min	Max
Treated	141	.5491167	.1756445	.3296198	.9700858
Control	139	.4573708	.1083274	.2811435	.8537168
Total	280	.5035714	.1529603	.2811435	.9700858

Source: Source: Own survey data computed using STATA 14 (2022)

Choice of Matching Algorithm

Matching methods, balancing tests and chi-square test for the joint significance of variables had been presented in this section. In order to match the treatment and control households, and obtain sizable common support region, choice of the best matching algorithms is required. Thus, matching algorithm was chosen among nearest neighbor, caliper and kernel methods.

The choice of the best estimator is based on criteria such as balancing test, percent mean bias, pseudo-R^2 and matched sample size. The matching estimator which balances more independent variables, has low pseudo-R^2 value, lower mean bias and results in large matched sample size was chosen as being the best estimator for matching. Table 11 shows kernel matching algorithm (Kernel normal) was found to be the best estimator for impact of cash on household food security.

Table 11: Performance criteria for matching algorithms

Matching estimator	Balancing test*	Pseudo R^2	Matched sample size	Mean bias
Kernel matching				
Kernel normal	4	0.004	260	2.1
Bandwidth 0.1	4	0.003	260	4.6
Bandwidth 0.25	4	0.011	260	11.1
Bandwidth 0.5	4	0.029	260	18.5
Caliper matching				
Caliper 0.01	4	0.005	247	3.3
Caliper 0.25	4	0.019	260	12.3
Caliper 0.5	4	0.026	260	16.2
Nearest neighbor				
Neighbor (1)	4	0.005	260	3.8
Neighbor (2)	4	0.004	260	5.5
Neighbor (3)	4	0.003	260	3.7
Neighbor (4)	4	0.002	260	3.7

Note: * Number of independent variables with no statistically significant mean difference between the matched groups of households.
Source: Source: Own survey data computed using STATA 14 (2022)

After selecting the best performing matching estimator, the balancing test of covariates before and after matching was checked by applying the selected matching algorithm (Table 12). As the Table indicates, the standardized difference in X before matching was in the range of -52.9% and 62.9%. After matching, the remaining standardized difference of X for almost all covariates lay between -3.7% and 11.7%, which is below the critical level of 20% suggested by (Rosenbaum and Rubin, 1983). The T-values also indicated that before matching two out of four variables exhibited statistically significant differences, while after matching all the variables have statistically insignificant differences. Hence, the process of matching created a high degree of covariate balance between the treatment and control samples that were ready to be used in the estimation procedure.

Table 12: Propensity Score and the covariates balance

Variable	Unmatched Matched	Mean		%bias	% reduct |bias|	t-test	
		Treated	Control			t	p>|t|
Sex	Unmatched	1.3546	1.3381	3.5		0.29	0.773
	Matched	1.3254	1.277	10.1	-193.8	0.84	0.404
Age	Unmatched	45.418	40.849	37.1		3.10	0.002
	Matched	44.897	45.859	-7.8	78.9	-0.60	0.550
Marital Status	Unmatched	4.7305	4.964	-52.9		-4.41	0.000
	Matched	4.8889	4.9067	-4.0	92.4	-0.45	0.657
Education level	Unmatched	7.1277	7.1799	-10.1		-0.85	0.399
	Matched	7.1349	7.1552	-3.9	61.2	-0.33	0.740

Source: Own survey data computed using STATA 14 (2022)

As indicated in Table 13, the value of Pseudo R2 was very low it was minimized to 0.004 and the low value of Pseudo R2 indicated that the beneficiary and non-beneficiary households had same distribution in the covariates after matching. The mean bias is also minimized from 33.3 to 3.6. Beta is also minimized to 15.3 which is less than 25 so, this all indicates the matching was good. Hence, these is used to assess the impact of cash on household food security status among group of households having similar observed characteristics.

Table 13: Post estimation of PSM

Sample	Ps R2	LR chi2	p>chi2	Mean Bias	B
Unmatched	0.078	30.15	0.000	33.3	59.1
Matched	0.004	1.51	0.912	3.6	15.3

Source: Own survey data computed using STATA 14 (2022)

Treatment Effect on the Treated (ATT)

Based on sample of matched treated and control groups, the impact of cash on household food security is presented in Table 14. According to the average treatment effect (ATT) on treated, the intervention has a positive and significant influence on

household food security status where the difference between treatment and control group is 14.7%.

Table 14: Average treatment effect of the intervention

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
HFIAS	Unmatched	.177304965	.028776978	.148527986	.035448612	4.19
	ATT	.1796875	.032923438	.146764062	.037726421	3.89*

*, indicates the level of significance at 1 percent

Source: Own survey data computed using STATA 14 (2022)

The finding confirms that the cash support has brought a positive impact on the household food security status. Cash transfers give beneficiaries greater choice and control over the way in which they meet their own needs, allowing them to access the goods and services that they prioritize and value most. One of the primary advantage of the cash support is its immediate influence on household income and directly alleviate food and nutrition insecurity. The finding is consistent with the study conducted by de Janvry and Sadoulet (2006), who discovered that cash has the ability to remedy the market failure of poor people's access to credit, allowing them to use their assets more productively and achieve long-term income improvement. The finding is also similar to the study conducted by Burchi et al. (2018) who discovered that cash transfers affect agricultural and other income-generating activities, allowing them to diversify their earnings and so lower their exposure to external shocks. Furthermore, it agrees with the findings of Bastagli et al. (2016), who discovered strong empirical evidence of cash transfer programs' short-term effects on monetary poverty, education, health, and nutrition. He also noted that when people's income grows, they prefer to substitute cheaper, coarser foods with more expensive, refined calories that taste better.

The program has a considerable influence on practically all homes. One of the key informants said

> *Majority of the beneficiaries have invested their money on purchasing of two or three shoats and subsequently sold them once their body conditions improve, and a few them they received new calves. With the extra money they*

get, they used to buy food and non-food items, as well as continue their shoat-rearing activities. He also stated that "the cash assistance not only assisted the beneficiaries in meeting their immediate needs, allowing them to invest in other livelihood activities and earn money, but it also broke the culture of saving with a bank account, which most people in the area believed was sinful or Haram (KII,2022).

The programme has helped the beneficiary household to meet their immediate needs and also to invest on some of the livelihood activities.

Most of the beneficiary households were able to pay their depts, purchasing different types of food including vegetable and fruits for their children. (FGD, 2022)

The above finding is in line with a study conducted in Colombia which indicates that cash transfers can directly improve the quality and diversity of diet through increased household income. Households that benefited from *Familias en Acción* in Colombia significantly increased items rich in protein, such as milk, meat, and eggs (Attanasio, & Mesnard, 2006). According to Fiszbein et al. (2009), cash supports have contributed to an increase in households' food expenditure, both overall and as a share of income, and particularly for specific food groups, such as animal products.

Though the intervention largely benefited beneficiary households, it also indirectly benefited non- beneficiary households. One of the non- beneficiary household witnessed saying

"The cash support helped not just the beneficiaries, but also those of us who were not beneficiaries. It raised demand for specific goods, allowing beneficiaries to buy more food and pay off their loans on time. As a result, we have purchased more products than we used to sell and profited as well" (KII,2022).

The above witness is in line with the study conducted by a study conducted by Devereux (2015), who stated that by looking beyond the group of beneficiaries, a rise in their income improves local demand for products and services, having a broader impact on local markets.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

Food security remain as one of the major challenges to achieve economic development in Ethiopia where drought is one of the key driving factor for food insecurity. In recent years, there has been a huge increase in humanitarian cash support.

Ethiopia's government is making significant investments and strides to address the problem of food insecurity, particularly through its productive safety net program, and agriculture-led economic growth linked to improved livelihoods and nutrition has the potential to be a long-term solution to Ethiopia's chronic poverty and food insecurity. FAO piloted a project in Oromia Region in 2019 to support the Productive Safety Net Programme. The project conducted cash transfers to PSNP beneficiaries using the PSNP delivery system for targeting and cash value as part of the strategy to pilot an improved shock-responsive social protection system in selected Woredas. Meiso woreda in West Haraghe zone is one of the woreda that was selected for the intervention. Therefore, the study was conducted to assess the impact of the cash support to drought affected Household's food security status and coping strategies of Meiso woreda.

Food security status in the study area in general is concerning, with 90% of households being food insecure and only 10% being food secure. However, when comparing the food security status of beneficiary households to that of non-beneficiaries, the findings shows that a higher proportion of the beneficiary households are food secure and under mild food insecure households. On the other hand, the Food Consumption Score, a crucial food and nutrition outcome that assesses a household's ability to obtain food as well as its socioeconomic status during the previous seven days, reveals that the majority of the households are food secure or under acceptable category. When the food security status of beneficiary households is compared to that of non-beneficiary households using the food consumption outcome indicator, the findings shows that a greater proportion of the households are food secure and fall into the borderline food security category.

The result from ordinal logistic regression model revealed that independent variables namely, being a beneficiary household, marital status of the household head, livestock holding, female livestock ownership, engagement in income generating activities, total household income, and access to credit were found to be statistically significant predictor for household food security.

Cash support will help beneficiaries to avoid adopting negative coping strategies and improving future household income and making households more resilient. In general the study results showed that majority of households used high coping strategies to combat a lack or shortage of food in the household, but looking at the disaggregated result of cash beneficiary to that of non-beneficiary households, the number of beneficiary households that used high coping strategies is less than the number of non-beneficiary households. The common coping strategies that beneficiary household have used were relied on less preferred or less expensive food, limit portion sizes at mealtime and restrict consumption by adults so children could eat.

The Propensity Score Matching finding confirms that cash support has a positive and statistically significant effect on household food security status where beneficiary households have improved food security status compared to the non – beneficiary households. The finding is generally consistent with the widely held assumption that cash transfers will enhance the right to work and the right to development by allowing people preserve and protect their productive assets while simultaneously addressing immediate consumption needs.

In general, this research concludes that the cash support had a significant and positive impact on drought affected households.

5.2. Recommendations

Based on the research findings, the following recommendations have been proposed to improve household food security situation in Meiso Woreda for the future.

- Along with alleviating people dependent syndrome, strengthening the cash assistance through expanding the geographic coverage could serve as medium intervention to reduce the household food insecurity and improve households' coping mechanisms to different shocks and build productive assets. Moreover, the transfer amount should be increased in light of the present price shock in order to assist the beneficiaries in investing in appropriate livelihood activities and improving their living conditions.

- Improving access to credit in a way that addresses the large community/pastoralist plays a significant role in enhancing access to income and food purchase of the household. As result, the government need to consider in scaling up the establishment of difference micro finance facilities in the area.

- Total annual income has played a significant role in boosting the household purchasing power and enabled the households to meet their immediate food needs. Therefore, it is important for industrial businesses, development offices, labor / social offices, etc. to consider about creating employment opportunities and business activities in the area. Moreover, humanitarian partners also need to strengthen their household income-increasing interventions, including the implementation of various income-generating activities.

- Pastoralism is the dominant livelihood means of the study area where the primary source of food and income comes from livestock sector. Hence, enhancing the livestock production with proper extension service should be taken into consideration in order to support the pastoralists to combat the household food insecurity and build their resilience.

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ANNEX

Annex 1: Multi collinearity test (VIF) for logit for HFIAS

```
. estat vif
```

Variable	VIF	1/VIF
IGAM	3.43	0.291160
BHH	2.57	0.389506
TotAnnualI~e	1.79	0.558996
Femalelive~k	1.44	0.696446
MilkProduc~n	1.39	0.717991
Cerealstocks	1.31	0.764111
AccesstoAg~d	1.31	0.765382
Sex	1.27	0.787278
Educationa~l	1.24	0.805618
Proximity	1.18	0.848715
TLU	1.16	0.858924
Age	1.16	0.861545
Maritalsta~s	1.06	0.945376
Accesstocr~s	1.04	0.958684
Mean VIF	1.53	

Annex 2: STATA result of ordered regression model for food secured analysis

```
. ologit HFAIS BHH Sex Age Maritalstatus Educationallevel AccesstoAgLand Cerealstocks TLU Femalelivestock MilkProd
> uction Proximity Accesstocreditservices TotAnnualIncome IGAM

Iteration 0:   log likelihood = -267.54351
Iteration 1:   log likelihood = -232.47634
Iteration 2:   log likelihood = -229.81922
Iteration 3:   log likelihood = -229.80708
Iteration 4:   log likelihood = -229.80708

Ordered logistic regression                     Number of obs     =        280
                                                LR chi2(14)       =      75.47
                                                Prob > chi2       =     0.0000
Log likelihood = -229.80708                     Pseudo R2         =     0.1410
```

HFAIS	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
BHH	-2.452041	.4489189	-5.46	0.000	-3.331906	-1.572176
Sex	.398998	.307279	1.30	0.194	-.2032577	1.001254
Age	.0114749	.0113075	1.01	0.310	-.0106875	.0336373
Maritalstatus	-.6317254	.3230624	-1.96	0.051	-1.264916	.0014652
Educationallevel	.2543606	.1799284	1.41	0.157	-.0982926	.6070138
AccesstoAgLand	.2515146	.9263716	0.27	0.786	-1.56414	2.06717
Cerealstocks	.174191	.4305594	0.40	0.686	-.66969	1.018072
TLU	-.2963156	.1452547	-2.04	0.041	-.5810097	-.0116215
Femalelivestock	.9202981	.3237986	2.84	0.004	.2856644	1.554932
MilkProduction	-.035059	.4021464	-0.09	0.931	-.8232515	.7531334
Proximity	-.0004876	.0021822	-0.22	0.823	-.0047646	.0037895
Accesstocreditservices	1.477625	.6235858	2.37	0.018	.2554196	2.699831
TotAnnualIncome	-.0000392	.0000152	-2.58	0.010	-.000069	-9.37e-06
IGAM	.6732443	.2262615	2.98	0.003	.2297798	1.116709
/cut1	-4.265267	1.370222			-6.950853	-1.579681
/cut2	-2.610875	1.347441			-5.251811	.0300611
/cut3	2.195136	1.372862			-.4956242	4.885895

```
.
```

Annex 3: Odd ratio of food secured analysis

```
. ologit HFAIS BHH Sex Age Maritalstatus Educationallevel AccesstoAgLand Cerealstocks TLU Femalelivestock MilkProd
> uction Proximity Accesstocreditservices TotAnnualIncome IGAM,or

Iteration 0:   log likelihood = -267.54351
Iteration 1:   log likelihood = -232.47634
Iteration 2:   log likelihood = -229.81922
Iteration 3:   log likelihood = -229.80708
Iteration 4:   log likelihood = -229.80708

Ordered logistic regression                     Number of obs     =        280
                                                LR chi2(14)       =      75.47
                                                Prob > chi2       =     0.0000
Log likelihood = -229.80708                     Pseudo R2         =     0.1410
```

HFAIS	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
BHH	.0861177	.0386598	-5.46	0.000	.035725	.207593
Sex	1.490331	.4579473	1.30	0.194	.8160679	2.721692
Age	1.011541	.011438	1.01	0.310	.9893694	1.034209
Maritalstatus	.5316737	.1717638	-1.96	0.051	.282263	1.001466
Educationallevel	1.289637	.2320423	1.41	0.157	.9063837	1.834944
AccesstoAgLand	1.285972	1.191288	0.27	0.786	.2092678	7.902425
Cerealstocks	1.190283	.5124875	0.40	0.686	.5118672	2.767853
TLU	.7435527	.1080046	-2.04	0.041	.5593333	.9884457
Femalelivestock	2.510038	.812747	2.84	0.004	1.330646	4.734763
MilkProduction	.9655484	.3882918	-0.09	0.931	.4390019	2.123644
Proximity	.9995126	.0021811	-0.22	0.823	.9952467	1.003797
Accesstocreditservices	4.382526	2.732881	2.37	0.018	1.291003	14.87722
TotAnnualIncome	.9999608	.0000152	-2.58	0.010	.999931	.9999906
IGAM	1.960588	.4436056	2.98	0.003	1.258323	3.054784
/cut1	-4.265267	1.370222			-6.950853	-1.579681
/cut2	-2.610875	1.347441			-5.251811	.0300611
/cut3	2.195136	1.372862			-.4956242	4.885895

Annex 4: mfx for Household Food security status using HFIAS

```
. mfx,predict(outcome (0))

Marginal effects after ologit
      y  = Pr(HFAIS==0) (predict, outcome (0))
         =  .06404465
```

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
BHH*	.1682289	.04102	4.10	0.000	.087833	.248625	.503571
Sex*	-.0253276	.0209	-1.21	0.226	-.0663	.015645	.653571
Age	-.0006878	.00068	-1.01	0.314	-.002026	.000651	43.15
Marita~s	.0378675	.02013	1.88	0.060	-.00158	.077315	2.01786
Educat~l	-.0152471	.01101	-1.39	0.166	-.036822	.006328	.453571
Access~d*	-.0167434	.06817	-0.25	0.806	-.150352	.116865	.975
Cerea~ks*	-.0110414	.0288	-0.38	0.701	-.067497	.045414	.864286
TLU	.017762	.00902	1.97	0.049	.000079	.035445	1.68657
Female~k*	-.053745	.02016	-2.67	0.008	-.093262	-.014228	.439286
MilkPr~n	.0021015	.0241	0.09	0.931	-.045137	.04934	.145821
Proxim~y	.0000292	.00013	0.22	0.823	-.000227	.000286	100.196
Access~s*	-.052845	.01558	-3.39	0.001	-.08338	-.02231	.060714
TotAnn~e	2.35e-06	.00000	2.40	0.016	4.3e-07	4.3e-06	25383.2
IGAM	-.0403562	.01464	-2.76	0.006	-.069056	-.011656	1.06071

(*) dy/dx is for discrete change of dummy variable from 0 to 1

```
. mfx,predict(outcome (1))

Marginal effects after ologit
      y  = Pr(HFAIS==1) (predict, outcome (1))
         =  .19950587
```

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
BHH*	.2847588	.04975	5.72	0.000	.187252	.382266	.503571
Sex*	-.054228	.04233	-1.28	0.200	-.137196	.02874	.653571
Age	-.0015393	.00152	-1.01	0.313	-.004527	.001449	43.15
Marita~s	.0847451	.04477	1.89	0.058	-.003007	.172497	2.01786
Educat~l	-.0341222	.02447	-1.39	0.163	-.082074	.013829	.453571
Access~d*	-.0347343	.13091	-0.27	0.791	-.291307	.221838	.975
Cerea~ks*	-.0237612	.0596	-0.40	0.690	-.140582	.09306	.864286
TLU	.0397504	.01992	2.00	0.046	.000705	.078796	1.68657
Female~k*	-.1192717	.04183	-2.85	0.004	-.201261	-.037283	.439286
MilkPr~n	.0047031	.05393	0.09	0.931	-.101003	.110409	.145821
Proxim~y	.0000654	.00029	0.22	0.823	-.000509	.000639	100.196
Access~s*	-.1464855	.04245	-3.45	0.001	-.229689	-.063282	.060714
TotAnn~e	5.26e-06	.00000	2.47	0.014	1.1e-06	9.4e-06	25383.2
IGAM	-.0903149	.03201	-2.82	0.005	-.15305	-.02758	1.06071

(*) dy/dx is for discrete change of dummy variable from 0 to 1

```
. mfx,predict(outcome (2))

Marginal effects after ologit
      y  = Pr(HFAIS==2) (predict, outcome (2))
         =  .71410144
```

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
BHH*	-.3868543	.0643	-6.02	0.000	-.512871	-.260837	.503571
Sex*	.0712865	.05668	1.26	0.209	-.039813	.182386	.653571
Age	.0019765	.00195	1.01	0.310	-.001841	.005794	43.15
Marita~s	-.1088103	.05651	-1.93	0.054	-.219564	.001943	2.01786
Educat~l	.0438118	.03122	1.40	0.160	-.017373	.104997	.453571
Access~d*	.0465652	.18291	0.25	0.799	-.31193	.40506	.975
Cerea~ks*	.031217	.07999	0.39	0.696	-.125553	.187988	.864286
TLU	-.0510383	.02522	-2.02	0.043	-.100465	-.001612	1.68657
Female~k*	.1511606	.05166	2.93	0.003	.0499	.252421	.439286
MilkPr~n	-.0060387	.06925	-0.09	0.931	-.141775	.129698	.145821
Proxim~y	-.000084	.00038	-0.22	0.823	-.000821	.000653	100.196
Access~s*	.1359004	.02746	4.95	0.000	.082074	.189727	.060714
TotAnn~e	-6.75e-06	.00000	-2.52	0.012	-.000012	-1.5e-06	25383.2
IGAM	.1159616	.03966	2.92	0.003	.038229	.193694	1.06071

(*) dy/dx is for discrete change of dummy variable from 0 to 1

```
. mfx,predict(outcome (3))

Marginal effects after ologit
      y  = Pr(HFAIS==3) (predict, outcome (3))
         =  .02234805
```

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
BHH*	-.0661335	.02371	-2.79	0.005	-.112609	-.019658	.503571
Sex*	.0082691	.00645	1.28	0.200	-.004373	.020912	.653571
Age	.0002507	.00026	0.97	0.331	-.000255	.000757	43.15
Marita~s	-.0138023	.00818	-1.69	0.091	-.029827	.002222	2.01786
Educat~l	.0055574	.0042	1.32	0.186	-.002683	.013798	.453571
Access~d*	.0049125	.01615	0.30	0.761	-.026746	.036571	.975
Cerea~ks*	.0035856	.00841	0.43	0.670	-.012896	.020067	.864286
TLU	-.0064741	.00363	-1.79	0.074	-.01358	.000632	1.68657
Female~k*	.0218561	.01006	2.17	0.030	.002146	.041566	.439286
MilkPr~n	-.000766	.00878	-0.09	0.930	-.017973	.016441	.145821
Proxim~y	-.0000107	.00005	-0.22	0.823	-.000104	.000083	100.196
Access~s*	.0634301	.04703	1.35	0.177	-.028744	.155604	.060714
TotAnn~e	-8.57e-07	.00000	-2.08	0.038	-1.7e-06	-4.8e-08	25383.2
IGAM	.0147095	.00655	2.24	0.025	.001864	.027555	1.06071

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Annex 5: Questionnaire

SECTION A. HOUSEHOLD DEMOGRAPHICS

Household Identification Number_____
Date of Interview _____
Enumerator's name _____
Keble Name_____
Sex of household head 1= Male 2= Female
Age of household head _____
Education level of head of the household

SECTION B. FOOD SECURITY

1. Do you have access to land for agricultural use? ☐ Yes ☐No
2. Which cereals do you produce?
   Maize ☐ Sorghum ☐
   Wheat ☐ Barely ☐
   Millet ☐ Other Specify (other) _____
3. Do you have any cereal stocks of maize, sorghum, wheat, barley and millet at your household now?
   ☐ Yes ☐ No
4. Do you own livestock? ☐ Yes ☐ No
5. Which livestock animals do you own and How many?
   Chickens ☐ Goats ☐ Sheep ☐ Horses ☐
   Donkeys ☐ Mules ☐ Cows ☐ Oxen ☐
   Camels ☐ Other (Specify) _____
6. Do you currently own any female livestock
   ☐ Yes ☐ No
7. How much milk did the animals produce yesterday (Litres)

   _____
8. What were the different sources of food for your family?
   a) Own Production
   b) Received from food for work
   c) Purchased from the market
   d) Received from food aid or relief food
   e) Other (Specify)_____
9. Did you purchase crops from the local neighborhood market to fulfil the food requirements of your family? ☐Yes ☐No
10. How long does it take you to the market from you home? _____(minutes)
11. Do you think the distance is problem for you? ☐Yes ☐ No
12. Do you have access to credit services from micro-institutions to supplement your livelihoods? ☐Yes ☐No

13. Have you received any types of credit in past 12 month? ☐Yes ☐No
14. If yes how much did you get? _____
15. For what purpose you obtained? _____
    a) To purchase oxen
    b) To purchase seeds
    c) To purchase agricultural inputs
    d) Others (specify)_____

SECTION C: CASH SUPPORT

1. How much do you earn per year (January to December 2021) (please don't consider the cash provided as an income)

   _____

2. Has the household benefited from Cash transfer support provided by FAO?
   Yes ☐ No ☐

3. For what kind of livelihood activities did you use the cash support?

   _____

4. How much did you get (profit /value of the asset?)from the investment you obtained as result of the cash support?

   _____

5. Did the Cash support has improved your crop production if invested on crop production (If Yes to C2?)
   Yes ☐ No ☐

6. If yes, how much Crop seed did you produce /quantity sold & income for the period of January to December 2021?

   _____

7. Is there any change in productivity of livestock due to intervention due to cash support (If Yes to C2?)
   Yes ☐ No ☐

8. If yes, production in livestock and amount/number sold & income for the period of January to December 2021?

   _____

9. Have you brought change in the number of livestock (Increase in number) due to cash support intervention?
   Yes ☐ No ☐

10. Have your asset increased as result of the cash support?
    Yes ☐ No ☐

11. Have the cash support supported your HH prevention of Asset depletion?
    Yes ☐ No ☐

SECTION D: HOUSEHOLD FOOD CONSUMPTION

No	Food Group	FCS Question	Number of Days	HDDS Question	Answer
1.	Cereals	How many days over the last 7 days, did members of your household eat cereals, roots and tubers : maize, porridge, rice, pasta, bread, injera, other cereals & their products, root crops and tubers such as potato, yam, cassava, white sweet potato?		Did you eat cereals (maize, sorghum, wheat, barely, millet etc in the last 24 hours (breakfast, lunch, dinner)	Yes ☐ No ☐
				Did you consume cassava, potatoes, sweet potatoes, tubers (kocho) and other root crops in the last 24 hours (breakfast, lunch, dinner)	Yes ☐ No ☐
2.	Pulses	How many days over the last 7 days, did members of your household eat beans, peas, groundnuts, and other pulses		Did you consume eat beans, peas, groundnuts, and other pulses in the last 24 hours (breakfast, lunch, dinner)	Yes ☐ No ☐
3.	Vegetables	How many days over the last 7 days, did members of your household eat vegetables and leaves: spinach, onion, tomatoes, carrots, peppers, green beans, lettuce, etc.?		Did you consume vegetables in the last 24 hours (breakfast, lunch, dinner)?	Yes ☐ No ☐
4.	Fruits	How many days over the last 7 days, did members of your household eat fruits: banana, apple, lemon, mango, papaya, avocado, guava, etc.		Did you consume fruits in the last 24 hours (breakfast, lunch, dinner)	Yes ☐ No ☐
5.	All Protein	How many days over the last 7 days, did members of your household eat meat, fish and eggs: goat, beef, chicken, fish including canned tuna, and / or other seafood, eggs? (meat and fish consumed in large quantities and not as a condiment)		Did you eat meat, fish and eggs: goat, beef, chicken, fish including canned tuna, and / or other seafood, eggs in the last 24 hours (breakfast, lunch, dinner)?	Yes ☐ No ☐
	Meat	Have you consumed flesh meat: beef, lamb, goat, chicken, other birds etc. in the 24 hours of yesterday (breakfast, lunch, dinner, drops)?	Yes ☐ No ☐		

	Fish	How many days over the last 7 days, did members of your household eat fish (eaten in large quantities, not as condiment)?		Did you consume eat fish (eaten in large quantities, not as condiment) in the last 24 hours (breakfast, lunch, dinner)?	Yes ☐ No ☐
	Egg	Did you consume eat eggs in the last 24 hours (breakfast, lunch, dinner)?	Yes ☐ No ☐		
6.	Milk and Milk Products	How many days over the last 7 days, did members of your household eat milk, yoghurt, cheese and other milk products – (exclude butter)?		Did you eat milk, yoghurt, cheese and other milk products – (exclude butter) in the last 24 hours (breakfast, lunch, dinner)?	Yes ☐ No ☐
7.	Oil and Fat	How many days over the last 7 days, did members of your household eat oils, fat and butter		Did you eat oils, fat and butter in the last 24 hours (breakfast, lunch, dinner)?	Yes ☐ No ☐
8.	Sugar and Sugar Products	How many days over the last 7 days, did members of your household eat sugar and sugar products?		Did you consume eat sugar and sugar products in the last 24 hours (breakfast, lunch, dinner)?	Yes ☐ No ☐
9.	Spices	How many days over the last 7 days, did members of your household eat condiments / Spices: tea, coffee, salt, garlic, spices, tomato / sauce, meat or fish as a condiment, condiments including small amount of milk / tea coffee.		Did you consume condiments/spices in the last 24 hours (breakfast, lunch, dinner)?	Yes ☐ No ☐

SECTION E. REDUCED COPING STRATEGIES

In the past 7 days prior to the date of interview, how many times (in days) has your household used the following coping strategies to overcome the shortage of food or lack of enough money to buy food?

	In the past 7 days, how many days has your household used the following coping strategies to overcome the shortage of food or lack of enough money to buy food?	
1.	Relied on less preferred, less expensive food	
2.	Relied on less preferred, less expensive food	
3.	Limited portion size of meals	
4.	Restricted consumption by adults in order for small children to eat	
5.	Reduce number of meals eaten in a day (skipped meals)?	

SECTION F. HOUSEHOLD FOOD INSECURITY ACCESS SCALE (HFIAS) MEASUREMENT TOOL

No	**Question**	**Response Option**	**Code**
1.	In the past four weeks, did you worry that your household would not have enough food?	0 = No (skip to Q2) 1=Yes	
1.a.	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
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?	0 = No (skip to Q3) 1=Yes	
2.a.	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
3.	In the past four weeks, did you or any household member have to eat a	0 = No (skip to Q4) 1=Yes	

	limited variety of foods due to a lack of resources?		
3.a.	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
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?	0 = No (skip to Q5) 1=Yes	
4.a.	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
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?	0 = No (skip to Q6) 1=Yes	
5.a.	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
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?	0 = No (skip to Q7) 1=Yes	
6.a.	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
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?	0 = No (skip to Q8) 1=Yes	

7.a.	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
8.	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	0 = No (skip to Q9) 1=Yes	
8.a.	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
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?	0 = No 1=Yes	

SECTION G. LIVELIHOOD COPING STRATEGIES

No	Question	Answer	Question	Answer	Question
1.	Did you sell household goods/assets (radio, television, furniture, refrigerator, jewelry, etc.) to be able to buy food in the past 30 days?	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household ☐ Yes ☐ No, because I already used the strategy within the last 12 months, so could not continue to use it	What assets did the households sell to buy food in the last 30 days?	☐ Radio ☐ Television ☐ Furniture ☐ Refrigerator ☐ Jewelry Other (Specify)	How much money did you get from the sell of household goods/assets in the last 30 days to buy food (Birr)?
2.	Did you spend savings in the past 30 days to buy food?	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household ☐ Yes ☐ No, because I already used the strategy within the last 12 months, so could not continue to use it		How much money did you spend from the savings in the past 30 days to buy food?	
3.	Did you borrowed money / food from a formal lender / bank or informal in the past 30 days to buy food?	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household ☐ Yes ☐ No, because I already used the strategy within the last 12 months, so could not continue to use it		How much money did you borrowed in the past 30 days to buy food?	How much in KG did you borrowed in the past 30 days?
4.	Did you sell more animals (non-productive) than usual to generate cash to be able to buy food in the past 30 days?	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household ☐ Yes	How many animals do you normally sell?	How many animals did you sell in the last 30 daysto buy food?	How much did you get from selling the animal in the last 30 days to buy food

		☐ No, because I already used the strategy within the last 12 months, so could not continue to use it			
5.	Did you reduced essential non-food expenditures such as education, health, etc. in the past 30 days to buy food?	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household ☐ Yes ☐ No, because I already used the strategy within the last 12 months, so could not continue to use it	Is anyone in the household attending school? Yes ☐ No ☐	How much would you have spend on education in the last 30days, if it was not for the fact they you did not have enough food	
		Was there anyone who required medical attention in the last 30days Yes ☐ No ☐	If yes, how much would you have paid if you had sought medical attention in the last 30 days if it was not for the fact that you had to buy food		
6.	Did you reduce expenditure on livestock and agricultural inputs to buy food in the past 30 days?	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household ☐ Yes ☐ No, because I already used the strategy within the last 12 months, so could not continue to use it	Which agricultural inputs would have you bought if it was not for the fact that you have do buy food?	☐ Farm tools ☐ Fertilizer ☐ Seed ☐ Chemicals ☐ Livestock feed ☐ Drug Other	How much money would have paid for agricultural inpts, if it was not for the fact that you had to buy food?
7.	Did you sell productive assets or means of transport (farm tools, wheelbarrow, cart, sewing machine, bicycle) and the money	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household	Which asset did you sell in the last 30 days to buy food?	☐ Farm tools ☐ Bajaj ☐ Wheelbarrow ☐ Bicycle ☐ Cart Other	How much money did you get from the sell of productive asset or means of transport to buy

	used to buy food in the past 30 days	☐ Yes ☐ No, because I already used the strategy within the last 12 months, so could not continue to use it			food in the last 30 days?
8.	Did you send an adult member of household to work elsewhere) (Unusual labor migration) in the past 30 days?	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household ☐ Yes ☐ No, because I already used the strategy within the last 12 months, so could not continue to use it	Where did these adult members migrate to?	☐ Within woreda ☐ Within region ☐ Other regions ☐ with in the country ☐ Addis Ababa ☐ Outside the country	
9.	Did you sell last breeding/female animals to be able to buy food in the past 30 days?	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household ☐ Yes ☐ No, because I already used the strategy within the last 12 months, so could not continue to use it	Currently do you have any breeding or transport animals? Yes ☐ No ☐	How much money did you get from selling breeding/female animals to buy food in the last 30 days?	
10.	Did you consume seed stocks that were to be saved for the next season in the past 30 days?	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household ☐ Yes ☐ No, because I already used the strategy within the last 12 months, so could not continue to use it			What is the value of the seed you consumed in the last 30days because the household did you have enough food?
11.	Did you sell house or land to buy food in the past 30 days	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household ☐ Yes			How much money did you get from selling house or land to buy food in the past 30 days?

		☐ No, because I already used the strategy within the last 12 months, so could not continue to use it	
12.	Did you do other demeaning income earning activities to buy food in the past 30 days? (Such as begging as an example if context allows)	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household ☐ Yes ☐ No, because I already used the strategy within the last 12 months, so could not continue to use it	How much money did you receive from begging to buy food in the last 30 days?
13.	Did you send household members/children away to better-off friends or relatives in the past 30 days?	☐ No, because I did not face a shortage of food; ☐ No, because the strategy does not apply for my household ☐ Yes ☐ No, because I already used the strategy within the last 12 months, so could not continue to use it	

Checklists for Key Informants

1. Please provide us a general overview about the food security situation of the area?
2. What is the key factors that led to the food insecurity of the woreda?
3. In your opinion, how severe is drought in the area?
4. What are the key support that is being provided to the communities to combat the food insecurity?
5. What is your perception regarding the Cash Support provided?
6. In your opinion, how do you see the impact of cash transfer support in alleviating the household food insecurity status?
7. In your opinion, do you think the cash support has improved the income of the household?
8. Have you seen any negative impact of cash transfer support?
9. In your opinion, what do should be improved to strengthen the cash support to combat the food insecurity of the area?

Checklist for Focused group discussion

1. What are the main sources of livelihoods for people in this community?
2. What are the major sources of food for people in this community?
3. Who were the major beneficiaries of the Cash transfer Support (by age and gender), why?
4. How did the cash transfer support has contributed to the household food security status?
5. What are the key cash support recipient invest on the cash
6. What are the key coping strategies that are used by households when they are in serious food security situation?