



**COLLEGE OF DEVELOPMENT STUDIES
CENTER FOR FOOD SECURITY STUDIES**

**HOUSEHOLD FOOD SECURITY STATUS AND COPING MECHANISMS OF
INFORMAL WORKERS IN WOREDA TWO AKAKI KALITY SUB CITY
ADDIS ABABA, ETHIOPIA**

**BY
ADUGNA SHEGU MAMMO
ADVISOR: DR. MESKEREM ABI**

**JUNE, 2023
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Declaration

I, Adugna Shegu, do hereby declare to Addis Ababa University School of Graduate Studies that this thesis proposal is a product of my original research work and has not been submitted to any other university for any academic degree. Materials and information other than my own are duly acknowledged.

Name: _____

Signature: _____

Date of Submission _____

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_____ Name, Major Advisor	_____ Signature	_____ Date
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List of Acronyms and Abbreviations

CAR & STW	Carpentry and steel workers
CSA	Central Statistics Authorities
CSI	Coping strategic Index
ETB	Ethiopia Birr
FAO	Food And Agriculture Organization
FGD	Focus Group Discussion
FRE	Frequency
GDP	Gross domestic product
HDDS	Household Dietary Diversity Score
HFIAS	Household Food Insecurity Access Scale
HH	Household head
ILO	International labor organisation
KII	Key Informant Interview
SD	Standard Deviation
SDG	Sustainable development goal
SPSS	Statistical package for social sciences
UN	United Nations
UPSNP	Urban productive safety net program
WFP	World Food Program

Dedication

This thesis work is dedicated to my parents, my mother, Gete Wakjira, and my father, Mr. Shegu Mammo, for their love and concern for my educational career.

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Operational Definition

Carpenters and steelworkers: A carpenter is an informal worker who practices the art and trade of cutting, working, and joining timber, whereas a steelworker is someone who works iron to erect, place, and join steel girders, columns, and other pieces to form structural frameworks.

Casual labour: performing casual work is done by an informal employee who lacks the security of a long-term, secure working connection, the prospect of obtaining other employment, and the potential for inconsistent work schedules.

Informal workers are: those who are self-employed, have little or no job security, have no employment agreement, and aren't guaranteed to stay with the same employer for more than a few weeks or months.

Ketene: Ketene is the lower administrative unit in the city of Addis Ababa that is below Woreda.

Small business: An informal worker manages a small business, carrying out duties on its own or jointly with others, and earning minimal money from these operations.

Abstract

Food insecurity, its determinants, and coping mechanisms were investigated in 152 informal worker households. The research used purposeful and non-random sampling methods, and data was collected through a questionnaire survey, focus group discussions, and key informant interviews in order to address the seven ketenes in Woreda Two among informal workers in different occupations and activities. Using SPSS version 25, descriptive statistics and econometric analysis were both used. An independent Mann-Whitney U test and a chi-square analysis were also carried out to look into the association between both the predictor variables and food security status. A score of 17 at the HFIAS cutoff point classified the majority (80.9%) of informal worker households as food secure, while 19.1% were food insecure. In addition to this, the CSI results show that 35.5% of households have lower coping mechanisms, 61.2% have medium coping mechanisms, and 3.3% have high coping mechanisms in the study area. Informal workers, based on HDD scores, were classified as having 7.2% high, 77% moderate, and 15.8% low dietary diversity. It is critical to organize informal workers into microbusinesses that generate income and provide them with access to credit services in order to provide them with sustainable livelihoods. This should help reduce the negative effects of food insecurity determinants while maximizing the positive outcomes for food security.

Key words: Akaki-Kality sub-city; HFIAS; CSI; informal worker households; SPSS

CHAPTER 1: INTRODUCTION

This chapter gives a summary of the study's background, problem statement, general and specific objectives, research questions, significance of the study, scope of the study, and finally the study outline to help readers understand the paper's overall structure and organization.

1.1 Background

Food security is currently becoming a critical issue for policymakers and governments in developing countries due to global macroeconomic dynamics. Globally, attaining the Sustainable Development Goals (SDGs) targets and the well-being of many poor households' present challenges for food security. Aliyu et al. (2021). Access to food has always been a challenge for mankind. Around 820 million people worldwide experience hunger every day, and over two billion people lack essential micronutrients, which has an impact on their health and life expectancy. FAO et al., (2019), cited by Kansiime et al. (2021)

Since the emergence of the noble coronavirus pandemic (i.e., COVID-19), there has been alarming concern about the availability of food globally and, in particular, in developing nations. This is a result of a severe shortage in food supply chains and a large loss of employment. A significant targeting criterion is low employment, as there is an association between a drop in income and its impact on society's overall well-being and health. The long-term sustainability of food supply chains is also an increasing worldwide issue. Petit et al., (2011); cited by. Aliyu et al. (2021)

The COVID-19 pandemic was definitely posing a severe danger to food security as of the time of this writing because it was spreading across the globe. According to preliminary estimates derived from the most recent available global economic outlooks, the COVID-19 pandemic could result in losses in global GDP growth ranging from 4.9 to 10 percentage points, increasing the number of undernourished people in the world by as much as 132 million by 2020, depending on the economic growth scenario. FAO et al. (2020)

It is important to keep in mind that there are several variables that academics have identified as driving the problem of food insecurity, particularly in African countries. According to Masuku & Sithole 2009; Mamba 2019; cited by Mabuza and Mamba (2022), these factors include a high prevalence of HIV and AIDS, a high unemployment rate, unequal access to land (with women having limited access), high food prices, conflicts, and the related extreme weather events (especially droughts and floods).

It is widely recognized that food is a basic requirement for survival. Its significance at the household level is clear, given that food is an essential component of life. The quantity of high-quality food a household regularly eats may be a good indicator of how secure their food supply remains. A household is considered secure in food when it can consistently obtain food in quantities and of a high enough standard for all members to maintain healthy and active lives. Maxwell S., Frankeberger T. (1992); cited by ; Mekuria (2019)

The international community is currently focused on addressing food insecurity, a complicated and multifaceted issue, particularly in sub-Saharan Africa. Extreme poverty pockets, particularly in rural regions, are where food insecurity is most prevalent in this region. Traditional agricultural or general economic interventions by themselves are unlikely to result in significant changes. Francesco et al.(2016) ;Mekuria; (2019). Introduction Food is both a basic need and a human right, as having enough food in terms of quantity and quality for all people is an important factor for a healthy and productive life as well as for a nation to sustain its development. FAO 2014; Sani and Kemaw (2017); cited by Sani and Kemaw (2019)

Considering the household's well-being as well as completing other development tasks, access to enough food is important. Endale et al., (2014), cited by Abebaw and Betru (2019). In recent years, Food security issues have become a critical concern and top priority area for developing countries. One of the key components of development and the reduction of poverty is food security, which has been the objective of numerous international and national public organizations. Food security is a multidimensional concept with consequences. Abafita and Kim, (2012), cited by Abebaw and Betru (2019)

The Woreda two in the Akaki-Kality sub-city of Addis Ababa was chosen for this study because it makes use of a variety of existing industries that employ numerous people. Therefore, for a very long time, Woreda employment opportunities in the textile, shoe, and metal industries kept many workers' households active in the sector. However, due to the new generation's growing population and people moving to Woreda on their own initiative from rural areas, There has been no increase in industry, which has led to a significant increase in food insecurity among informal workers due to high dependency rates, a lack of credit availability, a lack of work potential, particularly in urban areas, and a lack of income-generating activities. These are the main causes of food insecurity for households in the study area. All development partners, including food-insecure households, must work together to address the issue of food security in urban households. The initiatives of these development partners have provided data on the causes and effects of food insecurity in the research area.

Finally, in order to maintain their food security, informal worker households in Woreda 2 of the Akaki-Kality sub-city have adopted a variety of diverse livelihood strategies with the assistance of the local institutions currently in the area. This study's major goals are to comprehend the extent of and determine access to food insecurity among informal workers and to look into the food security of households.

1.2 Statement of the Problem

Ethiopia has a wealth of natural resources, yet the majority of its socioeconomic measures are depressingly poor. Ethiopia is the nation most at risk of famine and food insecurity. Poverty and food insecurity are inseparable. However, poverty and hunger are barriers to Ethiopia's economic success. Mulugeta et al., (2018); cited by Abebaw and Betru (2019).

Food insecurity exists due to a variety of factors, including poverty, low income, and a lack of access to safe and nutritious foods. The urban poor are under threat due to a rising percentage of the poor living in urban areas, significant income inequality, a rapid population increase, high food prices, and a lack of new jobs being created. The severity

of the food insecurity issue varies from location to location, depending on social standing and everyday circumstances. Gebre (2012)

This is because of the complexity of urban poverty and the ensuing household food insecurity as a result of issues with household economic resources. Depending on the availability of and access to resources that ensure the population's survival, poverty and food insecurity have varying degrees of impact on people in every part of the world.

The relationship between inequality and health is a field that has always been present in the daily lives of marginalized groups around the world, even before the appearance of COVID-19. However, a significant portion of the population has been forced into extreme poverty as a result of the pandemic. This is due to the interaction of a history of structural, social, and economic inequality with a significant workforce that is without a job, which is exacerbated by the precarious conditions of the food production and commercialization system as a whole, which includes agricultural enterprises and a complex system of economic interests of large global groups. Baltrusis N. & D'Ottaviano MCL, (2009); Power et al., 2020; cited by Pereira and Oliveira(2020)The COVID-19 pandemic's spread may cause food insecurity and poverty among socially vulnerable populations to rise sharply as a result of how it has affected income in so many nations.

Food insecurity and poverty may increase dramatically in socially vulnerable populations with the expansion of the COVID-19 pandemic because it has affected income in many countries. The complexity of earning income in particularly vulnerable populations, as among informal workers, as well as the termination of employees, are predicted to lead to increased poverty and food security. Ribeiro et al. (2020); Paslakis et al. (2020), cited by ;Pereira and Oliveira (2020)

Urban livelihoods for informal workers and households face significant challenges. At present, high market instability, coronaviruses (COVID-19), rural-urban migration, natural catastrophes, and job losses are some of the current problems influencing the food security of urban households internationally and in particular in Ethiopia.

The issue of food security challenges that informal worker households' face in coping in the Akaki-Kality sub-city of Woreda 2 has received significant attention. In order to solve these concerns, it is crucial to understand the methodologies used to assess the level of urban food security and how informal workers cope with high food prices and food security. The goal of this research is to determine the degree of food security and identify the main coping strategies used by informal workers in the study area when food is in short supply. Additionally, the goal of this research is to assist the government and other collaborators' bodies with efficient interventions to ensure household food security and coping mechanisms for informal workers. Food security is important for ensuring people have access to the food they need. With the right measures, you can ensure that your food is safe and of the highest quality. Finally, in order to pinpoint particular causes of the households' food insecurity, this study evaluated the state of food security and coping mechanisms at the household level in Akaki Kality, sub-city Woreda 2. Moreover, it identified the way households cope with the food shortage problem. Additionally, the research could contribute to the literature gap for policymakers, development practitioners, and future researchers.

1.3. Objectives of the Study

General Objective

The general objective of this study was to investigate the food security situation and coping mechanisms of the informal worker households in Woreda two of Akaki-Kality sub-city of Addis Ababa.

Specific Objectives

- To measure the food security status of informal workers and examine the extent to which enough food is available and accessible throughout the year in the study area.
- To identify the main determinants and factors that affect the level of household food security for informal workers in the study area.
- To identify the main coping strategies used by informal workers in the study area when there is a food shortage.

1.4. Research questions

- What are the major factors influencing the food security status of informal workers in Akaki Kality sub city, Woreda two?
- What coping mechanisms do the informal workers of Woreda Two of Akaki Kality Sub-city use in the face of food scarcity?

1.5. Significance of the Study

These evaluate the factors influencing the level of food insecurity and ways to cope in the Woreda two of Akaki Kality, a sub-city of Addis Ababa, Ethiopia, and are expected to improve understanding of urban households in the research area and Addis Ababa in general. Furthermore, it will possibly play a role in policies and practices that are dedicated to alleviating food security and its coping mechanisms and improving the overall standard of living of urban households. Also, it gives good information for further technical study and investigation at the institutional or government level on the food security status of households.

1.6. Scope and Limitation of the Study

The study focused on identifying major determinants of food insecurity among informal workers at the household level by classifying sample households as food secure or insecure and then looking at the extent of food insecurity in Woreda 2 Akaki Kality sub-city in Addis Ababa city. The work focused on the informal worker households in the study area, and it does not include all informal worker types of occupation households in the study area. A total of 152 households were selected non-randomly since households were the unit of analysis in the study. The scope of the study was limited due to limited resources, time, data availability, budget, and other material limitations. Moreover, the major limitations of the study come from the fact that it is based on data drawn from one cross-sectional survey at a particular period, where households were asked a series of questions.

1.7. Outline of the Study

This research thesis has five chapters. In the first chapter, the backdrop of the study, the problem statement, the study's objective, the significance, the scope, and the limitations of the study were explained. The second chapter deals with a review of the literature that includes a theoretical framework for food security and empirical studies made in the country and elsewhere in the world. The third chapter covered the research methodology, description of the study area, research design and approach, data type and sources, methods of sample sizes and sampling procedures, data collection methods, and data analyses of food security, as well as quantitative and qualitative data analyses. Chapter four deals with the results and discussions of the descriptive and model results of the research, and finally, chapter five presents a conclusion and recommendations based on the findings of the research.

CHAPTER 2: LITERATURE REVIEW

This section deals with the literature part of the study, which has two aspects. The first one presents theories regarding what affects the food security of households, while the second provides empirical literature. The latter is cascaded from global to Africa and then down to the national and household levels.

2.1 Theoretical Literature Review of Food Security

Food security is a broad concept dealing with food production, distribution, and consumption vis-à-vis food entitlement for all household members. Food security is set in various ways. In this review, the following organizational definitions of food security were simply counted: In the 1970s, the idea of food security emerged. However, for a few decades, the focus of public discourse was on food security rather than the right to food, until the time was appropriate to turn attention to the individual and his or her rights. by Mechlem (2004) Food security was defined during the 1974 World Food Conference as the "availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices." FAO, 1974; cited by Mechlem (2004)

The discussion focused on boosting food production in order to increase the availability and stability of the global food supply of staple foods, especially grains, in order to satisfy rising needs. Population expansion and the advent of drought in several important grain-producing nations were the main causes of these demands, which resulted in high demand on global grain markets and dramatic increases in food prices.

The United Nations(UN) Declaration on the Eradication of Hunger and Malnutrition, which was approved during the 1974 World Food Conference, stated that "all men, women, and children have an inherent right to be free from hunger and malnutrition." This declaration was made in response to the attention given to food shortages.

At the individual, household, national, regional, and global levels, "food security" is achieved when all people, at all times, have physical and economic access to sufficient,

safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life Mechlem (2004). This definition is the one that is currently most frequently used and accepted. Even though the frequency and severity of poverty have decreased over time as a result of the adoption of various development policies and initiatives, about 30% of Ethiopia's population still lives below the poverty line. Mo FED, 2013 cited ; (Teka, et al (2019)

2.1.1 Dimensions of Food Security

The definition of food and nutrition security is "the state of all people at all times having physical, social, and economic access to food that is consumed in sufficient quantity and quality to meet their dietary needs and food preferences and is supported by an environment of adequate sanitation, health services, and care, allowing for a healthy and active life. FAO (2012), cited by Ashby et al. (2016) from this consensus emerged a complex definition with four dimensions that are understood as necessary conditions for food security, namely: 1) availability; 2) accessibility; 3) utilization; and 4) stability. Pinstrup-Andersen, P. (2009); cited by Saint Ville et al. (2019)

Food insecurity is a serious problem for individuals, households, neighbourhoods, and entire countries, but there is no globally recognized indicator of how secure people's and families' access to food is. To successfully customize policies and initiatives for its eradication, it is crucial to accurately quantify food security in order to understand the scope of the problem and identify specific areas of concern. The definition encompasses four hierarchical dimensions that are integral to achieving food security.

Food availability refers a stable and constant source of enough nutritious food for an active and healthy life is referred to as having access to food. Nation-states have mostly focused on this on a macro level, but simply increasing output is insufficient to guarantee availability at the household level. Household food production, transportation networks that ensure food is accessible at locations far from the farms where it is grown, and food exchange systems are all examples of factors that might affect food availability. Food must be accessible in ways that respect human dignity and are socially acceptable. When

people have access to enough food that is of satisfactory nutritional quality, "food availability" is accomplished Gross R. et al. (2000); cited Ashby et al. (2016)

Food access refers to the financial and physical (transportation) resources needed to put food on the table. It describes the food required by every member of the household to satisfy dietary needs and food preferences and to reach and maintain optimal nutritional status. This considers the distribution of food throughout the household as well as the household's preference for food over other products and services. Food availability must be developed in order for "food access" to be realized, and this is done when people have enough financial means and physical access to food. Gross R. et al. (2000);cited by (Ashby et al. 2016).

Food utilization is the term used to describe eating enough food in a safe way that meets one's own physiological, sensory, and cultural needs. Additionally, it describes the material, interpersonal, and human resources required to turn food into meals. It includes sanitary and hygienic conditions in addition to food safety. The concept of "food utilization" focuses on people's capacity to select nutrient-adequate foods and their capacity and resources to prepare and store them in a secure manner. Barrett CB (2010); cited by (Ashby et al. 2016).. As a food security dimension, utilization is usually measured using indicators such as HDDS and food consumption surveys

Food stability refers to the fact that hunger may be momentary, cyclical, or persistent. "Stability over time" has an effect on the three abovementioned components through seasonal and occasional variation. Gross R. et al., 2000; Ashby et al., 2016). Therefore, food insecurity may emerge when obtaining safe, culturally relevant, and nourishing foods is difficult or impossible, or when these foods cannot be obtained in a way that is acceptable to society. However, in order for there to be food security, availability, access, and utilization must remain constant across time and unaffected by changes in the weather, changes in the price of food, or civil unrest. Ecker O. & Breisinger C. (2012); Carletto et al. (2013); Ashby et al. (2016) Stability, as another dimension of food security, guarantees the continuation of the three other dimensions over time.

2.1.2 Household Coping Strategies

Literature has found a variety of coping mechanisms used at the household level by people affected by natural disasters and shocks in food prices, but not in the general population, which also frequently copes with food insecurity. A number of more consistent behaviours' that translate into coping mechanisms or approaches employed by households to deal with crises when resources are limited or non-existent typically characterize household resistance to food insecurity. Maxwell D. and Caldwell R. (2008). cited by Dil Farzana et al. (2017)

The coping strategies index can be used along with other techniques to gauge the need for food aid and determine the level of food insecurity. However, the CSI is ineffective for this purpose when used as a standalone instrument. Its primary function in evaluation is to triangulate or verify other variables in order to provide a more detailed overview of household food insecurity. Households can adopt a range of different methods when they are presented with circumstances in the relative food insecurity stage of food insecurity.

These methods are also used by households to ensure sustainable food security. Misgina (2014) there is no set boundary below which a household would be labelled "food secure" and above which it would be considered "food insecure" on a CSI scale because each CSI indication is unique to its context. The CSI can assist in making the crucial distinction between temporary and ongoing food insecurity if it is tracked over time.

In addition, a coping strategy is a way for households or community members to take care of their own relief and recovery requirements while also preparing for potential future disaster threats. Depending on how severe the crisis is and what resources are available to address it, households react differently and modify their coping methods .Maxwell (2008)

2.1.3. Household Dietary Diversity Score

The number of distinct foods or food groups taken in throughout a reference period is added to produce dietary diversity scores. The groups of foods that a family or an

individual has consumed during the past 24 hours are simply counted to determine the dietary variety scores specified in these recommendations. FAO (2007) the household dietary diversity score (HDDS) aims to provide an overview of a household's financial capacity to eat a range of meals. Studies have demonstrated that socioeconomic position and household food security are related to an increase in dietary diversity. Hatloy et al. (2000); Hoddinot & Johannes (2002); cited by FAO (2007)

2.1.4 Determinants and Factors of Household Food Security Status

The first three components are physical determinants of households. Due to the close ties between the physical and social determinants, any shortcoming in one of them would ultimately have an impact on the others Jemal & Kim; (2014), cited by Huluka and Wondimagegnhu (2019) The Global Sustainable Development Goals (SDG), which aim to take efforts to realize human rights by 2030 and are committed to eradicating poverty and hunger in all their forms and dimensions, contain an underlying feeling of urgency to address food insecurity. "To end hunger and ensure access by all people, particularly the poor and people in vulnerable situations, including infants, to safe, nourishing, and sufficient food all year round," is the goal's stated target in goal 2 (2.1). 9. Global Indicator Framework for the Sustainable Development Goals Pollard and Booth (2019) The determinants as well as the extent of the problem are important. Food insecurity is therefore the limited or uncertain availability of nutritionally adequate or safe foods or the limited or uncertain ability to acquire foods in socially acceptable ways Olson, (2002); cited by (Pollard and Booth 2019).

An index of coping mechanisms has occasionally been used as part of calculations to quantify food insecurity (access). In earlier iterations of the HFIAS, the scale also asked about reductions in or redistribution of food within the household, such as skipping meals or choosing less-preferred foods, as well as questions about a household's strategies to increase its resource base, such as taking out a loan. From 4.5 million in August 2015. Asefa, S., and T. Zegaye (2003), cited in Mohamed (2017), state that factors causing the current food insecurity include production fluctuations, low non-farm employment, low income, local market fragmentation, a high rate of natural degradation, a low level of

farm technology, a high level of illiteracy, inadequate quality of basic education, poor health and sanitation, and a high population growth situation in the country.

2.1.5. Urban Food Insecurity Status

The key factors that determine food insecurity in urban settings, according to the World Food Programme, are food availability, food supply to the market, food access, purchasing power and market access, food utilization, health, and morbidity status. WFP 2009; FANTA has come to the conclusion that the former category of coping methods (to increase the household resource base) should not be included in the HFIAS as a result of additional research and discussion Coates, et al (2007) To reach the stated goal (the food security status of households), a variety of measures, including HFIAS, HDD consumption, and CSI, were used in this study. The HFIAS is one approach for figuring out a household's level of food security. It is based on how households adjust their food and consumption habits or change their behaviour in response to a lack of resources. It is intended to capture household reactions to food shortages, such as anxiety and uncertainty about supply, as well as insufficient quality and quantity of food. The responses are computed from the responses of households to the nine HFIAS generic questions.

2.1.6. Causes of Food Insecurity

When a person or family lacks the resources (physically or financially) to buy the food they need, they may experience food insecurity. Ethiopia, the second-largest country in Africa after Nigeria, struggles with severe and persistent food insecurity. The El Nio drought of 2015, one of the worst droughts Ethiopia has ever had, left over 27 million people without a source of food, and 18.1 million people would require food help in 2016. The African Food Insecurity and Hunger Multiple Indicator Scorecard estimates that 32.1 million people in Ethiopia were undernourished in 2014. According to the World Food Program, the long-term effects of extreme hunger cost Ethiopia about 16.5 percent of its GDP per year. The estimated number of people who are food insecure in the nation is on the rise; it was 2.9 million in 2014, 4.5 million in August 2015, and by

the end of the same year, this number had nearly doubled to 10.2 million. Major causes of Ethiopia's food security issues include violent conflict, population pressure, drought, and land degradation. Mohamed (2017)

2.2. Empirical Reviews on Food Security

2.2.1: Food Security in the World

The concept of food security applies at various levels: global, regional, national, local, household, or individual. Looking at each level can be useful, depending on the type of information and measure sought. If food security exists at the individual level, all larger units are food secure as well. Mechlem (2004). Evidence from various studies by scholars and international organizations suggests that there are close to one billion people worldwide who do not receive enough food.

According to the recent FAO data on global trends, a total of 795 million people remain undernourished; this is 216 million fewer than in 1990 and a decline of 167 million over the past ten years. The decline was even more severe in the world's developing regions. FAO, IFAD, and WFP (2015);cited McGuire (2015) across the world, the consequences of food insecurity pose a growing challenge and have been on the increase since 2015 Saint Ville et al. (2019) Food insecure people report eating smaller meal portions, skipping meals, and finally going without food for a day or longer as their food insecurity gets worse. We now know that this course results in malnourishment. Hendriks 2015; FAO, IFAD, UNICEF, WFP, and WHO (2018); cited Saint Ville et al. (2019)

2.2.2: Food Insecurity in Ethiopia

With an estimated population of 94.3 million as of 2013, Ethiopia ranks as the second-most populated country in Africa. (CSA 2013, cited in (Mohamed 2017) Ethiopia placed number one in having the highest number of people experiencing hunger or undernourishment, with 32.1 million people, according to the Africa Food Security and Hunger/Undernourishment Multiple Indicator Scorecard. With 37.1% of the population suffering from undernourishment or hunger, it is the fourth African nation, according to

the African Development Bank (2014); (Mohamed 2017) The climate has a significant impact on rural Ethiopians' means of subsistence. Hunger trends greatly decrease following the rainy seasons, and food insecurity patterns are cyclical and correlated with rainfall patterns.

Shocks from the climate have an impact on productivity, slow down economic growth, and worsen already existing social and economic issues. Anderson et al. (2015), cited in Mohamed (2017) the severe, ongoing food shortages and famine that are due to persistent drought are major contributors to Ethiopia's food insecurity predicament. In the Ethiopian context, there is currently growing agreement that issues with food insecurity and poverty are connected. Droughts and other related disasters (such as crop failure, water scarcity, animal disease, land degradation, restricted household resources, and poor income) are essential triggers and more significant elements that raise vulnerability to food security and harm livelihoods. Mohamed (2017) cited MoARD (2009). By the end of the same year, the estimated number of Ethiopians who were food insecure had doubled to 10.2 million cited Gebre ;(2012) . Ethiopian assessments of food security and vulnerability have traditionally concentrated on rural areas. Urban food security has recently gained prominence in discussions of international policy. Dinku, et al (2023) there aren't many studies, nevertheless, connecting urban food systems and big food market chains with food insecurity.

Market and agro-industrial networks are primarily responsible for urban areas' food security. Urban food systems are conceptually made up of a variety of elements, such as the environment, people, inputs, processes, infrastructure, and institutions. (J. Fanzo,(2018);cited Dinku et al. (2023) According to Peters and the WFP and UNICEF (2009), B. Peters et al. (2016); cited Dinku et al.(2023). rural-urban migration, natural disasters, and market volatility are some of the factors influencing the sustainability of the urban food system.

The challenge of trying to provide beneficial, sufficient, and sustainable food for the growing urban population, which makes up 54% of the global population UN; (2015); cited Dinku et al. (2023);is increased by these natural and man-made dangers. Conflict

and COVID-19 have recently affected the global food system's ability to be connected, even in metropolitan areas. In order to address food insecurity in the urban food system, the 2030 Sustainable Development Goals (Goal 1, Goal 2, and Goal 12) (R. Sonnino, 2016; K. Mausch et al., 2020; cited in cited (Dinku et al. 2023) mention integrated approaches and the proper operation of the social, economic, and environmental elements of the food system.

2.2.3. Concepts of Informal Workers

The International Labour Organization first introduced a statistical definition for the informal sector in a January 1993 resolution adopted by the 15th Conference of International Labour Statisticians (ILO 2002a; cited cited Adams (2008).

The interest in the informal sector's size and contribution to national income and financial security led to the measurement issue receiving emphasis. The fundamental element concept employed in the conceptual framework for defining informal employment divides total employment into two different groups: type of job and type of firm. The informal sector is a global phenomenon, though it is more pervasive in developing than developed countries. In low-income emerging, upper-middle-income, and lower-middle-income nations, respectively, the share of non-agricultural informal employment is 73%, 59%, and 17% Bonnet et al., 2019; cited Jenberu and Kasse (2021)

The informal sector is defined and includes activities not covered by government legislation, in contrast to the academic concept of the formal sector. Additionally, it is significantly more dependent on having access to financing, governmental subsidies, or other types of institutional and state support. Besides, the sector has a superior capacity and is considered a veritable sponge that can absorb a significant proportion of the labour force and provide a means for income-generating activities. Due to Ethiopia's low potential for formal sector absorption, the urban informal sector will become even more significant. The informal sector, which has a significant role in the economies of developing countries, is the source of income generation and employment opportunities for most people in urban areas. Therefore, the informal sector provided a source of

income for many households in the Akaki-Kality sub-city, Woreda 2, which they used for their sustainable livelihood. Casual labour, small-business owners, carpenters, and steelworkers are among the types of jobs held in the informal sector that are included in the household survey.

2.3: Literature Gaps

The theoretical and empirical literature reviews make it clear that the majority of studies were focused on determining reasons for urban household food security status or its implications. Similarly, this study has been examining factors that influence food security status and the extent to which they influence the household, as well as household food security.

On household food security and coping mechanisms, as well as food insecurity and its determinants in urban areas, adequate information is accessible Birhane .et al. (2014) and Anand et al. (2019). Thus, among the types of jobs held by informal workers, the household head occupation category of target groups living in Woreda 2 of the Akaki Kality sub-city was not well studied. Therefore, this work fills a knowledge gap in the literature and will be used as research material for future studies.

2.4. Conceptual Framework

This conceptual framework develops the logical relationship underlying the study. The analytical framework identifies a number of interrelated factors that can be mentioned as explanatory factors for food status and coping mechanisms in the study area. The urban poor are in trouble because an increasing proportion of the poor reside in cities, there is a developing income gap, the population is growing rapidly, food prices are rising, and there aren't enough job opportunities being produced. Due to the complex nature of urban poverty and the consequent household food insecurity, problems with household economic resources exist. Food security has three components: availability, access, and utilization. Food access is a function of the physical, social, and policy environments that determine how effectively households are able to utilize their resources to meet their food security objectives. Tefera et al, (2014) In Figure 2.1, the conceptual framework is

displayed. It illustrates a theoretical and methodological framework created in response to the problem and objectives of the study and applied to guide research design, analysis, and result interpretation. Increased prices of food and non-food products and poor purchasing power due to economic factors are the major reasons for food insecurity in urban areas. Birhane .et al. (2014). As a result, household strategies should have been focused on the factors that influence food security status, mainly the informal ones.

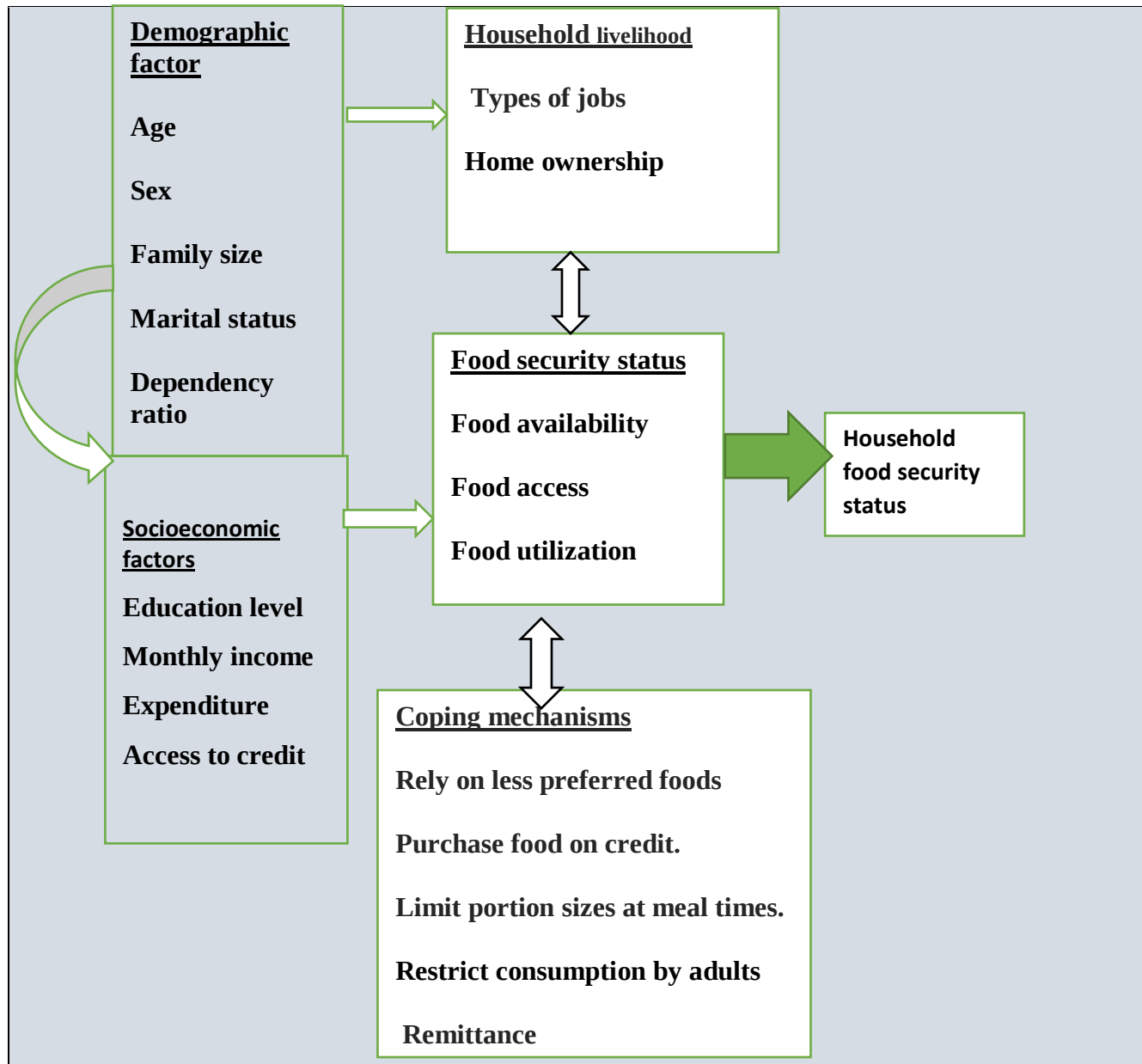


Figure 2. 1 Conceptual framework of the study area
Source: -Analyzed and illustrated by the researcher

CHAPTER 3: DESCRIPTION OF STUDY AREA AND RESEARCH METHODS

This chapter discussed the study area's location, climate, socioeconomic characteristics, and research methodology. The sub-sections under research methodology included the employed research design and methodology, techniques for sample size determination, data sources and methods for data collection, and data analysis techniques.

3.1. Description of the Study Area

3.1.1. Location and Climate

The research was carried out in Woreda 2 of the Akaki-Kality sub-city, Addis Ababa, which is located 25 kilometres south of the city Center. It was found that Woreda 2 has borders with Woreda 1 to the north, Woreda 3 to the east, Woreda 13 to the west, and Oromia Regional State to the south. (See Figure 3.1) The Woreda 2 is located between latitudes $8^{\circ} 51'15''$ and $8^{\circ} 52'30''$ N and longitudes $38^{\circ} 47'30''$ and $38^{\circ} 48'45''$ E (Ethio-GIS-2015), as shown in Figure 3.1 According to the Woreda 2 UPSNP Office Annual Report (2022), Akaki-Kality sub-city has a total population of 243,842, with 118,318 (48.5%) men and 125,524 (51.5%) females, and in Woreda 2, there are 15,027 people living there, with 7212 (48%) men and 7815 (52%) females.

In Woreda 2, there were 4262 household heads, with 2470 men and 1792 females residing in the area. The annual precipitation total is 1552 mm, and temperatures range from 13 to 23 degrees Celsius. Its altitude ranges from 2,057 m to 2,139 m above sea level. The major rainy season in the area lasted from mid-June to mid-September. The Akaki River, vegetation, plantations, bare land, and other instances of typical land-use types owned by individual households were the biophysical conditions of Woreda 2.

In Woreda 2, there is a green area, which is basically made up of plants, trees, or vegetables, with the goal of enhancing visual appeal, economic opportunity, and ecological sustainability. The Akaki-Kality sub-city has 13 Woreda. Woreda 2 is one of the 13 Woreda that have been designated as Woreda.

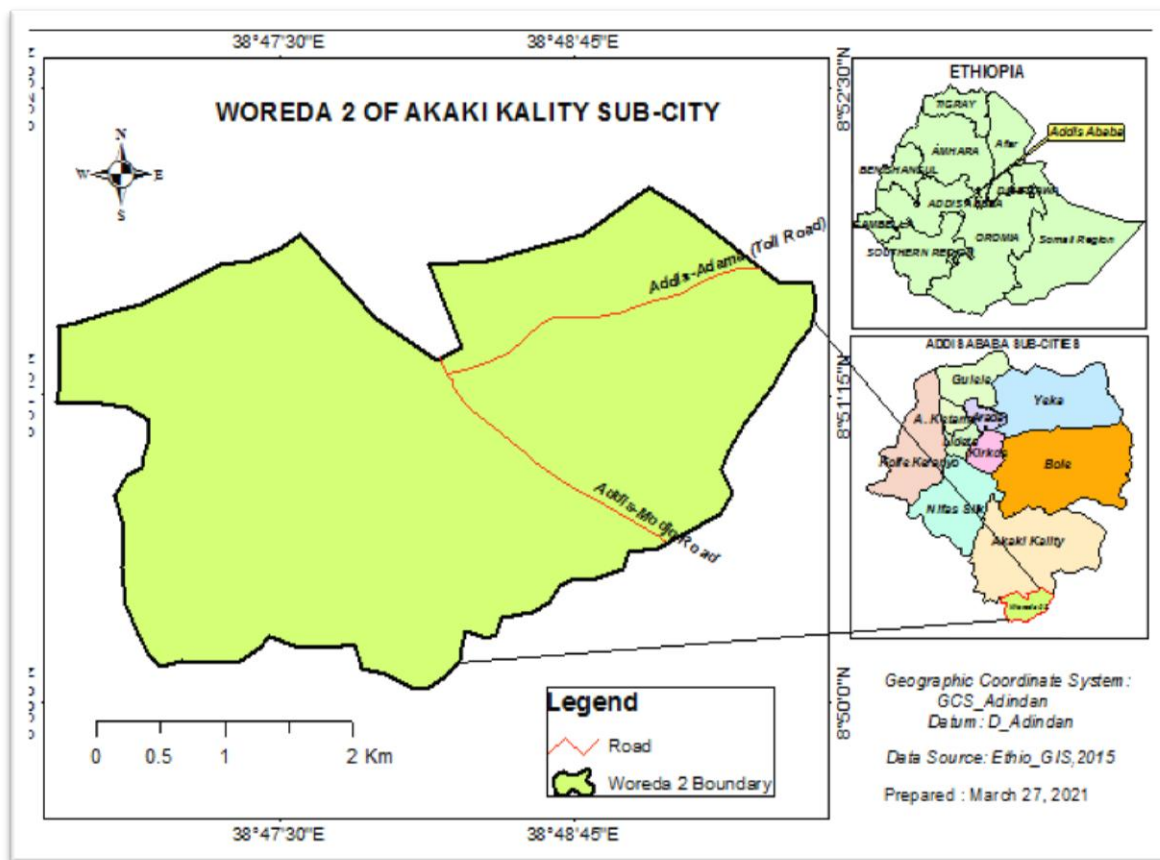


Figure 3. 1 Map of the study area

Source (Ethio -GIS 2015)

3.1.2. Socio-Economic Status of the Study Area

The socio-economic profile of Woreda 2 is that of an Akaki-Kaliti sub-city with many industry areas, including private and government manufacturing, and a business center. It also has economic relations with the surrounding communities of Gelan Town.

For sustainable livelihoods, informal workers were found in different types of occupation categories. A few households carry out urban agriculture activities within the confines of the Woreda boundary, according to the Woreda 2 agriculture office. Woreda 2 was further divided into seven ketenes, where the livelihoods of the household heads of Woreda 2 were in different types of occupation categories, like self-employed

individuals, on-the-job casual labour workers, factory workers, small business owners, carpenters and steelworkers (CAR&STW), and government employees.

3.2. Research Methods and Materials

3.2.1. Research Design and Approach

This study involved both descriptive and exploratory research of inquiry, combining descriptive and cross-sectional (survey) research designs. In this study, mixed research methods, namely quantitative and qualitative studies, were used to measure the level of food security status and gather background data on the households of informal workers. The qualitative research approaches added to the information from the quantitative research.

3.2.2: Data Types and Sources

Both qualitative and quantitative data were collected. In-depth interviews and direct observations were the techniques employed in the survey to collect data. The informal worker households, key informants from the Labour and Social Affairs Office of the Woreda, the ketene leaders, community leaders, and other related sectors were the major sources of qualitative data. Similarly, qualitative information was sourced through focus group discussions (FGDs). From the study community, quantifiable data were obtained through discussion with a group of targeted people identified purposefully from the study population. Meanwhile, quantitative data were sourced from individual households through a questionnaire survey.

3.2.3: Sample Size determination and sampling technique

The two primary groups of sampling techniques are probability and non-probability techniques. The choice of an appropriate technique for sampling and sample size are essential steps in survey research. People who took part in the research could give a lot of information about the research question, even though it is unlikely that the sample will be representative of the whole population Acharya et al., (2013); Lohr, (2009); cited Rahman

(2023) For every research design, a target sample size is determined. This study employed a multi-stage sampling method to select sample households. The first step was to purposefully establish Akaki-Kality, a sub-city of Addis Ababa. In the second stage, out of the 13 Woreda in the Akaki-Kality sub-city, Woreda 2 was purposefully selected.

All seven ketenes in Woreda 2 were purposefully selected in the third stage. All ketenes were chosen because, in the study area, nearly every household relied on various occupations, including all informal worker activities. The fourth stage was to choose 152 informal workers as sample households by purposely selecting from seven ketenes in the Woreda. Rahman (2023). Therefore, a total of 152 households with informal workers were considered for this study from a total population of households currently living in Woreda 2 of Akaki-Kality, a sub-city of Addis Ababa.

3.2.4. Data Collection Methods

Both primary and secondary data were collected from different sources in order to identify the main factors that determine the level of household food security. The secondary data were collected from the subject's published and unpublished literature. The primary data was gathered through a questionnaire survey, focus group discussions, and KIIs. Personal observations were also obtained in the study area.

Questionnaire Survey: The data collectors were selected based on their prior knowledge and skill with the Amharic language, and they received training to confirm that everyone could understand the questionnaire. The questionnaire was prepared and tested before going for the actual data collection. With input from the pre-test, the questions were revised. Additionally, using a questionnaire survey to directly question each respective household about food security and related issues, primary quantitative data were collected through scheduled household interviews. This method of data collection is crucial to getting first-hand information about food security status, determinants of household food security, and the range of coping strategies practiced by food-insecure households. In order to achieve this goal, the survey was developed, tested, and adjusted before the actual data was collected.

Key Informant Interviews: A total of 12 key informant interviews (KIIs) were conducted to collect useful data regarding the factors that influence or contribute to the food security situation of the study's informal worker households. The KIIs assisted in collecting information from a wide range of sources, including local leaders, UPSNP workers, the Woreda office of social and labour affairs, and the Woreda 2 administrative office, which had first-hand knowledge of informal workers.

Focus Group Discussion: Focus group discussions (FGDs) are a useful means of collecting data about social norms, activities, and the various points of view or viewpoints within a specific population. It was carried out in the study area and included men and women. Six to eight carefully chosen participants participated in the FGDs.

Field Observation: The researcher conducted a field investigation to support and supplement the data gathered using different primary and secondary data collection methods. The socioeconomic conditions of the area were explored through field observation. In the meantime, experts and administrators in the Woreda and Ketene were informally interviewed during the field visits. This technique did not require any response from the informants, whereas the researcher was responsible for his or her own direct observation and interpretation.

Secondary Data Sources: One method the study used to fully comprehend earlier studies in the field of informal workers food security status and coping mechanisms in an urban context was a desk review of relevant literature. Different books, journal articles, reports, reviews, working papers, guidelines, dissertations, and internet sources were reviewed.

3.3: Data Analysis

Both quantitative and qualitative methods of data analysis were employed because the data for this study was produced using both quantitative and qualitative approaches. Using descriptive statistics and econometric analysis, the quantitative data gathered from household surveys and secondary sources of information were examined. Additionally, methods for measuring food security were utilized to assess the household's level of food security. The "SPSS Version 25" software was used to organize and process quantitative

data. Similar to this, narrative and framework analysis were used to qualitatively assess the data collected from key informant interviews, focus groups, and field observations.

3.3.1 Descriptive Statistics

The mean, percentage frequencies, and standard deviation were used in descriptive statistics to summarize the household study's demographic, socioeconomic, informal worker occupation category, and institutional features. In addition, informal workers' income generated and used for expenditure costs for food uses and outputs from the occupation category among study households was also described using descriptive statistics. In addition, a chi-square test could be done to identify the association between categorical variables and independent variables.

3.3.2. Food Security Analysis

Food security is important to measure availability, accessibility, consumption, and stability at the global, national, and individual household levels. As a result, the condition of food is also evident when individuals consistently lack access to a sufficient and secure food supply. To assess the household food security status, there are a number of measurement tools available, and they differ based on the scope and purpose of the assessment. Similar to that, other techniques were used to generate the data. The models employed in this study were the household food insecurity access scale, the coping mechanisms, and the household dietary diversity score.

It was noted that a single composite indicator could not capture the entire food security dimension. Food availability, food access, food stability, food usage, and multi-dimensionality are some of the terms used to describe food security, as are DDS, CSI, and HFIAS measurement and indicators. An ancestry technique was utilized to trace the evolution of ideas and arguments across the key works on the subject. Ike, et al; (2015)

The Household Food Insecurity Access Scale (HFIAS)

The approach taken is based on the concept that experiencing food insecurity (access to food) results in predictable emotions and reactions that can be collected, quantified, and summarized on a scale through a survey. Coates et al. (2007) This technique was used to measure the food security (access) of households by measuring the households' reactions to the shortage of food, such as anxiety and scarcity of food of acceptable quality and quantity, as well as supply instability.

The responses are computed from the responses of households to the nine HFIAS generic questions. The responses or perceptions of households (on supply, quality, and uncertainty) in response to the questions (e.g., whether any adults in the household had to eat less than they thought they should, whether respondents were concerned about the household food running out, etc.) They are scored on a scale to offer a constant measure of the food security of a household.

Households' access to food was gathered by using the responses to the nine generic questions on a recall period of 30 days as suggested and analysed using frequency of occurrence (rarely, if once or twice, sometimes, if three to ten times, or often, if more than ten times). From these responses, the household food security scale was developed using continuous variables, and the scale's cut off point was used to determine which households were food secure and which were not. So, the scale's cut off points are used to classify households' levels of food security. Coates et al. (2007) a higher HFIAS score indicates worse food access and more household food insecurity. For this study, households were divided into terciles based on the HFIAS's general distribution. According to the analysis of the least food secure (scores of 17 or more), medium food secure (scores of 12 to 16), and most food secure (scores of 0 to 11), additionally, a binary indicator for household food insecurity was developed for scores of 17 or above..Ballard,et al .(2008) Due to this, an HFIAS score of 17 was utilized in the current study as a cut-off point to classify the study households into food-secure and food-insecure households, drawing inspiration from a study done in Mozambique.

This indicator can be used to further indicate the severity of the food security issue in the households, by categorizing households as either food secure or food insecure. Each household's ordinal measurements were converted by the HFIAS into one of four food security categories: food secure, mildly food insecure, moderately food insecure, or severely food insecure. It does so in increasing order of severity and frequency of food insecurity occurrences. . Coates et al. (2007) In order to determine whether a household is food insecure, it must at least answer positively to one of the eight criteria; otherwise, it is considered to be food secure (see Table 3.1).

Table 3. 1.Classification of the informal workers households by the HFIAS indicator

categories	HFIAS for the last 4 weeks	code
food secure	If the answer is "No", in the last 4 weeks	1
Mildly food insecure	If the answer is "Rarely" (once or twice) in the last 4 weeks	2
Moderately food insecure	If the answer is "Sometimes" (3 to 10 times) in the last 4 weeks	3
Severely food insecure	If the answer is "Often": (more than 10) in the last 4 weeks	4

Coping Strategies Index (CSI)

The Coping Strategies Index (CSI) is a measure of household food security that is easy to apply, quickly to comprehend, and has a good correlation with other, more intricate measures of food security. Maxwell (2008) as it is based on local contexts and facilitates the generation of thorough information about the food security situation, "context-specific" CSI was employed in this study. Maxwell (2008) Participants were requested to identify their preferred coping mechanisms in the questionnaires. According to this source, the right list of coping behaviours' and the level of severity of each strategy should be developed through community-level FGD. Different coping strategies were identified to collect the data. For each coping strategy, the assigned 'weight' was multiplied by its frequency, resulting in the score per strategy. The total CSI score was obtained by summing up the scores of all assessed strategies.

The scores are scale measures that can be grouped into households with varying degrees of coping behaviors or used as a continuous variable. Based on local characteristics, CSI results are useful in determining the severity of household coping mechanisms among informal workers in the study areas. According to the conceptual cross-tabulation earnings results that can be characterized as Maxwell et al., (2013), they classified CSI scores into three groups, setting a threshold to rank coping severity (lower CSI = 0-2) as "no or low coping strategy," (CSI = 3-12) as "medium coping mechanisms," and (CSI ≥ 13) as "high coping strategies." A high score reflects the extensive use of harmful coping strategies and mechanisms, which leads to more food insecurity Maxwell (2008). Finally, descriptive statistics were conducted to address the households' level of food insecurity. The result of both a frequency and percentage scoring method and a weight scoring system is required to study CSI per household. This can be summarized and used with the formula:

$$CSI = (\sum K F_i S_i)$$

Where: F_i = the frequency of the i^{th} coping strategy employed by a household over the previous week at a time; S_i denotes the severity weight that has been assigned to it as a result of a coping strategy; and k = the maximum number of possible coping strategies.

Household Dietary Diversity Score (HDDS)

The household variety in diet score is an essential, accurate, and straightforward method of assessing and analysing the access dimension of dietary diversity and food security.

The HDD score helps determine the economic capacity of a household to access a variety of foods and has become the most commonly used indicator to measure the economic access of households to food. Swindale and Bilinsky (2006). The HDDS indicator is expressed as the total number of food groups consumed as a value in a range between "0" and "1".

HDD score	$(0 - 12) = \sum (A + B + C + D + E + F + G + H + I + J + K + L)$
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During the analysis of the dietary diversity score for households, the first data collected was on the 12 dietary variables, whose values range from 0 to 12.

The HDDS indication is calculated using the 12 food types that members of the household consumed throughout the night or within a 24-hour recall window. Cereals (A), legumes (B), roots and tubers (C), vegetables (D), fruits (E), meat or poultry (F), eggs (G), and fish (H) I) Milk, J) Oils and Fats, K) Foods High in Sugar, and L) Condiments and Beverages This indicator's value ranges from 0 to 12. A through L's values can either be '0' or '1'.

As a result, this measurement ranges from 0 to 12 for each respondent, with a higher value suggesting greater dietary diversity and showing a strong correlation between dietary diversity and household food security. A scale made up of twelve food groups was used to assess the respondents' dietary diversity. Every time you go from a low level of nutritional diversity to a medium level and then to a high level of dietary groups, the numbers rise. Huluka and Wondimagegnhu (2019) This may suggest that the households in the high dietary Each food category consumed during the reference period was given one point, giving a maximum total dietary variety score of 12 points for each person if their responses were favourable to every food group.

The 12 food groups were used to create three dietary diversity categories: low dietary diversity (0–3) groups, medium dietary diversity (4–6) groups, and high dietary diversity (7–12) groups. These categories were effectively mutually exclusive.

3.3.3. Qualitative Data Analysis

Qualitative data was generated from interviews, observations, and desk reviews. The information collected from informal workers in this study through the facilitation of FGDs, KIIs, personal observation, and desk reviews was therefore evaluated, and the results were obtained through narrative analysis. For an analysis by topic categories, the information was reported. In the end, the quantitative results were compared with the qualitative information.

3.3.4. Quantitative Data Analysis

The outcome measures for the HFIAS, CSI, and DDH scores were thoughtfully developed using SPSS 25 to analyze quantitative data. The main descriptive statistics were measurements of central tendency (mean, median, and mode) and measures of dispersion (variance and standard deviation).

Descriptive Statistics

The data collected was entered, cleaned up, and then summarized for analysis. The Statistical Package for Social Sciences (SPSS) version 25 software was used to evaluate the data employing the two groups of parametric statistical tests, such as both inferential and descriptive statistics. Descriptive statistics like mean, standard deviation, percentages, maximum, minimum, and others were used to define the causes and determinants of food insecurity status in the study area based on demographic, socioeconomic, institutional, and livelihood factors, as well as the link between food security and food insecurity status in the study area with economic, demography, and institution factors. This could be tested by statistical tests, in particular the chi-square test, and the results were then displayed in the appropriate tables and charts.

Econometric Analysis

Many tests of distributions, used for non-parametric and parametric analysis such as the Z-test, 2-test, F-test, and chi-square test, are useful in presenting the results of development research. Data analysis is a stage that includes a number of variables. It could be interpreted as employing statistical methods to collect data on the most basic level. Gomm (2008).

The type of measurement, sample size, characteristics of the population from which the sample was drawn, the type of question to be answered, and other factors, as well as parametric versus non-parametric hypothesis testing, all play a role in the statistical test's technique of choice. One or more independent variables may have an effect on the

dependent variable. The aim of this study is to pinpoint the variables influencing households' levels of food insecurity.

Dependent variables may be dichotomous, with a value of 1 if informal labour have access to food and 0 otherwise. Since the regression model is binary, one or more independent variables can be included, and the researcher can evaluate the independent variables by representing them as dummy, categorical, or continuous variables. Non-parametric analysis the most often used variables were examined using the Mann-Whitney U-test, and depending on the type of data, non-parametric sampling may be employed for non-probability sampling.

Non-parametric tests such as the chi-square (χ^2) test were also used for the analysis of the variables, which were neither on an interval nor ratio scale. In order to determine the relationship between the food security status of households and categorical (nominal and ordinal) variables like the respondent's occupation categories, the sex of the household head, marital status, education level of the household, ownership of a house, access to credit, and whether the household received remittance for subsistence, the chi-square (χ^2) test was used.

Similarly, the Mann-Whitney U test was used to determine the significance level of the continuous explanatory variables, which included the household head's age, family size, dependency ratio, monthly income, and household expenditures, on the dependent variable, which was the study area's informal worker households' food security status. Binary logistic regression was used to find the factors that affect household food security, which was the dependent variable in the analysis. For the analysis of binary data, logistic regression is a frequently employed model.

Models that include "yes" or "no" dependent variables are called dichotomous or dummy variable regression models. In order to identify the causes of food insecurity and evaluate their relative significance in predicting the likelihood of being in a food insecure position at the household level, a logistic model was developed. According to Gujarati (1995); cited by Feleke and Bogale (2010) the functional form of the logistic distribution function

for determining factors in the food security status of households can be mathematically indicated as:

$$Li = \ln [p / (1-p)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + U_i \dots \dots \dots 1$$

Where $\ln$ =Natural logarithm (2.718), P = probability of food insecurity; $1-p$ = probability of food insecurity; β_0 = coefficients of explanatory variables; and X_n denotes predictor variables. U_i = error term Where: Z_i = is a function of i^{th} explanatory variable (X_i) and is expressed as:

$$Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n \dots \dots \dots 2$$

If the disturbance term U_i is taken into account, the logistic regression model becomes

$$Z_i = \beta_0 + \sum \beta_i X_i + U_i \dots \dots \dots 3$$

Where β_0 is the intercept and β_i is the slopes parameter in the model which is estimated using the maximum likelihood method. The slope shows how, as independent variables vary independently by a unit, the log odds in favour of food security for the household change.

3.3.5. Description of Study Variables

Dependent Variables: For the binary logistic model, the dependent variable, households' food security status, is calculated using the Household Food Insecurity Access Scale (HFIAS), a dummy variable that accepts values of 1 for food security and 0 for food insecurity. The HFIAS analysis was used to determine whether a household experiences food insecurity. Households were categorized as having food security if they responded "no" to all nine occurrence questions, whereas households with at least one "yes" response were categorized as experiencing food insecurity.

Independent Variables Below are the main independent variables that were anticipated to have an impact on the level of food insecurity among households in the study area :(In Table 3.2)

Jobs of Informal Workers: One of the factors influencing income and food security status in urban areas was the level of household food insecurity based on the work status of the household head. Birhane . et al. (2014) Therefore, employment opportunities could have a negative influence on the food insecurity status of households. Participating in casual work is beneficial; small businesses' and CAR&STW households' levels of food security could be determined by their availability for employment. Some households, on the other hand, relied on temporary employment due to the high unemployment rate. As a result, participants in our study were mostly informal Dinku et al.(2023) workers who labour with job insecurity, which has direct consequences for their food security situations.

Age of the Household Head: Age is a continuous variable. It is anticipated that workers will gain more education and experience as their house holds age. Age enhances their likelihood of being more food secure since they are less risk-averse. As a result, it is predicted that there is a positive correlation between household head age and food security. This study is similar to Beyene and Muche (2010)

Sex of the household head: A dummy variable measuring the sex of the head of the household has a value of one if the sample household is led by a man and zero otherwise. It was expected that it would have a negative impact on households' food security. Feleke and Bogale (2010)

Family size: In this term, the members of the household who live together and are financially dependent on one another are referred to as "large families," and relatives that do not support the household financially can be a source of stress. This study shows that it is similar to Birhane . et al. (2014). It is an important variable that determines the state of household food security and is expected to have negative impacts on household food security. A larger household means that there will be more individuals to feed with scarce resources.

Marital Status: Marriage was established as a categorical and flexible institution for supporting one another. Married people pool their resources, which also reduces the costs

that would have been incurred if they had spent them separately. In this study, a positive relationship between marriage and food security is hypothesized.

Dependency Ratio: The dependency ratio is calculated by dividing the household's active labour force (those between the ages of 15 and 65) by its inactive labour force (those between the ages of 15 and 65). Large household sizes can be advantageous if there is sufficient adult labour readily available. However, a household with a higher dependency ratio and a higher likelihood of food insecurity than the active age shows a more inactive and productive workforce BIGSTEN et al., (2002); cited by (Beyene and Muche 2010) Therefore, it is hypothesized in this study that the dependency ratio is positively related to the level of food insecurity in the household.

Education Level of Household Head: Food security is correlated with the household head's educational level Birhane . et al. (2014). Although the educational status of other income-earning household members is of great importance, that of the household head plays a significant role in shaping household members by being exemplary and willing to invest in education. (Feleke and Bogale 2010). The negative coefficient for education can be explained in terms of contribution to education in terms of working efficiency, competency, diversifying income, adopting technologies, and becoming visionary in creating a conducive environment to educate dependents with the long-term target of ensuring better living conditions than illiterate ones. Thus, in the sample households, having literacy lowers the likelihood of experiencing food insecurity. It was expected that education would have an effect on employment, which in turn has a positive impact on the household's financial situation and food security. So, it was expected that food insecurity would be negatively correlated with the education of the head of the household.

Monthly income of the household head for both food security and food insecurity, the average number of income-generating sources or activities per household for the entire sample was found to be comparable. Feleke and Bogale (2010) less likely are food-insecure households when monthly income per adult equivalent is higher; for urban households, more income equals better access to food supplies. .Birhane .et al. (2014) .

So, it is possible to hypothesize that the households' level of food security is positively correlated with their higher income. From a different source, the total monthly income per adult equivalent was calculated in Birr.

Monthly expenditure of household heads: It is a continuous variable with birr units of measurement. The household's average monthly expenditure is defined as the sum of its food and non-food consumption. A higher-income household spends more on food security than a lower-income household. Household expenditure was expected to be positively related to HFIAS for the study households. In the situation where some covariant shocks happen, for instance, a rise in the price of food commodities, increasing the proportion of food expenditure helps to overcome the change and keep households accessing needed food, and it also leads to the consumption of better quality food Feleke and Bogale (2010)

Table 3. 2 Summary of the variables, measurements, and explanation

Variables	Variable type	Variables definition	Expecting Sign
Food security status	Dummy	1=secured and 0 insecure	
Types informal worker	Categorical	Tapes of workers category	-
Age	Continuous	Years	+
Sex	Dummy	Male = 1 Female = 0	-
Family size	Continuous	Number	-
Marital status	Categorical	Marital status	+
Dependency ratio	Continuous	Inactive /active force	+
Education level	Categorical	Year of schooling	-
Monthly income	Continuous	monthly income in (birr)	+
Monthly expenditure	Continuous	expenditure in birr	+
Own House	Dummy	1= yes 0 other wise	+
Access to credit	Dummy	Yes =1, No=0	-
Remittance aids	Dummy	Yes =1, No=0	-

Access to credit service: This is a dummy variable that takes a value of 1 if the households have access to credit. Otherwise, the value is 0. The results of the survey revealed that the variable under consideration is negatively related to food insecurity. It is expected that households with access to financial resources will have better food security

status. Thus, it was hypothesized that access to credit could have a negative relationship with food insecurity. Feleke and Bogale (2010) The possibility of credit providing the household with the option to engage in income-generating activities so that derived revenue increases the household's financial capacity and purchasing power, reducing the risk of food insecurity, is one rationale. When households are struggling, having access to finance also helps with expenditure.

Household head received remittances: If households had access to remittances in the previous year, the dummy variable has a value of 1; otherwise, it has a value of 0. It is expected that the informal workforce will get assistance from relatives, either at home or abroad. Therefore, it was expected that having family members provide financial help would have a negative impact on the households' level of food insecurity.

House ownership of the household head: It's a dummy variable that's used as an explanatory variable. It gives a score of 1 if any of the informal workers' households own a home and 0 otherwise. It was expected that owning a house would have an effect on income, which in turn has a positive impact on the household's financial situation and food security. The access scale for household food insecurity would improve if higher-income households were to consistently and significantly increase their food access. Therefore, it was expected that having one's own house provide financial help would have a positive relationship with the households' level of food security.

CHAPTER 4: RESULTS AND DISCUSSION

The main findings and analysis of the study are presented in this chapter. There are four sections to this; the first subsection describes the demographic and socioeconomic characteristics. The descriptive-analytic method was used to describe the information acquired from the sample households. The second sub-section displays the CSI, HDD, and Food Insecurity Access Scale scores. The findings and variables influencing the level of households food security for the study area's informal workers are shown in the third subsection. In the last subsection, the logistic regression technique was used to evaluate a dichotomous dependent variable and independent variables. The dependent variable's dichotomous status was predicted in this case by simultaneously displaying a variety of independent factors.

4.1. Demographic and Socioeconomic Characteristics

4.1.1 Demographic and socioeconomic characteristics of informal households

Age of the Household Heads

It is one of the variables used to investigate the characteristics of study area households with informal workers with regard to the different jobs carried out by those people. The results in Table 4.1 clearly show that participants in the households were of the calculated average age of 41.11 (SD = 9.84); see Table 4.1.

Table 4. 1 Age of the respondents' household head

Occupation category	No HH	Age			
		Minimum	maximum	Mean	SD
Casual lab our	51	24	61	38.27	7.58
Small business	51	23	63	39.25	9.26
CAR & STW	50	25	64	45.90	10.81
Total	152	23	64	41.11	9.84

Source: Researchers own findings, 2022

Sex of household head

It is one of the dummy variables that indicates the sex of the sampled informal workers. Thus, in casual labour, small business, and CAR&STW, as shown in Table 4.2, of the total informal worker households headed by respondents, 68.4% were male, while 31.6% were female-headed households. Likewise, the CAR&STW household heads were 100% male (see Table 4.2). The CAR&STW sex distribution was only male, indicating that males perform more hard work on wood and steel than female household heads in the study area.

Table 4. 2 The sex of respondent's household heads

Occupation category	No HH	Sex of household head		
		Percent		
		Male	Female	Total
Casual labour	51	60.78	39.22	100
Small business	51	45.1	54.9	100
CAR & STW	50	100	0	100
Total	152	68.4	31.6	100

Source: Researchers own findings, 2022

Marital status household head

Table 4. 3 Marital status of the respondent's household head

Occupation category	No HH	Marital status of the household head			
		Percent			
		Single	Married	Divorced	Windowed
Casual labour	51	17.65	47.06	23.53	11.76
Small business	51	17.65	35.29	33.33	13.73
CAR & STW	50	4	82	8	6
Total	152	13.16	54.60	21.71	10.53

Source: Researchers own findings, 2022

The heads of the households of informal workers were married in the majority (54.6%) of situations. The remaining study households contain divorced couples in 21.7% of them and single people in 13.16% of them, whereas 10.53% of the households have widowed in the study area. (See above Table 4.3.)

Family Size of the Household:

The family size of the household ranged from 1 to 8, with 1 being the smallest and 8 being the largest, as indicated in Table 4.4. According to the findings, there were between one and two family members in households with respondents who had family members (24.34%), three to four family members (45.4%), five or more family members (30.26%), and more than three family members (75.66%) of respondents in the study area.

Table 4. 4 Family size of the respondent's households

Occupation category	No HH	Family size of household head		
		Percent		
		1-2	3- 4	>5
Casual lab our	51	33.33	50.98	15.69
Small business	51	29.41	47.06	23.53
CAR & STW	50	10.0	38	52
Total	152	24.34	45.40	30.26

Source: Researchers own findings, 2022

The Educational level of the household head

According to Table 4.5, 9.9% of the studied households in the study area had informal education. About 17.1 percent of household heads have a bachelor's degree or higher in terms of education. From the total, the survey found that 47.3% of households included members who had completed at least a high school diploma or a college-level education during the study period.

Table 4. 5 Educational statuses of household heads.

Education level	Occupation category of the informal workers			
	Percent			
	Casual labour	Small business	CAR&STW	Total
Informal education	7.84	9.8	12	9.9
Grade (1-4)	3.92	21.57	14	13.1
Grade (5-8)	17.65	21.57	44	27.6
Grade (9-12)	3.92	1.96	0	2
Level & diploma	62.75	11.77	16	30.3
Degree (BSC)	3.92	33.33	14	17.1

Source: Researchers own findings, 2022

Dependency ratio

Table 4. 6 Dependency ratio of respondent household heads

Dependency ratio	Occupation category of informal workers			
	Percent			
	Casual labour	Small business	CAR&STW	Total
0	13.73	9.80	2	8.6
1	49.02	35.29	54	46.1
2	31.37	39.22	32	34.2
3	5.88	5.9	10	7.2
4	0	9.80	2	3.9

Source: Researchers own findings, 2022

The household's active workforce, those between the ages of 15 and 65, is divided by its inactive labour force, those between the ages of less than 15 and above 65, to get the dependence ratio. Moreover, see Table 4.6 above. A large household size can be advantageous if there is sufficient adult labour readily available. However, a household with a higher dependency ratio and a higher likelihood of food insecurity has a more

inactive workforce relative to its active age. (BIGSTEN et al., (2002); by cited (Beyene and Muche 2010);

About 8.6% of household heads did not have a dependency ratio or had no family members. According to the descriptive analysis of the studied households' dependency ratio that was presented, one dependency ratio was about 46.1% in the study area.

4.1.2. Livelihood of Households of Respondent in Study Area

Households in urban areas depend on a number of sources of income, depending on the nature of their jobs, the availability of different economic opportunities, and the individual interests, preferences, and abilities of the people. The study found that households engage in a variety of activities to make money and sustain themselves. Household heads who participate in CAR and STW activities, small businesses, casual labour, and other livelihood activities in their own households do so to earn their livelihoods. Out of 152 households, those household heads rely on an informal source of income. The average amount of total earned throughout the course of the study among the three informal worker occupation categories was 5740.53. The category of "informal workers' occupation" includes a wide variety of worker occupations. As a result, there were three types of households in this group: low-income Birr households (2000 to 4,000), medium-income Birr households (4001 to 6,000), and high-income earners Birr (6001) for sustainable livelihoods. (See table 4.7 below)

Table 4. 7 Sources of household income according to the respondent in the study area

Monthly income	Category of informal workers			Total
	Casual labour	Small business	CAR&STW	
	Percent			
Lower (2000-4000)	68.63	7.84	6	27.63
Medium (4001-6000)	25.49	41.18	22	29.61
Higher (>6001)	5.88	50.98	72	42.76

Source: Researchers own findings, 2022

4.2. Food Security Analysis of the study households

4.2.1. Food security status of study households based on HFIAS results

Table 4. 8 The occurrence of food insecurity and its frequency as measured by HFIAS

HFIAS Questions	Informal workers	Yes response		FREQ in a month		
		FREQ	percent	Rarely	Sometimes	Often
Q1.Worry about food	Casual lab our	26	50.98	29.41	21.57	0
	Small business	32	62.74	15.68	47.06	0
	CAR & STW	34	68	26	42	0
Q2.Unable to eat preferred foods	Casual lab our	43	84.31	49.01	15.69	19.61
	Small business	45	88.23	33.33	37.25	17.65
	CAR & STW	48	96	52	24	1020
Q3.Eat a limited variety of foods	Casual lab our	29	56.86	31.37	5.88	19.61
	Small business	32	62.74	19.61	11.76	31.37
	CAR & STW	34	68	24	14	30
Q4. Eat foods they really do not want eat	Casual lab our	25	49.02	23.53	5.88	19.61
	Small business	33	64.71	21.56	9.80	33.33
	CAR & STW	32	64	20	14	30
Q5 Reduce amount of meal	Casual lab our	18	35.29	7.84	9.80	17.65
	Small business	31	60.78	15.68	13.73	31.37
	CAR & STW	32	64	26	14	24
Q6.Reduce frequency of in days meal	Casual lab our	24	47.06	17.65	9.80	19.61
	Small business	31	60.78	19.61	9.80	31.37
	CAR & STW	31	62	20	16	26
Q7.No food of any kind in the household eat	Casual lab our	0	0	0	0	0
	Small business	0	0	0	0	0
	CAR & STW	0	0	0	0	0
Q8.Go to sleep at night hungry	Casual lab our	0	0	0	0	0
	Small business	0	0	0	0	0
	CAR & STW	0	0	0	0	0
Q9.Go a whole day and night without eating	Casual lab our	0	0	0	0	0
	Small business	0	0	0	0	0
	CAR & STW	0	0	0	0	0

For the welfare of the household and other development initiatives to be successful, access to enough food is crucial Endale et al., (2014). Cited. Abebaw and Betru (2019) Food security challenges have risen to the top of emerging nations' priorities in recent years. As suggested by Coates et al. (2007) ,three specific food insecurity access conditions were summarized from HFIAS questions as domains, scale, and prevalence. The domains noted are simply further categorizations of the nine. HFIAS questions into three domains such as anxiety (question 1), insufficient quality (question 2, 3, and 4), and inadequate intake of food and its physical consequences (question 5, 6, 7, 8, and 9) to facilitate the analysis of varying levels of access conditions and obtain a better understanding of the characteristics of food security in the surveyed household. The HFIAS is a food security assessment used to look at household food security status.It is based on the replies of selected households describing their availability of food, including never, rarely, sometimes, and often Regassa and Stoecker (2012) For the purpose of determining the incidence and situations of accessible-related issues and investigations of household food insecurity, access scales were used. The nine generic items of the HFIAS were also created to reflect the different categories of food security status and represent different levels of food insecurity. The domains below are never, rarely, sometimes, and frequently. On this scale, "no" for all HFIAS occurrence questions indicates there are no access issues, and "frequently" for all occurrence questions indicates there are serious food security issues. See Table 4.8 above

The domains below are never, rarely, sometimes, and frequently. On this scale, "no" for all HFIAS occurrence questions indicates there are no access issues, and "frequently" for all occurrence questions indicates there are serious food security issues. Households are given a score that runs from 0 to 27 based on how they responded to the nine questions and how frequently they occurred during the previous 30 days. An increased HFIAS score indicates poorer food access and more food insecurity in a household. The HFIAS's general range was taken into account when dividing households into terciles using the survey's data. The same categories of most food-secure scores of 0–11, medium food-secure scores of 12–16, and least food-secure scores equal to 17 or more were kept for

developing a dichotomous indicator for households experiencing food insecurity Ballard et al. (2008) (see Table 4.8 above

The minimum and maximum scores for the HFIAS value have been found to be 0 and 17, respectively, with an average score of 7.47 (SD =6.25). Based on the nine generic questions on the analysis of the HFIAS score, 69.7%, 11.2%, and 19.1% of the households were categorized as "most food secure," "medium food secure," and "least food secure," respectively. Using this scale, a dichotomous indicator of food security was created using a HIFIA score of 17 as the cut-off point Ballard et al. (2008)

Based on this analysis, 123 (80.9%) of the people who participated in the study household had access to enough food, while the other 29 (19.1%) were food insecure. A recent study related to the study of households' experiences with food security Anand et al.(2019)

Household food insecurity access prevalence

Food secure, mild, moderate, and severely food insecure households are the four categories of household food insecurity (access) according to the HFIAP indicator. The final statistical measure measures the level of food insecurity categorically. This HFIAP indicator classifies households into four main groups: food secure, mildly, moderately, and severely insecure about their access to food. Households are categorized as having a higher level of food insecurity since they respond well to more extreme conditions and/or come across those circumstances more frequently. Coates et al.(2007)

The result shows in Table 4.9 that the food security status of households is food secure, with 15% being mildly food insecure (41.09%). Also, 27.19% of the households are moderately food insecure, while the remaining 16.72% of the study households are severely food insecure, respectively. (See table 4.9 below)

Table 4. 9 Prevalence of food access in households as measured by HFIAS (N=152)

Question	Occupation category of informal workers households														
	Casual labour					Small business					CAR&SW				
	NO	Rarely	Sometimes	Often	Total	NO	Rarely	Sometimes	Often	Total	NO	Rarely	Sometimes	Often	Total
1a	25	15	11	0	51	19	8	24	0	51	16	13	21	0	50
2a	8	25	8	10	51	6	17	10	18	51	2	26	7	15	50
3a	22	16	3	10	51	19	10	4	18	51	16	12	6	16	50
4a	26	12	3	10	51	18	11	5	17	51	18	10	7	15	50
5a	33	4	5	9	51	20	8	7	16	51	18	13	7	12	50
6a	27	9	5	10	51	20	10	5	16	51	19	10	8	13	50
7a	51	0	0	0	51	51	0	0	0	51	50	0	0	0	50
8a	51	0	0	0	51	51	0	0	0	51	50	0	0	0	50
9a	51	0	0	0	51	51	0	0	0	51	50	0	0	0	50
Total					459					459					450

Food severity status informal workers

Food secure /access/ = 15

Mildly food insecure /access/ = 41.09%

Moderately food insecure /access/ = 27.19%

Severely food insecure /access/ = 16.72%

Source: Researchers own findings, 2022

4.2.2. Coping strategies index (CSI)

The CSI keeps track of what people do when they don't have access to enough food. In reaction to food insecurity, people commonly use a number of predictable behavioural responses or coping techniques. These coping mechanisms are simple to observe. Information on coping mechanisms can be gathered more quickly, easily, and affordably than actual household food intake data. Therefore, the CSI is a useful tool in emergency situations where other approaches are impracticable or too late. (Maxwell 2008). According to studies done in Ethiopia, households use a variety of coping strategies while facing food shortages or problems Sewnet (2015); Arega (2015).cited Sani and Kemaw (2019) The study's findings supported the idea that households in the study area developed a variety of coping strategies when faced with food scarcity or insecurity.

The FGD and participants claimed that the households of informal workers used a number of coping mechanisms in reaction to food shortages. The most common coping mechanisms included turning to less expensive and less preferred foods, buying food on credit, reducing the number and size of meals, restricting adult consumption so that young children could eat, and looking for remittances to purchase the meals that respondents' households needed. The CSI score ranged from 0 (if none of the coping mechanisms were used over the entire week) to the respondent's affirmative response. Higher CSI, more intense and stressful coping, and lower CSI were the three types of applied experiences among informal workers. The frequency (the number of days) and severity weight of a coping strategy are combined to create the CSI score. To arrive at a total score at the household level, the scores for each coping mechanism are added together. The outcome displays the typical number of days households employed one of the ten universal CSI questionnaire strategies to address their food insecurity all over the survey week. (See Table 4.10).

According to the findings, the three most often employed techniques by study households to deal with food insecurity were: depending on less desired and less expensive items; 73.68% of households used to increase household food availability by purchasing food on

credit because of food insecurity (34.21% depending); and limiting portion size at mealtimes. 59.87%; restricting consumption by adults in order to feed children (39.47%); and remittances (17.11%) used as coping mechanisms for households turning to less-priced

Table 4. 10 Coping mechanisms of informal workers in the study area

CSI of strategy	Occupation category							
	Casual lab our (N=51)		Small Business(N=51)		CAR&STW (N=50)		Total (N=152)	
	FRE	%	FRE	%	FRE	%	FRE	%
1.Rely on less preferred and less expensive foods	31	60.78	36	70.59	45	90	112	73.68
2. Borrow food from a friend or relative?	0	0	0	0	0	0	0	0
3. Purchased food on credit?	13	25.49	19	37.25	20	40	52	34.21
4. Send children to eat with neighbors?	0	0	0	0	0	0	0	0
5. Send household members to beg?	0	0	0	0	0	0	0	0
6. Limit portion size at mealtimes?	19	37.25	33	64.70	39	78	91	59.87
7. Restrict consumption by adults for small children to eat?	11	21.57	20	39.21	29	58	60	39.47
8. Expense of non-working members?	0	0	0	0	0	0	0	0
9. Reduce the number of meals eaten in a day?	20	39.21	21	41.18	24	48	65	42.76
10. Skip entire days without eating?	0	0	0	0	0	0	0	0

Source: Researchers own findings, 2022

Households that lack access to food frequently use one of four different consumption coping mechanisms. First, households might alter their diet (moving from favourite items to less expensive alternatives). Second, the family may attempt to increase their food

supplies through short-term techniques that will not last for a long time (borrowing or making purchases with credit; extreme); the third and most popular option is for households to ration the food they have available (e.g., by reducing the number of meals or portion sizes, favouring some family members over others, skipping entire days without eating, etc.). Maxwell and Watkins (2003). The fourth option is for households to increase access to food and secure the remittances they have available, which is used as a coping strategy when food shortages occur in the study area.

The CSI-based household classification describes the level of coping experience in a more understandable manner. The minimum and maximum scores for the CSI value have been found to be 0 and 16, respectively, with an average score of 4.92 (SD =3.83). As previously mentioned, the study households were also divided into three categories to be classified into low, medium, and high coping strategies. Based on this CSI score for informal worker households in the study area, the CSI results show that (0–2) of households have lower coping mechanisms, (3–12) have medium coping mechanisms, and (≥ 13) have high coping mechanisms in the study area Maxwell et al. (2013) (See

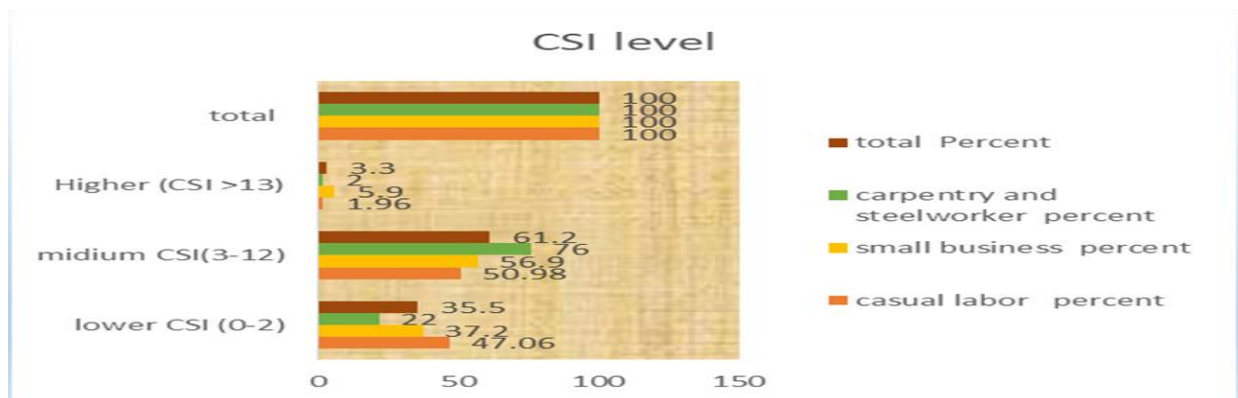


figure 4.1.)

Figure 4. 1 Coping strategies category of informal workers in the study area

Source: Researchers own findings, 2022

The results of the study indicated that as the CSI scores increased, households relied more on consumption coping strategies (rationing strategies and dietary change

strategies). This is in line with a similar study on rural food insecurity by Mjonono (2009) cited in (Grobler 2014) on coping strategies in South Africa.

Consumption-Based Coping Strategies

The predominant coping mechanism was to switch to less-favourite and more affordable foods. According to discussions with the FGD and KII, informal workers' limited earnings make it difficult for them to buy food. The study's asset- and livelihood-based coping mechanisms are shown in Table 4.11 below.

Table 4. 11 Household responses to support and strength-based coping strategies

Coping strategy index	Households response		Frequency of occurrence		
Percent	No	Yes	1-2 day	3-6	daily
1. Dietary Change					
Rely on less preferred	26.32	73.68	34.21	36.84	2.63
2. Short-term measures					
Purchase food on credit	65.79	34.21	28.29	5.92	
3. Rationing Strategies					
Limit portion size at mealtimes	40.13	59.87	44.08	15.13	0.66
Restrict consumption by adults in order	60.53	39.47	33.55	5.92	
4. Remittance	82.89	17.11	-	-	-

Source: Researchers own findings, 2022

Households with limited resources frequently use help and livelihood assets to purchase food. Participants employed dietary changes, quick fixes to increase food availability in the household, rationing strategies, and other coping mechanisms like remittances as coping mechanisms.

Correlation of CSI and HFIAS

The mean coping strategy index (CSI) score was 1.59 and 2.00 for food secure and food insecure households, respectively (see Table 4.12). The variation in the mean CSI score between food secure and food insecure households was highly significant ($P < 0.001$). As a result, for the study households, the correlation between the CSI score and the HFIAS indicator was both negative highly correlated at ($P < 0.05$, $R = -0.324$). The outcome showed that households with intermediate CSI scores also experienced moderate food insecurity. Thus, on average, households with food insecurity used much more coping mechanisms than those with food security to deal with food shortages (see Table 4.12). Accordingly; Maxwell (2008), found a correlation between CSI and other food insecurity indicators, including the HFIAS, as well as causes of food insecurity such as household income.

Table 4. 12 The Coping Strategy Index by Food Security Status in Summary

	Food security status	N	Mean	Std. Deviation	t-value
CSI score	Food secure	123	1.59	0.57	3.82***
	Food insecure	29	2.00	0.00	
	Total	152	1.67	.537	
Spearman Correlation Coefficient (R) for HFIAS and CSI Score					-0.324***

Source: Researchers own findings, 2022

4.2.3. Household Dietary Diversity Score

Household dietary diversity investigates the capacity of a household to pay for access to a variety of foods over a certain period of time. It is a crucial nutritional finding. Dietary diversity is the variety of food types that the households of the informal workers consume in order to determine their dietary intakes during the course of the study. Food was divided into twelve types, each of which contributed to the household score if any member of the household ingested a food item from it during the previous 24 hours. The

HDD score is therefore a continuous number that ranges from 0 to 12, depending on whether the household consumes food from each of the 12 food groups described below.

Therefore, the respondents' scores on dietary diversity were determined considering information obtained from the 24-hour dietary intake. Swindale and Bilinsky (2006). If all of a person's responses were positive, each food group consumed during the reference period was given one point, giving each person a maximum total dietary diversity score of 12 points. Every time you go from a low level of nutritional diversity to a medium level and then to a high level of dietary groups, the numbers rise .This would suggest that households in the high dietary groups are more likely to be in a better socioeconomic position than those in the middle and low dietary groups.

Table 4. 13 Distribution of households' consumption by different food groups

Food groups consumed	Yes response of households							
	Casual lab our		Small business		CAR & STW		Total	
	FRE	%	FRE	%	FRE	%	FRE	%
Cereals	50	98.04	49	96.08	50	100	149	98.0
Legumes	49	96.08	48	94.12	48	96	145	95.4
Roots and tubers	18	35.29	28	54.90	37	74	83	54.6
Vegetable	38	74.51	24	47.06	30	60	92	60.5
Fruit	17	33.33	15	29.41	6	12	38	25
Meat/Poultry	16	31.37	21	41.18	16	32	53	34.9
Eggs	26	50.98	21	41.18	20	40	67	44.1
Fish	6	11.76	6	11.76	6	12	18	11.8
Milk	20	39.22	21	41.18	24	48	65	42.8
Oil and fats	45	88.24	44	86.27	46	92	135	88.8
Sugar foods	31	60.78	31	60.78	30	60	92	60.5
condiments,	38	74.51	35	68.63	39	78	112	73.7

Source: Researchers own findings, 2022

This, in turn, could indicate an association between HDD scores and household wealth. Meat, eggs, and fish consumption varied from 31.37%, 50.98%, and 11.76% for households with casual informal workers to 41.18%, 41.18%, and 11.76% in households with small business informal workers to 32%, 40%, and 12% in households with carpenters and steelworkers. (See Table 4.13 above)

Further investigation into this association found statistically important differences in dietary diversity based on wealth position. This score was later recoded to a three-level categorical variable using specific cut-off values. According to Huluka and Wondimagegnhu (2019) The low dietary diversity (0–3), medium dietary diversity (4–6), and high dietary diversity (7–12) food groups were the three main groupings, according to whoever categorized the 12 food groups into low, medium, and high dietary diversity categories that are fundamentally mutually exclusive. The amounts of each food category consumed by each household are added together and divided by the total number of households. Based on HDD scores, foods were classified as having 7.2% high, 77% moderate, and 15.8% low dietary diversity. (See Table 4.14)

Table 4. 14 Dietary diversity score and food groups consumed by informal workers

Dietary Diversity Level	N	Percent	Mean	SD	minimum	maximum
Low (0-3 food groups)	24	15.8	2.67	0.482	2	4
Medium(4-6 food groups)	117	77	5.21	0.866	4	6
Higher (7-12 food groups)	11	7.2	8.82	1.17	7	10
Total	152	100	5.07	1.63	2	10

Source: Researchers own findings, 2022

4.3. Factors Associated With Food Security status

The Mann-Whitney group mean difference between food-secure and food-insecure households was studied using the U test. As a result, only two of the five continuous variables used in the analysis of the study's data show a significant difference between the means of food-secure and food-insecure households. Family size and monthly food expenses for the household are two factors. At a 5% level of confidence, it was found that

the independent Mann-Whitney U test findings for these variables were statistically significant.

Statistical analysis of the study's continuous variables

Age of the household head

The mean age of food secure household heads (40.04 years) is also significantly different from the mean age of food insecure household heads (45.65 years). The mean age of food secure household heads in the study had an average age of 41.11 years (SD = 9.84). The results of the non-parametric Mann-Whitney U test for the age of households based on food and security status were significant. $U = 1468.5$ $p > .05$), with an average food insecurity score of 87.36% and a food security score of 73.94% in study participants. As a result, most of the households sampled are of economically active age. Almost 82.9 percent of the total households are between the ages of 23 and 50, while 17.1% are between the ages of 51 and 64. The probability value indicates that the age difference between food-insecure and food-secure households is insignificant. In line with similar findings by Beyene and Muche (2010) in contrasting the findings of E. Faustine (2016) and Bahiru, et al (2023), who discovered a significant difference in the age of food-insecure and food-secure households, see Table 4.15 below.

Table 4. 15 Age of households to food security status

Age of household (years)	Food secure (N=123)	Food insecure (N=29)	Total (N=152)
	Percent		
23-30	19.5	6.9	17.1
31-50	65.0	69.0	65.8
51-64	15.5	24.1	17.1
Mean age	40.04	45.65	41.11
Std. Deviation	9.51	10.07	9.84
A Mann-Whitney U test	1468.5		

Note: insignificant at 5 % probability level

Source: Researchers own findings, 2022

Family Size

According to the study's statistical analysis (Table 4.16), there is a statistically significant difference between the mean family size of households with secure food (4.61 = SD 1.70) and those insecure about it (5.79 = SD 1.37). The study found that all households had an average size of 4.84 (SD = 1.71) members. The results of the non-parametric Mann-Whitney U test for family size on food and security status were significant. $U = 1219.5$ $p < 0.01$, with an average food insecurity score of 95.95% and a food security score of 71.91%. According to the study, households with a large number of family members are more likely to experience food insecurity than households with a small number of family members.

Most of the households in the sample (more than 75%) have a large number of family members (more than three) (Table 4.16). The results show a significant association between family size and food and security status; at a 1% level of probability, this relationship is statistically significant. An increase in the number of families that do not use improved technology contributes to food insecurity. In other words, households with fewer members are more likely to have food security than households with many members. This finding is consistent with those of Endale et al. (2014), R. Echebiri et al. (2017), and cited Yehuala, et al. (2018). Contrarily, (2016). E. Faustine (2016), citing, Bahiru et al. (2023) found that increasing family size has a beneficial impact on a household's level of food security and helps provide additional work for productivity.

Table 4. 16 Family size and food security status

Family size of household	Food secure	Food insecure	Total
	Percent		
Small (One to two)	29.3	3.4	24.3
Medium (Three to four)	43.9	51.7	45.4
Large (Five and above)	26.8	44.8	30.3
Mean of family size	4.61	5.79	4.84
Std. Deviation	1.70	1.37	1.71

A Mann-Whitney U test

1219***

Notice *** significant at 1% probability level

Source: Researchers own findings, 2022

Dependency Ratio

According to the study's statistical analysis (Table 4.17), there is a statistically insignificant difference between the mean dependency ratio of households with secure food (1.47 = SD 0.87) and those insecure about it (1.72 = SD 0.99). The study found that all households had an average size of 1.52 (SD = 0.89) members. The dependency ratio is the ratio of the total number of too young (under 15) and too elderly (over 64) individuals to the total number of age groups. A significant difference in the results of the food security status was found ($U = 1528$, $p > 0.1$). Food security status had a mean rank of food insecure (85.31%) and a mean rank of food secure (74.42%) in the study area. Thus, in this study, it is hypothesized that the dependency ratio contributes positively to the households' food insecurity status. This is in conformity with the work of Arene and Anyaeji (2010) and Indris (2012) cited in (Ahmed, et al (2018).

Table 4. 17 Household dependency ratio and food security status

Dependency ratio	Food secure	Food insecure	Total
	Percent		
0	8.9	6.9	8.6
1	48	37.9	46.1
2	33.3	37.9	34.2
3	6.5	10.3	7.2
4	3.3	6.9	3.9
Mean dependency ratio	1.47	1.72	1.52
Std. Deviation	0.87	0.99	0.89
A Mann-Whitney U test			1528

Notice insignificant at 5% probability level

Source: Researchers own findings, 2022

Household monthly income

According to the focus group discussion, households earn money from a variety of sources, and the level of household income is the major factor influencing their food security status. Informal workers who live in urban areas need to have the financial capacity to purchase food and non-food items in the required quantity and quality. These

informal workers have relied on their livelihood assets to generate adequate income for households, considering the occupation category of household head work as the primary source of income for the employee; casual work; small business; and carpentry and steel workers. Additionally, considering that the ability to purchase food mostly depends on household income and asset (wealth) status, it was anticipated that household income would improve the status of household food security. Jacobs, P.T. (2009); Anderson et al. (2018); cited Ngema, et al (2018) According to the study's statistical analysis (see Table 4.18), there is a statistically insignificant difference between the monthly income mean of households with secure food (ETB 5676.80 = SD 1036.04) and those insecure about it (ETB 6011.10 = SD 940.49). The mean monthly income of the household heads in the study was an average of ETB 5740.59 SD =1024.02. The results of the non-parametric Mann-Whitney U test for the monthly expenditure of households on food security and insecurity were significant. $U = 1411$; $p > .05$), with an average food insecurity score of 89.34% and a food security score of 73.47%. (See Table 4.18) The result was in agreement with that of Feleke and Bogale (2010); and (Anand et al. 2019)

Table 4. 18 Household monthly income and food security status

Monthly income earn	Food secure	Food insecure	Total
		Percent	
Lower (2000-4000)	30.9	13.8	27.6
Medium (4001-6000)	29.3	31.0	29.6
Higher (>6001)	39.8	55.2	42.8
Mean	56760.80	6011.10	5740.58
Std. Deviation	1036.04	940.5	1024.02
A Mann-Whitney U test			1411**

Note: = insignificant at 5 % probability level

Source: Researchers own findings, 2022

Monthly expenditure

The average monthly expenditure of a household is defined as the sum of its food and non-food consumption averages. A study of factors influencing food purchasing is especially important for low-income households because food expenditure typically

accounts for more than half of the personal consumption expenditure in these households' budgets. Anand et al. (2019) The variables that affect a household's food expenditure include family size, income, age, the greatest level of education reached, the cost of education, the occupation of the household head, the sex of the head of the household, and the family size of those employments. According to the study's statistical analysis (see Table 4.19), there is a statistically significant difference between the monthly income mean of households with secure food ETB (2786.67 = SD 514.93) and those insecure about it ETB (2840.21 = SD 485.16). The mean monthly expenditure of the household heads in the study was an average of ETB 2796.9 SD =514.93. The results of the non-parametric Mann-Whitney U test for the monthly expenditure of households on food secure and insecure were significant. $U = 1468.5$ $p < .05$), with an average food insecurity score of 91.93% and a food security score of 72.86%. The result was confirmed with the result Feleke and Bogale (2010); Magaña-Lemus et al. (2016); and (Anand et al. 2019)

Table 4. 19 Monthly expenditure of respondent and food security status

Monthly expenditure	Food secure	Food insecure	Total
	Percent		
lower (1000-2500)	43.1	41.4	42.8
Medium (2501-3000)	26.8	27.6	27.0
Higher >3001	30.1	31.0	30.2
Mean	2786.7	2840.2	2796.9
Std. Deviation	523.1	485.2	514.9
A Mann-Whitney U test			1336**

Note: = **significant at 5 % probability level

Source: Researchers own findings, 2022

The statistical analysis of the discrete variables

Occupation categories of informal workers

Informal workers, which include casual labour work, small businesses, and CAR&STW, were the source of livelihood activity for participants. The survey result for this variable revealed that 81.9% and 19.1% of the sample households informal workers are food secure and food insecure, respectively. Of these households, casual labour (82.2%) and 11.8% were food secure and food insecure, while small businesses (76.5%) and 23.5% of the households were food secure and food insecure, and CAR and STW (78% and 22%, respectively) became food secure and food insecure.

Even though it was the main source of income for many households in the area, the majority of the FGD participants claimed that informal labour work was simply available for short periods of time, such as months or years. The chi-square result of this variable is statistically insignificant at the 5% level of significance. (See Table 4.20.) Therefore, there is no relationship between food secure and the occupation category of informal workers. This could be attributed to the fact that informal workers' income generated through working activities and categories may not ease the liquidity constraint needed for food security investments or the purchase of food to bridge the food deficiency in their households. The result of this study is in conformity with the study conducted by Bahiru, et al . (2023).

Table 4. 20 Household food security status by occupation of informal workers

Food security status	Types occupation Category of informal workers			
	Percent			
	Casual labour	Small business	CAR&STW	Total
Food secure	88.2	76.5	78	80.9
Food insecure	11.8	23.5	22	19.1
χ^2 2.69	value			

Note: insignificant at 5 % probability level

. Source: Researchers own findings, 2022

Marital status.

The legal relationship of marriage was created with the purpose of supporting one another. Married people pool their resources, which also reduces the costs that would have been incurred if they had spent them separately. Moreover, married households put aside some resources for unforeseen circumstances to smooth their lives. Therefore, it was expected that a household's level of food security would positively correlate with the marital status of the household care providers. According to the result, marriage, which includes single, married, divorced, and widowed participants, revealed that single, married, divorced, and widowed participants are food secure at 3.5%, 5.9%, 22.8%, and 8.9% of the sample households' informal workers, respectively. While 3.5% of the population was single, married, divorced, or widowed, 62.1%, 17.2%, and 17.1% of these households were food insecure, respectively. (See Table 4.21). A chi-square of independence was calculated comparing the results of food security status and marriage, and an insignificant relationship was found ($\chi^2 (3) = 4.79, p > 0.1$). The food security status indicates that there is no significant dependence between the marital status of the household head and the food security status. The result of this study is in conformity with the study conducted by Ngema et al. (2018)

Table 4. 21 Marital status of the household head

marital status	Food secure(N=123)	Food insecure(N=29)	Total(N=152)	(χ^2)
	Percent			
Single	15.4	3.5	13.2	4.79
married	52.9	62.1	54.6	
Divorced	22.8	17.2	21.7	
Windowed	8.9	17.2	10.5	
Total	100	100	100	

Notice insignificant at 5 % probability level

Source: Researchers own findings, 2022

Sex of the household head

A majority (68.4%) of the sample households were male-headed, while 31.6% were female-headed. This indicates that there are more male-headed sample households than female-headed households. The chi-square result of this variable indicates that 67.5% and 32.5% of male-headed and female-headed sample households, respectively, are food secure, whereas 72.4% and 27.6% of male-headed and female-headed households, respectively, are food insecure. (See table 4.22.)

The chi-square result of this variable was found to be at the ($\chi^2 (1) = 0.264$, $p > 0.1$) level. Which is insignificant at the 5% level of significance. Hence, there is no correlation between the gender of the household head and the food security status of households. The food security status indicates that there is an insignificant dependence on the sex of the household head on the food security status. This is because male-headed households may be entitled to different types of resources and income than female-headed households. The outcome is in line with the work of Alemayo et al. (2008), Etim and Patrick (2010), and Mohammed (2012) Cited. Teka et al. (2019)

Table 4. 22 Food security status by sex of the household head

Sex of the household	Food secure(N=123)	Food insecure(N=29)	Total (N=152)	(χ ²)
	Percent			
Male	67.5	72.4	68.4	26.4
Female	32.5	27.6	31.6	
Total	100	100	100	

Note: insignificant at 5 % probability level

Source: Researchers own findings, 2022

Education level of household heads

The majority, about 90.1% of respondents for all households, had attained formal educational qualifications (these ranged from primary to secondary and up to tertiary levels of education; see Table 4.23). The statistical analysis result revealed that 23.03% and 76.97% of the sample households were found to have informal education up to grade 8 and from grade 9 up to degree level BSc, respectively. Among education up to grade 19,5% and grade 9 up to degree level BSc 37.93% were found to be food secure and food insecure, respectively. While 62.07% and 80.49% of households with informal education up to grade 8 and grade 9 up to degree level BSc households were found to be food secure and food insecure, respectively,

According to the finding, households with higher levels of education have better food security, which opens up more employment prospects. Higher education levels increase the chance of food security for household heads more than lower education levels do. According to the finding, households with higher levels of education have better food. The FGD and key informants indicated that educated households had succeeded in finding employment. Specifically, through engaging in many occupations, largely because urban areas offer greater access to knowledge and communication skills as well as the ability to adapt to different systems, This variable's chi-square result meets the ($\chi^2(5) = 25.32, p < 0.01$) statistical significance level. This shows that there is a strong link between education and the level of food security. This finding highlights the importance of education for improving household food security because educated household heads typically participate. Similar findings about the relationship between education and household food security were reported by Gebre ;(2012) and Chinnakali et al. (2014). Households with higher educational backgrounds were hypothesized to have a higher likelihood of having a demographic factor that has a positive impact on their ability to make sound production and dietary decisions. On the other hand, in line with the findings of numerous other studies Frehiwot (2007), Lewin and Fisher (2010), Arene and Anyaeji (2010), and Ayantoye et al. (2011), cited by Dube (2018)), anticipate a negative relationship between the education level of the household heads and the household's food insecurity.

Table 4. 23 Household food security and education level of informal workers

Education level of household	Food secure(N=123)	Food insecure(N=29)	Total(N=152)	(χ^2)
	Percent			
Informal	10.6	6.9	9.9	25.32
Grade 1-4	8.9	31.0	13.2	
Grade 5-8	22.8	48.3	27.6	
Grade 9-12	1.6	3.4	2.0	
diploma	35.8	6.9	30.2	
Degree (BSC)	20.3	3.4	17.1	
Total	100	100	100	

Note: ***=significant at 1 % probability level

Source: Researchers own findings, 2022

Own House Ownership

A majority (71.7%) of the sample households did not have ownership of a house, while only 28.3% had ownership of a house. This indicates that households do not have houses and are affected by food insecurity more than house-owning households.

Table 4. 24 Housing conditions of the study households and food security status

House ownership	Food secure (N=123)	Food insecure(N=29)	Total (N=152)	(χ^2)
	Percent			
Yes	25.2	41.4	28.3	3.03*
No	74.8	58.6	71.7	
Total	100	100	100	

Note: = insignificant at 5 % probability level

Source: Researchers own findings, 2022

The findings of the result indicate that, with own house ownership at 25.2% and without ownership of a house at 74.8%, participants' were food secure. While with ownership of house 41.4 and without ownership of house 58.6, respectively, are food insecure. (See

table 4.24.above) The results of households owning and not owning houses were compared using a chi-square test of independence, and an insignificant relationship was found (χ^2 , (1) = 3.027, $p < 0.1$) between households owning and not owning houses that had food security status. A similar result was also obtained Anand et al. (2019)

Access to credit and food security status

The majority (about 95%) of the total sample indicated that they had never received credit support. Credit is an important source of future income. Households that received credit have the possibility to invest in for different activities, which is important to secure their food shortages. Access to credit can create an opportunity for informal workers to be involved in diversified business opportunities that generate revenue for households. The survey results of this study revealed that 33.6% and 66.4% of the sample households have and do not have access to credit services, respectively. Among these households, 33.3% and 34.5% had access to credit services and were food secure and food insecure, respectively, whereas 66.7% and 65.5% of the households did not have access to credit services and became food secure and food insecure, respectively. (See Table 4.25 below.) The findings of the food security status survey were analyzed, and households were analyzed using the chi-square test of independence. This insignificant relationship was found (χ^2 (1) = 0.014, $p > 0.1$). Therefore, there is no association between access to credit services and the food security status of informal worker households in the study area.. Similar to Yehuala et al. (2018)

Table 4. 25 Access to credit and participation of informal workers

Access to credit	Food secure (N=123)	Food insecure (N=29)	Total(N=152)	(χ^2)
	Percent			
Yes	33.3	34.5	33.6	0.014
No	66.7	65.5	66.4	
Total	100	100	100	

Note: = insignificant at 5 % probability level

Source: Researchers own findings, 2022

Remittances

A majority (82.9%) of the sample households did not receive remittances from any source, while only 17.1 had received remittances from relatives, friends, and others. This indicates that the majority of households do not have any support from others for their livelihood. The findings of the result indicate that, with participants receiving remittance at 17.1% and without receiving remittance at 82.9%, they were food secure. While those with remittances received 17.1 and those without remittances received 82.9, respectively, they are food insecure. (See table 4.26.) A chi-square test of independence was calculated comparing the results of food security status and food insecurity, and an insignificant relationship was found ($\chi^2 (1) = .000$, $p > 0.1$). The food security status indicates that there is an insignificant difference between remittances received and those not received by the household head.

Table 4. 26 Remittances receive by households head

Remittance received	Food secure (N=123)	Food insecure (N=29)	Total (N=152)	(χ^2)
	Percent			
Yes	17.1	17.1	17.1	.983
No	82.9	82.9	82.9	
Total	100	100	100	

Note: = insignificant at 5 % probability level

Source: Researchers own findings, 2022

4.4. Determinants of Food Security Status

4.4.1. Econometric analysis

This study used the method of binary logistic regression in order to show the relationship between the independent variables and the binary dependent variable. The respondent's age, family size, dependency ratio, household income, household expenditure, the status of an informal worker, household sex, marital status, level of education, access to credit,

household ownership of houses, and remittances are the explanatory (independent) variables entered in the binary logistic regression modelling to identify the determinants of household food security status. The explanatory factors entered in the binary logistic regression modelling and their anticipated results are listed in Table 4.27 and Appendices' 7.2. By assessing Multicollinearity between the model's independent variables using the values of the Collinearity Diagnostic, where tolerance was > 0.1 and the variable inflation factor VIF was 5, an effort was made to meet the logistic regression model's assumptions. Out of the 12 variables fitted in the binary logistic regression model, three variables significantly affected the level of food security in urban households in the study area.

Table 4. 27 Determinants of the household food security status HFIAS

Variable	B	S.E	Wald	df	Sig	EXP(B)	95 % C.I for EXP(B)	
							Lower	Upper
Ownership of house	2.484	.917	7.331	1	.007	11.985	1.985	72.357
Education level			12.924	5	.024			
Education level(1)	-2.380	1.892	1.583	1	.208	.093	.002	3.773
Education level(2)	-4.476	1.797	6.207	1	.013	.011	.000	.385
Education level(3)	-3.743	1.691	4.898	1	.027	.024	.001	.652
Education level(4)	-3.116	2.056	2.296	1	.130	.044	.001	2.496
Education level(5)	-.494	1.578	.098	1	.754	.610	.028	13.434
Access to credit(1)	-1.684	.864	3.801	1	.05	.186*	.034	1.009
2Log likely hood								108.442 ^a
Cox and Snell R Square								0.230
Nagelkerke R Square								0.369
L R Chi2 (8)							14.177(p=0.077)	
Overall correct prediction								86.2

Notes: ***, **, *, shows P-value significant at 1%, 5% and 10 %, respectively

Source: Researchers own findings, 2022

These variables, including the household head's ownership of the house situation, educational attainment, and access to credit, have an influence on the level of food

security. The other equally important test for the assumption of logistic regression, the Hosmer and Lemeshow test, has a sig value of 0.77, which is higher than $p > 0.05$. The omnibus model summary test was statistically significant at $\chi^2 (8) = 14.18$, $p = 0.77$, indicating that the model displays a good fit to the data. It also reveals the results of the Cox & Snell and Nagelkerke R-square tests. The entire model, given the set of independent variables, accounts for between 23% and 36.9% of the variation in the dependent variable.

The full model accounts for the variation in the dependent variables for a specific set of independent factors. Out of a total of 12 descriptive factors used in the model, three were found to significantly influence the food security status of households: the household head's ownership of a house, education, and access to credit ($P < .05$), respectively, were found to have a statistically significant impact on the food security status. The nine remaining explanatory factors, such as sex, age, types of jobs for informal workers, marital status, family size, dependency ratio, monthly income, monthly expense on food, and remittances, were found to be statistically insignificant. According to Birhane et al. (2014). The main causes of food insecurity in urban areas were rising costs for both food and non-food items as well as low purchasing power brought on by economic issues.

4.4.2. Discussion of the Food Security Status

According to Table 4.27 above, the odds ratios, p values, and actual value binary logistic regression coefficients (Exp (B)) are summarized. The following are the implications for household food insecurity and interpretations of key explanatory factors in logistic regression model analysis: Three of the twelve variables that were finally tested in the binary logistic regression model were found to be significant in determining a household's food security status in Woreda two of Akaki Kaliti sub city. These variables include house ownership, education level, and access to credit services.

House ownership

The result revealed that house ownership in households was significantly and positively associated with food security. The household house ownership status was found to be significant at the 1% level ($p = 0.007$) and was positively correlated with the household food security status, as was expected, with a beta coefficient (β) = 2.484 and an odds ratio ($\text{Exp}(\beta)$) = 11.985 and (95% CI) (1.985-72.357) (see Table 4.27). The model predicts that household ownership status would increase the odds of a household being food secure while holding all other independent factors constant. It is 11.985 times more likely that households with house ownership are food secure than households that do not have house ownership, or the chance that households with house ownership are 1198.5% times more food secure than households that do not have house ownership. Therefore, in the study area, the likelihood that households own houses is around 92.3%, whereas the likelihood that they do not own their houses is approximately 7.7%. A similar result was also obtained Anand et al. (2019)

Education level

The findings reveal that education level made a significant ($P = 0.05$) contribution to the model and had a direct relationship with food security status. The variable education status was found to be significant at the 5% level ($p = 0.05$) and was negatively correlated with the household food security status of households, contrary to what was expected, with a beta coefficient (β) = -2.380 and an odds ratio ($\text{Exp}(\beta)$) = 0.093 and (95% CI) (0.002-3.773). See Table 4.27. The model predicts that educational status would increase the odds of a household being food secure while holding all other independent factors constant. It is 0.093 times less likely that households with education are food secure than households with informal education, or the chance that households with an education level are 9.3% less likely to be food secure than households that do not have an education. So the probability that households that have an education level are about 8.51% food secure, while the probability that households that have informal education are about 91.49% food secure, is in contrast to the study of Ngema et al. (2018)

Access to Credit service

The result revealed that household access to credit services was found to be significant at the 5% level ($p = 0.05$) and was negatively correlated with the household food security status of households, contrary to what was expected, with a beta coefficient (β) = -1.684 and an odds ratio ($\text{Exp}(\beta)$) = 0.186 and (95% CI) (0.034-1.009), see Table 4. 27 The model predicts that when a household has access to credit, the odds of a household being food secure are less likely while holding all other independent factors constant. It is - 0.186 times less likely that households with access to credit services are food secure than households that have not received credit services, or the chance that households with credit services are 15.68% less likely to be food secure than households that have access to credit services. So the probability that households that have received credit service are about 15.68% food secure, while the probability that households that have not accessed credit service are about 84.32% food insecure, As a result, households that received the required amount of credit were expected to have a lower probability of being food secure than others. A similar result was also obtained. Ngema et al. (2018).

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the main conclusions and recommendations of the study. It is divided into two sections that discuss the findings concerning the food security status and coping mechanisms among informal worker households in Woreda 2 of the Akaki-Kality sub-city. Thus, the conclusion and recommendations provided were of significant use to different stakeholders given the research's findings.

5.1. Conclusions

Food insecurity is one of the major development challenges in Ethiopia. This study investigated the determinants of urban informal worker households' food security status in Woreda Two, Akaki Kality Sub City, and Addis Ababa, Ethiopia. To achieve research objectives, the study collected data from primary and secondary sources through an urban informal workers' household survey using non-randomly selected methods. The 152 household heads for this study were selected using a multistage sample technique from all seven ketenes in Woreda two of the Akaki-Kality sub city.

Economic and descriptive analyses of the data were performed. Based on their classification as most food secure, medium food secure, and food insecure, respectively, the food security status in this study was computed using the food security analysis employing the HFIAS technique. The sample household was divided into food-secure groups based on a score on the HFIAS scale below 17, and this strategy was successful in being adopted as the HFIAS cutoff point for food-secure and food-insecure households. The households that recorded a HFIAS score on the scale below 17 are able to adopt this approach as the HFIAS cut off point since they are considered to be food secure. Based on the study, the majority of sample households were determined to be food secure during the study period (80.9%), while 19.1% of households were identified as being food insecure.

Furthermore, the CSI findings indicate that in the study area, 35.5% of households have lower coping mechanisms, 61.2% have medium coping mechanisms, and 3.3% have high coping mechanisms. This demonstrates that more than half of the households in the study

area adjust to local coping mechanisms when there are food shortages at the household level. People change their food choices or eat more cheap or undesirable foods found in households.

Though the dietary diversity of informal workers was found to be 7.2% high, 77% moderate, and 15.8% poor based on the HDD score, when it comes to how varied their diets are, household income and purchasing power are associated. The unmet requirement for informal workers was highlighted by the lower consumption of foods high in micronutrients, such as fruits and foods made from animal products.

In order to investigate the link between the dependent and independent variables for every aspect of the sampled household's food security status, binary logistic regression was used. Three out of the twelve independent variables were found to be statistically significant, according to the model's results. Owning a house was positively correlated with food security, and having a high level of education was an important factor that was negatively correlated with food insecurity status in the study area. Access to credit services was also negatively correlated. The main challenges, like ownership of housing and access to credit services, were also mentioned in the focus group discussion and by key informants.

The factors influencing food security in Akaki Kality Sub City Woreda 2 included owning a house, educational attainment, and the availability of credit services. In addition to their educational level and credit availability, which have proven to be adversely correlated with food security status, all of these characteristics were found to be significant in enhancing the food security status of households.

5.2. Recommendation

The following recommendations are provided to the woreda government office, the community, and researchers based on the research findings and the prevalence of food insecurity among residences with informal workers:

I. The major findings of the study prove that the problem of house ownership in Woreda Two has been significantly addressed. For the solution of owning a house, it could be concluded that individuals who do not have housing could use government housing services or simply be given land to build their own houses. Therefore, the Woreda 2 Administration Office is responsible for supporting and strengthening those households so they can own a house.

II. The state of food insecurity in the household negatively and significantly impacted the educational attainment of the household head. To improve food security in urban environments, households must be educated and encouraged to access resources. Household heads with lower levels of education should receive short-term job training on economic and other capabilities that could help them join highly skilled labour and self-employment and contribute to improved food security status in the study area because educated households have better food security status. In response, the city, sub-city, woreda, and non-governmental organizations should offer training and other programs that can help households of informal workers put these work actions into practice, as well as create accessible and affordable working opportunities for those who graduate informal workers from the level-up to a bachelor's degree, including informal workers in the woreda. These duties are under the responsibility of the Woreda Education Office and the Woreda Labour and Social Affairs Office.

III. Access to credit gives the household an opportunity to be involved in income-generating activities so that derived revenue increases the financial capacity and purchasing power of the household, thereby escaping the risk of food insecurity. Access to credit also supports consumption when households face hard times. Therefore, by increasing income-generating activities and productivity, access to finance helps household heads handle their financial concerns and ensure food security. In order to achieve food security, a household with access to financing invests in the businesses of informal employees. Utilizing credit services makes it possible for people to engage in economic activity that generates money for households. A household with informal workers must have both short- and long-term credit strategies because of the variety of jobs they hold. This activity supports wealth development, small-business self-

employment, and other economic benefits because of the significant number of informal workers in the research area.

IV. Finally, the results of this study can be seen as a contribution to the field of knowledge on urban food insecurity. Decision-makers are recommended to consider developing a complete framework for a policy that concentrates on urban food insecurity as well. To maintain food security, the public, the government, and the commercial sector should cooperate.

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7. APPENDICES

7.1. Appendices: Household Survey Questionnaire

Form of informed consent researcher:

My name is Adugna Shegu, and I am a Master of Science student at Addis Ababa University. I'd like to invite you to take part in a research study. Participation in the study is entirely voluntary, so you may choose whether or not to take part. Please allow me to explain the study to you. Please do not hesitate to ask any questions you may have concerning the research. I will gladly go over everything in greater detail. The objective of the questionnaire and questions is to gather your honest knowledge on the subject, as you are familiar with it, and the information you provide is really valuable for this research study. This will take you about 60 minutes. The risk of participating in this research will be reduced by keeping all information secret (either confidential, in the case where your identities need to be retained or can be associated with your responses, or anonymous and confidential, in the case where you do not allow responses to be connected with a person). Participating in this study is important because it will allow us to acquire a better understanding of the food security conditions of informal worker households in Akaki Kaliti sub-city, Woreda Two.

Thank you in advance for your kind cooperation and dedication.

Please give your response by using a tick mark to write an answer in the box "[]", by writing the number of your choice from the different alternatives provided against each item, and by writing short notes on open-ended ones.

General Information			
I	Interviewer's name		
	Date of the survey		
	Name of the household head		
	Location (City /Woreda)		
	How many years have you lived in Akaki Kality sub -city woreda two?		
II	Household demography and socioeconomic major variables under investigation: sex, age, family size, marital status, education, and dependency ratio of the household head		
	Questions	Category	Code
1	The sex of the household head	Male	1
		Female	0
2	The age of the household	Year	[]
3	Marital status of the head of the household	Single	1
		Married	2
		Divorced	3
		widowed	4
4	The size of the household(including the household head)	Male	[]
		Female	[]
		Total	[]
5	Dependency ratio (the number of individuals)in years	<15 and above 60	[]
6	Education level of the household head	Informal education	1
		Grade 1-4	2
		Grade 5-8	3
		Grade 9 – 12	4

		Diploma and level	5
		Degree or higher	6
7	Main occupation category of the household head	Casual lab our	1
		Small business	2
		CAR & STW	3
III	Sources of household income: access to credit, employment, and expenditures; remittance		
8	Monthly income of a household head	Birr	[]
9	The monthly income a household's head receives from his or her line of work	Low level income (3000-500)	1
		Medium income (5001-6000)	2
		High income>(6001)	3
10	Amount of money spent on food per month	Birr	[]
11	The monthly sum that the head of a household spends on food	Low level income (1000- 2500)	1
		Medium income (2501-3000)	2
		High income > 3001	3
12	Monthly expenditure on non-food	Birr	[]
13	Have you received credit for the last two years?	Yes	1
		No	0
14	The total amount of money received over the previous two years	Birr	[]
15	Loan amount by category birr	Not received	0
		Received(2000-4000)	1
		Received (4001-6000)	2
		Received >6001	3

16	If you answer yes to question 15, where do you get the credit?	Government and private banks	1
		Friends and relatives	2
		Microfinance institute	3
		NGO	4
17	Does this household have its own residential house?	Yes	1
		No	0
18	What type of house do you have now?	Own home	1
		Rent house from government	2
		Rent house from a private	3
19	Do you have access to services like health services, education, water sanitation, and hygiene practices?	Yes	1
		No	0
20	Did the household head receive a remittance for the last 12 months of this year?	Yes	1
		No	0
21	The total amount of remittance money received over the previous two years	Birr	[]
22	Amount of remittance classification	Not received	0
		Lower (4000)	1
		Medium (4001-5000)	2
		Higher >5001	4
	major cause of food insecurity in households		
23	Current market price of food, compared to last year?	The same	1
		Increased	2
		extremely increased	3
24	Do you commonly skip meals when	Yes	1

	there is a shortage of food in the household?	No	0
25	Do you commonly use coping mechanisms when you do not have enough food or money to buy food?	Yes	1
		No	0
26	If yes, for Q no. 25, How often have you used coping strategies?	Never	1
		One or twice(1-2) day	2
		Three to six day (3-6) day	3
		Every day (7) day	4
IV	Household Food Insecurity Access Scale (HFIAS)		
27	In the past four weeks, did you worry that your household would not have enough food because of a lack of money or other resources?	Yes	1
		No	0
27a	If Q# 27 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2) times	1
		Sometimes(3-10)times	2
		Often (more than 10times	3
28	Were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	Yes	1
		No	0
28a	If Q# 28 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2)times	1
		Sometimes(3-10)times	2
		Often(more than 10times)	3
29	Did you or any household member have to eat a limited variety of foods due to a lack of money or resources?	Yes	1
		No	0

29a	If Q# 29 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2)times	1
		Sometimes(3-10)times	2
		Often (more than 10times	3
30	Did you or any household member have to eat some foods that you did not want to eat because of a lack of money or resources to obtain other types of food?	Yes	1
		No	0
30a	If Q# 30 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2)times	1
		Sometimes(3-10)times	2
		Often (more than 10times	3
31	Did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	Yes	1
		No	0
31a	If Q# 31 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2)times	1
		Sometimes(3-10)times	2
		Often (more than 10times	3
32	Did you or any other household member have to eat fewer meals in a day because there was not enough food?	Yes	1
		No	0
32a	If Q# 32 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2)times	1
		Sometimes(3-10)times	2
		Often (more than 10times	3
33	Was there ever no food to eat of any	Yes	1

	kind in your household because of a lack of money or resources to get food?	No	0
33a	If Q# 33 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2)times	1
		Sometimes(3-10) times	2
		Often (more than 10 times	3
34	Did you or any members of your household go to bed hungry at night due to a lack of food?	Yes	1
		No	0
34a	If Q# 34 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2)times	1
		Sometimes(3-10)times	2
		Often (more than 10 times	3
35	Did you or any household member go a whole day and night without eating anything because there was not enough food?	Yes	1
		No	0
35a	If Q# 35 is yes, how often did this happen in the past 4 weeks?	Rarely (1-2)times	1
		Sometimes(3-10)times	2
		Often (more than 10 times	3
V	Coping strategy index		
	In the past 7 days, if there have been times when you did not have enough food or money to buy food, how many days has your household had to	Frequency score (0–7)	universal severity weight
36	How many days has she/he had to rely on less preferred and less expensive foods?		1
37	How many days did you have to borrow food from a friend or		2

	relative?		
38	How many days have you purchased food on credit?		2
39	How many days were required for sending children to eat with neighbours?		2
40	How many days did it take to send household members to beg?		4
41	How many days has your household had to limit portion sizes at mealtimes?		1
42	How long the restriction on adult consumption before little children was could eat?		2
43	How many days had to be spent feeding working members of HH at the expense of non-working members?		2
44	How many days has your household had to reduce the number of meals eaten in a day?		2
45	How many days has your household had to skip entire days without eating?		4
VI	Household Dietary Diversity		
	Using the preceding 24 hours as a baseline, data on household food consumption should be collected.		
46	Main staples (corn, corn porridge, rice, sorghum, millet pasta, bread, and other cereals)	Yes	1
		No	0
47	Any legumes and pulses like beans, peas, lentils, or pea nuts?	Yes	1
		No	0
48	Any roots and tubers like potatoes, enset, yams, and cassava	Yes	1
		No	0
49	Any vegetables like kale, carrots, sweet potatoes, tomatoes, onions, spinach, etc.?	Yes	1
		No	0
50	Any fruits like mango, avocado, fruit juice, and papaya	Yes	1
		No	0
51	Any meat—beef, lamb, goat, camel, or chicken?	Yes	1
		No	0

52	Any eggs from chickens?	Yes	1
		No	0
53	Any fresh or dried fish?	Yes	1
		No	0
54	Any dairy products like yogurt, milk, or other milk products?	Yes	1
		No	0
55	Any foods made with oil, fat, or butter?	Yes	1
		No	0
56	Any sugar, honey, or sugary foods such as chocolates, candies, cookies, and cakes?	Yes	1
		No	0
57	Any other foods, such as condiments, coffee, or tea?	Yes	1
		No	0

VII. Focus group discussion

Dear participant

Adugna Shegu conducted this research study on the food security status and coping mechanisms. He conducted informal worker surveys in the Akaki-Kality sub-city. Woreda 2 as part of his MSC in Food Security and Development Studies at Addis Ababa University. The goal of these focus groups was to gather accurate data on informal worker households in Woreda 2, Akaki-Kality sub-city. As a result, the information you provide is highly valuable for this research. The information you provide will not be shared with anybody outside of this study, and the reporting analysis will not reveal your identity. The findings of this study will contribute to a better understanding of the food security status among informal worker households in the Woreda.

Thank you in advance for your kind cooperation and dedication

1. What is your primary source of income? And how much money did they need for a sustainable livelihood in the study household?

2. Do you believe that among informal workers' households in the Woreda, the same is true in terms of food security status? How would you describe the extent of the problem?
3. Is it difficult to buy food and other necessities for the informal workers?
4. Do you think that the diversity of food groups is accessible, available, and affordable in this Akaki Kaliti sub-city of Woreda Two for informal workers? Explain what it is or is not.
5. Are the informal workers able to pay for basic household needs? (Household consumables, education, health care, sanitation, water, etc.)
6. Have you ever been unable to obtain food from these sources while having money? Do you believe that the availability and affordability of food vary according to the season? Describe what it is or is not, and whether or not certain months are tougher than others.
7. How do people cope if there is a food shortage in their households? What strategies do households use to meet family food needs during a shortage of food or income?
8. What is the cause of food insecurity in Woreda 2? List of the causes
9. What can be done to address the affected community's food insecurity in woreda 2? What factors are involved?
10. What difficulties do they face in maintaining food insecurity in Akaki-Kaliti sub-city, Woreda 2?

VIII .Key Informant Interview Questions

Dear, participants

The overall aim of this study is to gather data on the food security status of informal worker households in Akaki-Kaliti sub-city, Woreda 2. The data will be primarily used for academic purposes. If you agree to take part in this study, you will be doing so voluntarily, and there will be no payment. You are also allowed to refuse to answer any

questions that you do not feel comfortable answering or to withdraw from the study completely. It will take you about an hour to respond to the questions in this interview.

Thank you in advance for your kind cooperation and dedication

1. What is your understanding of food security?
2. What has been the food security trend in your area over the last five years?
3. What were your major sources of livelihood and income as informal and formal workers?
4. What is your opinion of the situation with regard to food security in Woreda 2, especially for informal workers?
5. Can you explain the cause of food insecurity in this woreda?
6. What do most informal workers do for income and work in Woreda two of Akaki-Kality sub-city?
7. Is there a market-fair price for purchasing food in your area?
8. What are the major expenses for households? House Rent? Food? How much do other services cost?
9. How do food-insecure informal worker households in Woreda 2 of Akaki-Kality sub-city cope with food shortages?
10. What do you do if you are in a situation of food shortage or lack of money to purchase food?

7.2. Appendices Binary Logistic Regression results

I. Multicollinearity diagnostics using the Variance Inflation Factor results

Multicollinearity	Tolerance	VIF
Sex of informal workers	.694	1.440
Age of informal workers	.359	2.788
Dependency ratio	.689	1.451
Education level	.371	2.695
Types informal workers	.548	1.826
Monthly income	.318	3.140
Monthly expenses on food	.455	2.198
Access to credit	.782	1.280
Own house	.698	1.432
Remittance received	.943	1.060
Family size classification	.312	3.204
Marital status	.740	1.351

a. Dependent variables: food security status

Notice: Checks up in case Multicollinearity for tolerance is >0.1 and VIF <5 .

II. Logistic Regression

Case Processing Summary

Weighted case ^a		N	percent
Selected cases	Including in Analysis	152	100.0
	Missing case	0	0
	Total	152	100.0
Un selected cases		0	0
Total		152	100.0

Dependent variable Encoding

Original value	internal value
Equal to or greater than 17	0
From (0-16) food secure	1

Correlation matrix for the discrete and continuous explanatory variables

Categorical Variables Coding's							
Categorical variables		FREQ	Parameter coding				
			(1)	(2)	(3)	(4)	(5)
education level	informal (read and write)	15	1.000	.000	.000	.000	.000
	grade(1-4)	20	.000	1.000	.000	.000	.000
	grade(5-8)	18	.000	.000	1.000	.000	.000
	Grade (9-12)	3	.000	.000	.000	1.000	.000
	degree (Level and diploma)	46	.000	.000	.000	.000	1.000
	degree level	26	.000	.000	.000	.000	.000
Marital status	single	20	1.000	.000	.000		
	married	83	.000	1.000	.000		
	divorced	33	.000	.000	1.000		
	windowed	16	.000	.000	.000		
family size classification	small family size (1-3)	37	1.000	.000			
	medium family size(4-5)	69	.000	1.000			
	larger family size (>6)	46	.000	.000			
types informal workers	casual labour	51	1.000	.000			
	small business	51	.000	1.000			
	CAR&STW	50	.000	.000			
Remittance	no	126	1.000				

received	yes	26	.000				
Access to credit	no	101	1.000				
	yes	51	.000				
own house	no	109	1.000				
Sex	Female	48	1.000				
	Male	104	0.000				

Classification Table^{a,b}

Observed			predicted		
			food security status		
			Equal to or greater than(≥ 17)	From (0-16)	percentage
step 0	Food security status	(≥ 17)food insecure	0	29	0
		From (0-16) food secure	0	123	100.0
	over all %				80.9

a. constant is included in the model

b. the cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	1.445	.206	48.992	1	.000	4.241

Omnibus Tests of Model Coefficient (block1)

		Chi-square	df	Sig.
Step 1	Step	39.717	20	.005
	Block	39.717	20	.005
	Model	39.717	20	.005

Model Summary

Cox & Snell R			
Step	-2 Log likelihood	Square	Nagelkerke R Square
1	108.442 ^a	.230	.369

- a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	14.177	8	.077

Classification Table^a

			Predicted		Percentage Correct
			food security status		
	Observed		food insecure	food secure	
Step 1	food security status	Food insecure	11	18	37.9
		Food secure	3	120	97.6
Overall Percentage					86.2

- a. The cut value is .500

The logistic regression results for the determinants of food security

Variables	B	S.E	Wald	Df	Sig	EXP(B)
Sex of informal workers(1)	.150	1.098	.019	1	.891	<.860
Age of informal workers	.002	.046	.002	1	.969	>1.002
Marital status			1.083	3	.781	
Marital status(1)	1.064	1.617	.433	1	.510	2.898
Marital status(2)	.232	1.027	.051	1	.822	1.261
Marital status(3)	.865	.922	.880	1	.348	2.375
Family size classification			1.903	2	.386	
Family size classification(1)	.319	1.772	.032	1	.857	.727
Family size classification(2)	-1.033	.825	1.567	1	.211	.356
Dependency ratio	.224	.327	.467	1	.494	1.251
Education level			12.924	5	.024	**
Education level(1)	-2.380	1.892	1.583	1	.208	.093
Education level(2)	-4.476	1.797	6.207	1	.013	011
Education level(3)	-3.743	1.691	4.898	1	.027	.024
Education level(4)	-3.116	2.056	2.296	1	.130	044
Education level(5)	-.494	1.578	.098	1	.754	.610
Types informal workers			.949	2	.622	
Types informal workers (1)	-.372	.791	.221	1	.638	.689
Types informal workers (2)	-.689	.707	.948	1	.330	.502
Monthly income	.000	.000	.219	1	.640	1.000
Monthly expenses on food	.001	.001	.618	1	.432	1.001
Access to credit(1)	-1.684	.864	3.801	1	.051	186**
Own house(1)	2.484	.917	7.331	1	.007	11.985***
Remittance received(1)	-.437	.748	.341	1	.559	.646
Constant	3.636	3.433	1.123	1	.289	38.017