

Determinants of Food Insecurity of Urban Poor Households: Evidence from Selected Major Cities of Ethiopia

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Abstract

Food insecurity and nutritional problems pose significant challenges for urban poor households in the major cities of Ethiopia. This study focused on the determinants of food in (security) among poor urban households. The objective was to identify and prioritize the factors that influence the food security levels of urban poor households. The study utilized a sample survey with close-ended and open-ended questionnaires, selecting 384 samples through multistage sampling techniques. The unit of analysis was urban households. Data collection instruments included questionnaires and focus group discussions. The researcher also utilized various primary and secondary data sources to support the study. Multiple linear regressions were employed to identify the determinant factors of household food insecurity. The findings of the study showed that the determinant factors for food security among urban households were found to be sex, age, marital status, household dependency, household health status, educational background, and occupational status of the household head. Interestingly, 79% of the poor urban households considered these variables to be highly influential in terms of household food security. The study also emphasized the need for policy interventions in various institutional areas. The institutions play a vital role in providing job opportunities, facilitating access to cooperative markets, ensuring affordable markets for poor urban households, and monitoring market inflation and price increases on consumer goods. By prioritizing the development of these institutions, both regional and federal governments can effectively address food insecurity and improve the livelihoods of poor urban households.

Keywords: Food, Food Security, Urban Households, Productive Safety Net, Ethiopia

1. Introduction

1.1 Background of the Study

Efficient social security systems are widely recognized as pivotal mechanisms for fostering social cohesion, reducing inequality, and advancing broader socioeconomic stability. Beyond merely mitigating poverty, they play a transformative role in enabling equitable growth by addressing systemic disparities in access to essential social services, particularly across gender and socioeconomic lines. As Banerji (2013) observes, well-structured social protection interventions not only safeguard vulnerable populations but also represent strategic investments in human capital, enhancing the productive potential of marginalized households and communities.

Within this broader framework, safety net programs constitute a critical component of social protection, aimed explicitly at alleviating poverty and mitigating vulnerability. These programs target individuals and households at risk of chronic deprivation or food insecurity, providing predictable and reliable support through mechanisms such as food assistance and cash transfers (Abiy, 2020). Far from being mere relief interventions, social safety nets function as instruments for sustainable development: they enable households to invest in education, health, and livelihood opportunities, thereby generating long-term economic benefits. Social safety nets can substantially contribute to inclusive national economic growth by promoting human capital accumulation, facilitating risk management, addressing market failures, and reducing inequalities in opportunity. (Banerji et al., 2013).

The Urban Productive Safety Net Program (UPSNP) in Ethiopia exemplifies a structured approach to urban poverty alleviation. The program integrates three core components: safety net assistance through public works and direct transfers, livelihood services, and institutional and project management, with the explicit goal of enhancing the resilience of urban households vulnerable to food insecurity (Yibrah, 2020). Public works initiatives encompass a wide range of interventions, including solid waste management, integrated watershed development, urban agriculture promotion, and improvement of social infrastructure. While the program offers support for up to three years, it also incorporates a “graduation” pathway to encourage sustainable livelihood development among beneficiaries.

Ethiopia’s adoption of a productive safety net approach reflects a broader African trend of institutionalizing social protection interventions. While South Africa pioneered systematic social safety nets in 1994, Ethiopia’s experience has been shaped by recurrent crises, particularly droughts, which historically necessitated large-scale emergency food aid. The 2002 Ethiopian food crisis catalyzed a shift from reactive humanitarian assistance toward a more coordinated, development-oriented safety net strategy that prioritizes the chronic food insecurity of vulnerable households (Menen, 2019). Today, the Ethiopian Productive Social Safety Net Program (PSNP), including its urban component, is among the largest in Sub-Saharan Africa, integrating household asset building, livelihood support, and market linkages to foster sustainable income diversification.

From 2016 to 2021, the UPSNP targeted approximately 604,000 of the poorest urban residents, primarily concentrated in Addis Ababa, Adama, and Bahir Dar, with women representing 60 percent of beneficiaries (Menen, 2019; World Bank, 2022). The program operates through a phased “graduation” model: the first year emphasizes conditional transfers linked to public works, supplemented by direct cash support for those unable to work; the second year integrates livelihood training and financial support for employability enhancement; and the third year enables voluntary continued participation to consolidate gains. This model underscores the program’s dual focus on immediate poverty relief and long-term human capital and livelihood development.

Despite Ethiopia’s robust economic growth since 2005, urban poverty remains a persistent challenge, compounded by rapid urbanization and significant rural-to-urban migration.

Approximately one-fifth of Ethiopia's urban population resides in Addis Ababa, where more than 400,000 households benefit from urban productivity programs, alongside tens of thousands in smaller urban centers (World Bank, 2022). Urban poverty is further exacerbated by structural constraints such as inadequate employment opportunities, weak social protection for marginalized groups, underdeveloped urban agriculture, inefficient market systems, and environmental and infrastructural vulnerabilities (Yibrah, 2020; Menen, 2019). Consequently, urban households often face chronic food insecurity, precarious employment, and exposure to socio-economic shocks.

The UPSNP represents the Ethiopian government's strategic response to these intersecting vulnerabilities, functioning as an extension of the rural PSNP into urban contexts. By combining cash transfers, public works, livelihood services, and social support, the program aims to enhance food security, reduce poverty, and strengthen the resilience of urban households. Given the multifaceted nature of urban deprivation, evaluating the nexus between urban productive safety nets and food insecurity remains crucial for informing policy and optimizing program effectiveness. Accordingly, this study investigates how the UPSNP influences food security status and levels among urban poor households in the study area, offering insights into the capacity of structured social protection interventions to address complex urban poverty dynamics.

1.2 Food Security in Ethiopia

Although Ethiopia's development narrative has long been dominated by its agrarian foundation, the country's accelerating urbanization reveals a different dimension of vulnerability. Urban centers such as Addis Ababa, Bahir Dar, and Adama are increasingly becoming hubs of industrial growth and service provision. However, urban households face a distinct food security challenge: unlike rural households, they rely almost entirely on cash income to access food through markets. This dependence makes them particularly vulnerable to price fluctuations, currency instability, and inflation. For example, the World Bank (2020) highlights that food inflation in Ethiopia disproportionately affects urban poor households, as food expenditures constitute more than half of their total consumption. Thus, urban food insecurity is not primarily a problem of physical availability as food is often more accessible in markets—but one of affordability and income inequality.

Despite Ethiopia's remarkable macroeconomic growth averaging 8–14% annually since 2004, the benefits have not been evenly distributed. Poverty incidence declined nationally from 44.2% in 1999 to 29.6% in 2010 (USAID, 2015), but the decline in urban poverty has been slower than in rural areas. In fact, urban inequality has widened, reflected in the growth of informal settlements, underemployment, and rising dependence on precarious income sources. This mirrors trends across African cities: in Nairobi, urban food insecurity is shaped less by food scarcity than by inadequate wages and high living costs (Owuor, 2018), while in Lagos, rapid urban growth has outpaced infrastructure and job creation, leading to chronic urban vulnerability (Akinmoladun & Adejumo, 2011). Ethiopia's urban centers face similar tensions, with industrialization and service sector expansion occurring alongside rising costs of living and limited social protection coverage.

Food insecurity statistics highlights these disparities. According to WFP (2019), 13.9% of urban Ethiopian households were food insecure, compared to 22.7% of rural households. While the urban rate appears lower, it conceals deeper structural fragility. Urban households cannot rely on subsistence production, and their access is entirely mediated through unstable markets. Safety net interventions, particularly the Urban Productive Safety Net Program (UPSNP), have been essential in preventing extreme food insecurity. However, the need for these programs underscores the inadequacy of existing wage structures and the weakness of formal employment opportunities. Similar findings are reported in Kigali, where urban poverty and food insecurity persist despite improvements in national economic performance, largely due to low purchasing power and limited access to affordable food markets (Jayne et al., 2019).

Critically, Ethiopia's urban context demonstrates that rapid economic growth alone is insufficient for ensuring household-level food security. While infrastructural expansion and industrial park development signal modernization, these transformations have not translated into inclusive livelihoods for the majority of urban residents.

Lessons from other African contexts suggest that policy responses must go beyond emergency aid. In Kigali, integrated approaches that combine social protection, urban agriculture, and food price stabilization have reduced urban vulnerability more effectively (Chirwa & Dorward, 2019). For Ethiopia, similar strategies such as encouraging urban agriculture, regulating staple food prices, and expanding labor market opportunities could strengthen resilience. Ultimately, Ethiopia's case highlights the need to rethink urban food security as an integral part of development policy, moving beyond the assumption that urban households are inherently less vulnerable than their rural counterparts.

1.3 Food Security in Urban Regions of Ethiopia

According to the State of Food and Nutrition Security in the World (2020), nearly 690 million people around 9% of the global population were undernourished in 2019. While urban areas are often considered less vulnerable to food insecurity than rural regions, this view oversimplifies the complexities of urban food systems. Urban centers may indeed offer abundant food sources ranging from open-air markets and corner shops to supermarkets and fast-food outlets but availability does not translate to equitable access. As Dersolegn et al. (2023) argue, income disparities, rising costs of living, and weak social safety nets mean that large segments of urban populations remain excluded from nutritious and affordable diets. This condition has been described in global urban studies as the phenomenon of “food deserts amid abundance,” where food is plentiful in aggregate yet structurally inaccessible to the poor.

In Ethiopia, these challenges are compounded by demographic and economic pressures. With an urban growth rate of 4.6% (World Bank, 2021), Ethiopia's urban population is projected to surpass 50 million by 2025 (Dersolegn et al., 2023). This rapid expansion exerts pressure on food systems in two interconnected ways. First, rural-urban migration increases demand in cities while depleting rural labor for agricultural production. Second, land-use changes particularly the conversion of farmland to urban settlements reduces local food production capacity. This dynamic creates a

structural food supply-demand imbalance: as demand intensifies and supply shrinks, food prices rise, leaving the poorest households highly vulnerable. In this sense, food insecurity in Ethiopia is not only a question of agricultural productivity but also a governance issue tied to urban planning, land management, and policy prioritization.

Empirical evidence reveals the gravity of the crisis. Senait et al. (2021) estimate that nearly 80% of the population in Addis Ababa and other major cities such as Adama and Bahir Dar face food insufficiency. Ethiopia would require additional arable land beyond its current urban agricultural capacity to meet the WHO-recommended vegetable intake of 300 g per capita per day.

This mirrors patterns in other rapidly urbanizing nations. For example, in Nigeria, urban households similarly face reduced dietary diversity as food prices outpace wage growth, creating a reliance on cheaper, calorie-dense but nutrient-poor foods (Ogunniyi et al., 2020). In India, rapid urbanization has driven up food costs while agricultural land is repurposed for infrastructure and housing, creating parallel crises of affordability and nutritional quality (Patel et al., 2019). By situating Ethiopia within this global context, it becomes evident that food insecurity in urban areas is a structural outcome of demographic pressure, economic inequality, and inadequate governance, rather than simply a shortage of food supply.

Beyond nutrition, food insufficiency erodes cultural and psychosocial well-being. In Ethiopia, as in other countries, food sharing is integral to cultural rituals such as weddings, religious ceremonies, and community gatherings. When households face financial constraints, participation in such events declines weakening cultural identity and social cohesion (Senait et al., 2021). Similar cultural disruptions have been observed: in India food insecurity prevents households from participating in festivals, and in parts of sub-Saharan Africa communal food practices are reshaped by rising urban poverty (FAO, 2019).

Thus, Ethiopia's food insecurity crisis must be understood not only as a nutritional challenge but also as a multidimensional social and cultural issue, with implications for mental health, cultural continuity, and community solidarity. Addressing these challenges requires an integrated policy approach strengthening domestic food production, investing in urban agriculture, ensuring equitable food distribution systems, and developing robust social protection programs. Without such interventions, Ethiopia risks reproducing global patterns of urban food insecurity where economic growth and urban expansion coexist with widespread nutritional deprivation.

1.4 Determinants of Food Security

Household food security is consistently found to decline as household size increases, since larger families tend to have higher dependency ratios and face greater pressure on limited resources. Abebaw and Mesele (2022) found that household size significantly predicts food insecurity in Ethiopia, where households with more than five members were nearly twice as likely to be food insecure compared to smaller households. Similarly, education of the household head plays a

critical role: households led by literate heads are better able to manage resources, diversify income sources, and adopt improved nutritional practices.

Evidence from Abiy (2020) shows that literacy and formal education significantly reduce the risk of food poverty by enhancing both access to employment and knowledge of dietary diversity. Age also demonstrates a life-cycle effect; WFP (2019) reported that food poverty is lowest among younger heads, peaks during the prime working years when economic responsibilities are greatest and slightly declines in old age, likely due to reduced dependency burdens. However, gender of the household head was not a significant predictor of food insecurity, echoing findings by Bogale and Shimelis (2009), who noted that structural factors such as education and wealth outweigh gender in influencing household food security outcomes.

Poverty status is one of the strongest predictors of food insecurity across contexts. Poor households are overrepresented among the food insecure due to limited income, low purchasing power, and weak access to assets. For instance, Babatunde et al. (2007) showed in Nigeria that asset ownership particularly land and livestock was a major determinant of household food security, with wealthier households significantly more likely to be food secure. Similar patterns were observed in Ethiopia, where households engaged in non-agricultural wage employment or formal trade were more food secure than those dependent on subsistence farming (Daregot, 2018). Salaried workers and households in service sectors benefit from steady income flows and market access, reinforcing the protective role of livelihood diversification in reducing food poverty.

Daregot (2018) found that such households produced less than half of their annual food needs and lacked sufficient purchasing power to buy food, leading to widespread undernutrition among children. These findings align with research by Kidane, Alemu, and Kundhlande (2005), who reported that market access and household income were key determinants of food utilization and overall food security. The complexity of food utilization in Ethiopia reflects not only in productivity constraints but also socio-economic inequalities, where education, income, and social safety nets strongly determine households' ability to meet their nutritional needs.

Urban food security, as highlighted by FAO (2019), is shaped by multiple demographic and socio-economic factors, including household size, dependency ratio, education level, per capita income, and expenditure patterns. Empirical findings by Gebre (2012) confirm that income diversification, access to social services, and subsidized food programs significantly improve urban household food security in Ethiopia. Cultural factors and practices such as home gardening also contribute to food utilization, providing alternative food sources when market prices are high. These findings suggest that food insecurity is not solely a problem of production but rather an outcome of intersecting socio-economic and structural barriers. Addressing food insecurity, therefore, requires a holistic approach that targets poverty reduction, education, livelihood diversification, and improved access to both agricultural and non-agricultural income opportunities.

2. Conceptual Framework of the Study

Figure 1 provides a comprehensive overview of the analytical frameworks employed in this study, effectively illustrating the intricate relationships between the dependent variable household food

security and a range of independent variables. By mapping out these relationships, Figure 1 not only clarifies the analytical approach taken in the study but also underscores the multifaceted nature of household food security. It highlights the importance of considering various socio-economic and demographic factors when analyzing food security dynamics, ultimately contributing to a more nuanced understanding of the challenges faced by households in securing adequate food.

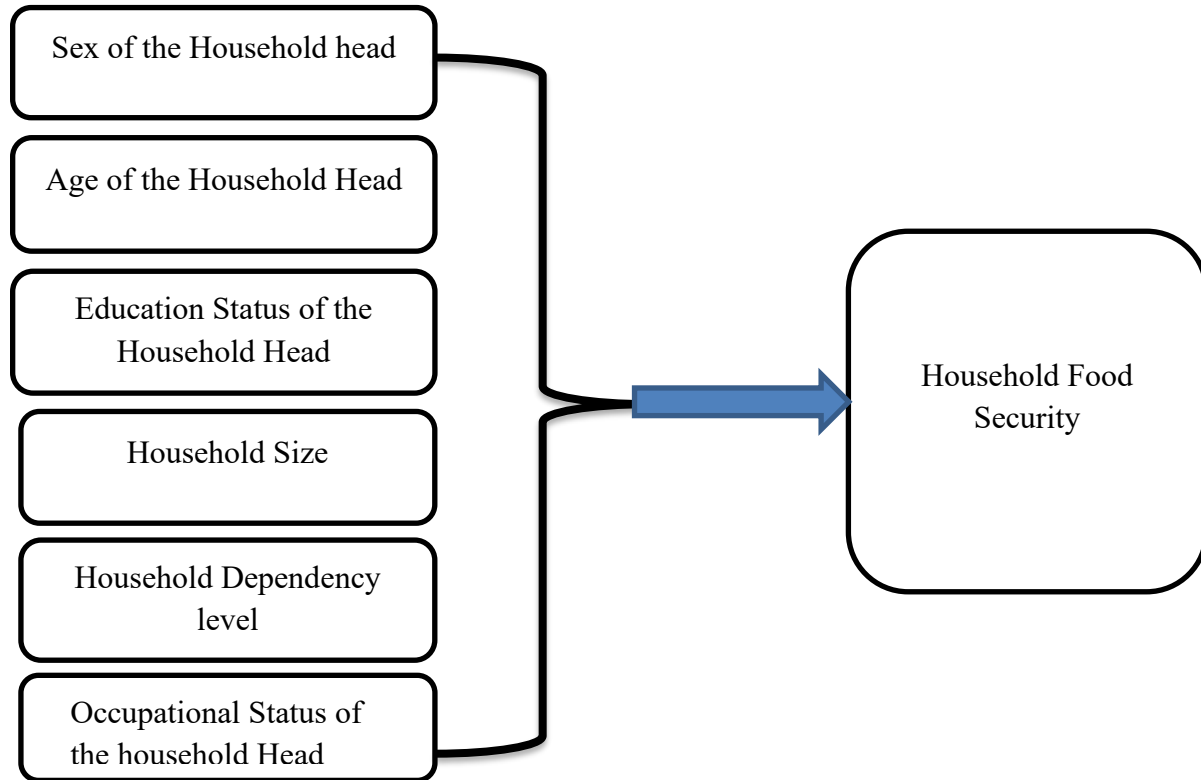


Fig 1: Conceptual Framework of the Study

Conceptual Framework of the Study adapted & modified from (Menen, 2019)

3. Research Methodology

3.1 Description of Variables

The dependent variable, household food security, serves as the focal point of the analysis, reflecting the availability, access, and utilization of food within households. The independent variables identified in the framework include several demographic and socio-economic factors that may influence food security outcomes. These factors are as follows:

Table 3.1 shows variable description & Measurement

Variable	Type	Measurement/Category	Expected Influence on Food Security
Household Food Security (Dependent)	Dependent Variable	Measured using indicators of food availability, access, and utilization	Focal outcome
Sex of Household Head	Independent	Male = 1, Female = 0 (dummy variable)	May influence due to gender roles in resource access and decision-making
Age of Household Head	Independent	Continuous variable (measured in years) 18-40=1, 41-63=2, above 63=3	Older heads may have more experience/resources; younger may have less
Educational Status of Household Head	Independent	Categorized: No education = 0, Primary = 1, Secondary = 2, above secondary = 3	Higher education expected to improve food security
Household Size	Independent	Continuous variable (1-3= 1, above 4=2)	Larger size may strain resources, reducing food security
Household Dependency Level	Independent	Ordinal (very high=5, high=4, moderate=3, low=2, very low=1)	Higher dependency may negatively affect food security
Occupational Status of Household Head	Independent	Categorized: safety net/public work/=1, daily laborer =2, private work=3, No work=4	Stable occupation improves income and food security

Author's survey (2024)

3.2 Research Approach & Design

This research used both qualitative and quantitative approach. As it stated by Saunders (2009) mixed method approach is both qualitative and quantitative data collection and analysis methods are used. It is more than simply collecting and analyzing both kinds of data rather the use of both approaches has greater strength in the overall study than either qualitative or quantitative research. Hence, this study has utilized both qualitative and quantitative approach so as to get more reliable and valid results on the nexus between urban productive safety net and poor urban households in the study areas.

Among the many mixed method research design, the researcher applied concurrent triangulation mixed design. According to Creswell (2003), this method is a concurrent mixed design where the quantitative data as well as the qualitative data is supposed to be collected and analyzed separately and triangulated the findings simultaneously. And also the reason why the researcher wanted to use this design is that; it helped to explain both quantitative and qualitative results and interpret the findings from the two approaches concurrently. This study has also used descriptive and explanatory design to examine the basic research questions under-investigated in this particular study area.

3.3 Sampling Size Determination & Procedure

For this study, samples have drawn using multistage sampling technique. First cities are selected purposively. Secondly from the different cities of the country in which urban productive safety net has been launched, Adama and Bahir Dar is selected randomly and then the sub cites and districts were selected second and third randomly . Within these cities three sub cities which are a total six sub cities were selected randomly. According to the urban productive safety net programs coordination office administrations there are around 530,000 urban households who get urban productive safety nets benefits in the cities which is the largest urban productive safety net recipients are found in these cities and that is reason why the researcher selected the cities for this particular study. And the researcher has used the following statistical formula for determining the sample size of the study.

$$n = \frac{N}{1 + N(e)^2} = \frac{530,000}{1 + 530,000(0.05)^2} = 384 \text{ Households}$$

Where n is the required sample size when population greater than 10,000, N is the total number of farm households & e is the degree of accuracy desired usually set at (0.05). Based on the above sample size determination calculation, 384 sample households were gotten.

The sample size of 384 households was determined to ensure representativeness of the large study population of 530,000 urban households benefiting from the Urban Productive Safety Net Program in Adama and Bahir Dar. Using Yamane's (1967) sample size determination formula with a 95% confidence level and a 5% margin of error, the calculated sample was found to be 384, which is statistically sufficient for large populations above 10,000. This number balances the need for accuracy and reliability of results while also being manageable in terms of time, resources, and data collection efforts. Thus, the choice of 384 samples provides a scientifically valid and practical basis for the study's analysis.

Table 3.2 Shows Sampling Strategies

Stage	Sampling Type	Technique Used	Units Selected	Rationale	Outcome
Stage 1	Non-Probability	Purposive Sampling	Cities (Adama and Bahir Dar)	Cities chosen purposively due to large share of Urban Productive Safety Net beneficiaries	2 cities selected
Stage 2	Probability	Random sampling	Sub-cities and kebeles	To minimize bias and enhance representativeness	6 sub-cities selected (3 kebeles from each sub-city)
Stage 3	Probability	Random sampling	Households within sub-cities	To ensure representative household-level data	384 respondents selected

Stage 4	Non- probability	Judgmental sampling	Key informants (program officers, administrators, and experts)	Selected for their knowledge and expertise on the program	14 Key informants identified and interviewed
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Author's Survey (2024)

3.3 Data Source & Methods of Data Analysis

This study has used data from primary and secondary sources. The survey was conducted based on household-level data collected from urban households in, Bahir dar and Adama cities through a well-structured & standardized questionnaire and key informant interview were used to gather qualitative data. The questionnaire has designed to collect data on the demographic, social - economic characteristics of urban poor households. Secondary data were collected from documented and public sources such as books, magazine articles, meeting minutes, and reports from the city's urban productive safety net coordination office. In addition to this, this study has used both descriptive and inferential analysis methods to analyze the data. Descriptive analysis such as percentages was used to understand the demographic, socio-economic, and safety net service related households. And an econometric method of multiple linear regressions was used to estimate the outcomes of the determinants of food in (security) status of urban poor households in the study area.

3.4 Reliability Test

The reliability of the data collection instruments is interpreted based on the consistency when it measures the target attribute and concerns a measure of consistency and accuracy. In this study, to measure and ensure the reliability of the instrument Cronbach alpha test had executed and as it shown 30 items were run and the average interterm covariance was 0.051 and 70% of the responses were consistent and explained this study .

Table 3.3 Reliability Test: Cronbach alpha Result of the Statistics

Average interterm covariance	0.051
Number of items in the scale	7
Scale reliability coefficient	0.7

Source: own Survey (2024)

The results of the reliability test presented in Table 3.3 indicate that the Cronbach's alpha coefficient for the scale is **0.7**, which falls within the acceptable range of internal consistency. This suggests that the items included in the scale are sufficiently reliable to measure the intended construct. While the coefficient is not exceptionally high, it still meets the commonly accepted threshold of 0.7, demonstrating that the items in the scale are consistent and produce stable results. Additionally, the table shows that the average inter-item covariance is 0.051 across the seven items in the scale. This value reflects a moderate level of correlation between the items, suggesting that they are related but not redundant. Together, these findings imply that the measurement tool is reasonably reliable and appropriate for statistical analysis.

4. Result & Discussion

4.1 Response Rate

As per the standardization of the sample used for this study, and 384 questionnaires were distributed for respondents and 362 respondents returned the questionnaires. And based on the distributed questionnaires; the respondents rates is 94.2%.

4.2 Descriptive Statistics of Determinants of food security of urban Poor Households

Table 4.1 shows descriptive Statistics of respondents

Variables	Categorical Descriptions			
Sex of the household	Male	Female		
Frequency & Percentage	261(72.1%)	101(27.9%)		
Household age	18-40	41-63	Above 63	
Frequency & Percentage	104(38.7%)	182(50.3%)	76(21%)	
Marital Status	Unmarried	Married	Widowed	Divorced
Frequency & Percentage	37(10.2%)	130(35.9%)	96(26.5%)	99(27.3%)
Educational background of the Household	No Education	Primarily Education	Secondary Education	Above secondary level
Frequency & Percentage	43(11.9%)	181(50%)	105(29%)	33(9.1%)
Household Size	1-3	Above 4		
Frequency & Percentage	258(71.3%)	104(28.7%)		
Household Dependency level	Low	Moderate	High	Very high
Frequency & Percentage	54(14.9)	103(28.5%)	57(15.7%)	148(40.9%)
Household Occupation	Safety net work	Daily labor	Private work	No work
frequency & percentage	166(45.9%)	91(25.1%)	66(18.2%)	39(10.8%)

Source: Author's Survey (2024)

The data presented in table 4.7 reveals the demographic profile of the respondents. Out of the total 362 respondents, 261 (72.1%) were male and 101 (27.9%) were female. The majority of respondents, 182 (50.3%), were aged between 41-63. Additionally, 104 (38.7%) fell in the age group of 18-40, while 76 (21%) were above the age of 63. When it comes to marital status, 130 (35.9%) were married, 99 (27.3%) were divorced, 96 (26.6%) were widowed, and 37 (10.2%) were unmarried. Moving on to the educational background of the household heads, 181 (50%) had primary education, while 105 (29%) had secondary education. In terms of household size, 258 (71.3%) had 1-3 family members, and 104 (28.7%) had 4 or more family members. Lastly, family dependency level and occupational status of the household head were also examined. Out of the 362 respondents, 148 (40.9%) considered family dependency level as very high, 103 (28.5%) considered it as moderate, and 57 (15.7%) did provide information on family dependency level as low and 54 respondents, accounting for 14.9% of the total, perceive their family dependency level as low. Out of the 362 respondents, 166 (45.9%) have occupations that fall under the safety net category, while 91 (25.1%) earn income from daily work. It is widely acknowledged that the sex, age, gender, education, household size, household dependency level, and household occupational status of the head are directly linked to the food security status of urban poor households. When

these demographic variables are present in a positive manner in urban households, they tend to have a positive association and relationship with food security. However, they can also have both positive and negative impacts on the level of food security.

4.4 Results of Linear Regression model

This section delves into the variables influencing the food security situation of impoverished urban households within the research location. The recommended approach for conducting this examination is the utilization of the multiple linear regression estimation technique, given the cross-sectional nature of the data employed. Various regression diagnostic tests were conducted to mitigate potential biases, such as assessments for normality, multicollinearity, heteroscedasticity, and autocorrelation.

Table 4.2 shows Assumption for Normality test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Food Security Status	.400	362	.490	.622	362	.680

a. Lilliefors Significance Correction

Author survey (2024)

According to the data presented in Table 4.2, the significance value for food security status based on Kolmogorov-Smirnov test is (P=0.490), which exceeds the threshold of 0.05. Consequently, the alternative hypothesis is rejected, indicating that the values for food security status do not follow a normal distribution.

Table 4.3 shows Test for Multicollinearity

Independent Variables	VIF
Sex of HHs	1.528
Age of HHs	2.053
Marital Status of HHs	1.099
HHs Education level	2.670
Household size	1.333
HHs dependency level	1.359
HHs occupation	1.717

Author survey (2024)

Gujarati (2004, Pg, 362) states that multicollinearity becomes problematic when the Variance Inflation Factor (VIF) in the model variable exceeds 10. Fortunately, this is not the case in the regression model.

Table 4.4 shows test for heteroscedasticity

		ANOVA ^a				
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	100.784	7	14.398	38.301	.000 ^b

Residual	133.072	354	.376
Total	233.856	361	

Author survey (2024)

In table 4.4 Breusch-Pagan tests are run for heteroscedasticity and the problem was not present when tested for the Breusch-Pagan test for heteroscedasticity. In the table above P value in the Breusch-Pagan test is less than the level of confidence interval ($P < 0.05$) indicated in the table ($0.00 < 0.05$) which satisfies the assumption and there is homoscedasticity in the variables.

Table 4.5 shows test for autocorrelation

Model	Durbin-Watson
1	2.016

Author survey (2024)

Linear regression assumes that consecutive residuals are uncorrelated, meaning they are independent. If this assumption is violated, the standard errors of the coefficients may be underestimated, leading to potentially incorrect conclusions about the significance of predictor variables. To check for autocorrelation, a test statistic ranging from 0 to 4 is used. A value of $d = 2$ suggests no autocorrelation, while $d < 2$ indicates positive serial correlation and $d > 2$ indicates negative serial correlation. Values of d below 1.5 or above 2.5 may indicate a significant autocorrelation issue (Zach, 2021). In the case of table 4.5, the d value of 2.016 suggests no autocorrelation in the predictor variables.

Table 4.5 shows result of multiple linear Regression Estimation

Dependent Variable: Food Security Status

		Coefficients				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.392	.292		8.203	.000
	Sex	-.535	.089	-.298	-6.021	.000
	Age	.344	.066	.300	5.217	.000
	Marital status	.328	.035	.399	9.498	.000
	Education	-.338	.065	-.338	-5.167	.000
	Household Size	-.106	.082	-.059	-1.284	.200
	HH dependency	-.164	.031	-.249	-5.336	.000
	Occupational Status	-.103	.027	-.201	-3.819	.000
a. Significance at 5%		d. Number of observation = 362				
b. R-squared = 0.793		e. Adjusted R-squared = 0.789				

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	100.784	7	14.398	38.301	.000 ^b
	Residual	133.072	354	.376		
	Total	233.856	361			

a. Dependent Variable: food security

b. Predictors: (Constant), occupation, household size, sex, dependency, marital status, age, education

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.890 ^a	.793	.789	.370

a. Predictors: (Constant), occupation, sex, dependency, marital status, household size, age, education

Author survey (2024)

As indicated above in table 4.5 the gender of the household leader exhibited a favorable correlation with the food security status of the households. Specifically, households led by females had a beneficial influence on the food security of the household. This influence was statistically significant at a 5% probability level. Female-headed households demonstrated superior food security compared to households led by males. Holding other variables constant, an increase in the proportion of male-headed households resulted in a decrease of 0.53 in the probability of achieving food security. It can be reasoned that female-headed households achieved better food security due to their improved resource utilization.

The findings reveal that there is a positive correlation between the age of the household head and the food security status of the household, which is statistically significant at a 5% level. This suggests that as the household head gets older, the likelihood of the household being food secure increases. Specifically, for every unit increase in the age of the household head, the probability of the household being food secure increases by 0.32. This can be attributed to the fact that older household heads tend to become more productive and generate income as they age.

The size of a household is determined by the number of individuals who share all aspects of life with the head of the household. The findings suggest that the overall family size is inversely correlated with the household's food security status, although this relationship is not statistically significant at the 5% level. The negative coefficient indicates that as the family size decrease, the likelihood of food insecurity also increases. Specifically, a one-unit increase in family size is associated with a 0.1 decrease in household food security status, assuming all other variables remain constant. Urban households with fewer family members may encounter challenges in providing an adequate diet for their families.

Marital status has been identified as a significant and positive predictor ($B= 0.32$, $SE=0.35$, $P=0.000$) of the likelihood of achieving food security. Specifically, for each additional married household, there is a 0.32 increase in the probability of attaining food security, holding all other variables constant. This finding is consistent with Dersolegn et al. (2023), who observed a negative relationship between food security and the economic scale of consumption items purchased by couples, as well as the pooling of available resources. As a result, married households tend to decrease individual expenses that would have been incurred separately.

Educational background of the household head has been identified as a significant and negative predictor ($B= -0.33$, $SE=0.06$, $P=0.000$) of the likelihood of achieving food security. The findings suggest that the overall educational background of the household head is inversely correlated with the household's food security status, although this relationship is statistically significant at the 5% level. The negative coefficient indicates that as the educational background of the household head increase, the likelihood of food security decreases. Specifically, a one-unit increase in the educational background of the household head is associated with a 0.33 decrease in household food security status, assuming all other variables remain constant.

Family dependency has been identified as a significant and negative predictor ($B= -0.16$, $SE=0.03$, $P=0.000$) of the likelihood of achieving food security. The findings suggest that the overall family dependency level of the household head is inversely correlated with the household's food security status, although this relationship is statistically significant at the 5% level. The negative coefficient indicates that as the family dependency increase, the likelihood of food security decreases. Specifically, a one-unit increase in the family dependency of the household is associated with a 0.03 decrease in household food security status, assuming all other variables remain constant.

The household head's occupational status has been identified as a significant and negative predictor ($B= -0.1$, $SE=0.02$, $P=0.000$) of the probability of achieving food security. The findings indicate that the overall occupational status of the household head is inversely correlated with the household's food security status, with statistical significance at the 5% level. The negative coefficient suggests that as the occupational status of the household head increases, the likelihood of food security decreases. Specifically, a one-unit increase in the family dependency of the household is associated with a 0.1 decrease in the household's food security status, assuming all other variables remain constant.

5. Discussion

Kassaye Amosha (2020) carried a study on the urban productive safety net program in Ethiopia and its impact on the food security status of households in Gulele sub-city, Addis Ababa revealed that around 2.2% of households were classified as food secure, 26.3% as mildly food insecure, 49% as moderately food insecure, and 22.5% as severely food insecure in the study area.

Abebaw & Mesele (2021) also studied the determinants of food insecurity in Northern Shewa zone & their results showed that family size, age of the household, educational level the household head, off farm activities, monthly income of the households & distance from the market were the major terminates of rural households' food security in Northern Shewa zone.

In addition, Achenef, Alemayehu & Abera (2016), conducted a study and results showed that the prevalence of food insecurity was 55.3% in East & West Gojjam. The findings of their ordered logit model also indicated that age, family size, access to savings, and consumption of durable goods by the heads of participant households had both positive and negative effects on food security. In his study, he concluded that although the urban productive safety net program has positive effects on beneficiaries, it does not have statistically significant changes in their livelihood.

Mekuanent (2021) conducted a research on the status & levels of rural household in Amhara region & his study showed that about 61.54% & 38.46% households were food secure & food insecure respectively. His logistic model result also showed that age, family size, dependency ratio, size of the land, numbers of livestock, and education level of the household head and shock related with agriculture were found to be statistically significant determinant factors of food security status & utilization of the rural household.

However in Mekuanent (2021) study the dependent variables were household health status, household health care access, household food preparation, household hygiene and sanitation, water availability and quality of the household, household food distribution, household nutritional knowledge, food safety & quality of the household, waste disposal practice of the household and household feeding practice. From the findings of this study, it is concluded that household health status, household food preparation, household hygiene and sanitation, water availability and quality of the household and household feeding practice were all significant factors in explaining the variation in food utilization of the rural households. The finding of the study show that household healthcare access, household waste disposal practice, food safety and quality of the household, food distribution of the household, and household nutritional knowledge were all insignificant factors in explaining food utilization levels of the rural households.

The gender of the household head exhibited a favorable correlation with the food security status of the households. Specifically, households led by females had a beneficial influence on the food security of the household. This influence was statistically significant at a 5% probability level. The findings reveal that there is a positive correlation between the age of the household head and the food security status of the household, which is statistically significant at a 5% level the size of a household, is determined by the number of individuals who share all aspects of life with the head of the household. The findings suggest that the overall family size is inversely correlated with the household's food security status, although this relationship is not statistically significant at the 5% level. Marital status has been identified as a significant and positive predictor of the likelihood of achieving food security. Educational background of the household head has been identified as a significant and negative predictor of the likelihood of achieving food security. Family dependency has been identified as a significant and negative predictor of the likelihood of achieving food security. The household head's occupational status has been identified as a significant and negative predictor of the probability of achieving food security.

6. Conclusion

The increase in urbanization and migration to cities has resulted in a significant population growth, leading to a higher demand for food. The availability and cost of food are key factors contributing to food insecurity in urban households. Additionally, poverty, irregular incomes, unemployment,

and the complex nature of livelihoods are the root causes of food insecurity in urban areas. Despite this, there is a lack of thorough research on food security in major cities. As a result, this study was carried out in Adama and Bahir Dar to offer valuable insights for policymakers. The objective of this research was to investigate the connection between urban productive safety nets and the food security of impoverished households in the main cities of Ethiopia. Additionally, the study proposed potential solutions to tackle the issue of food insecurity. To analyze the factors influencing food security in urban poor households in Ethiopia, the study employed multiple linear and ordered logistic regression models.

The dependent variables were sex, age, marital Status, educational level of the household head, family size, household dependency level and occupational status of the household head. From the findings of this study, it is concluded that sex, age, Marital Status, educational level of the household head, household dependency level and occupational status of the household head were all significant factors in explaining the variation in food security of the urban poor households. The finding of the study show that household family size was insignificant factors in explaining food security levels of the rural households.

The study shows survey results on satisfaction levels among households in the urban productive safety net program. Out of 362 participants, 142 (39.2%) were dissatisfied, with 112 (30.9%) strongly dissatisfied. On the other hand, 72 (19.9%) were satisfied, and 36 (9.9%) were neutral.

Overall, the findings suggest a range of satisfaction levels among program participants. This shows that many respondents doubt the effectiveness of the urban productive safety net program, with 40.9% finding it ineffective and 29.3% finding it less effective. There is room for improvement in implementation and impact. Only 20.4% saw positive results, while majorities are not fully convinced of its effectiveness. 9.4% were neutral, indicating a lack of awareness or understanding about the program among some individuals.

7. Policy Implications

Creating and advancing urban holistic livelihood strategies is crucial in addressing food insecurity among urban poor households in Ethiopia's main cities. The rapid urbanization and population growth in these cities have led to increased pressure on food resources and limited access to nutritious food for vulnerable populations. Therefore, it is imperative for both regional and federal governments to establish functional institutions that promote urban food security. These institutions should focus on educating communities on nutrition and sanitation practices to improve the overall health and well-being of urban residents.

By providing information on the importance of balanced nutrition, these institutions can help households make informed decisions about their food choices and ensure they have access to a diverse range of nutritious foods. In addition to education, these institutions also play a key role in enhancing awareness on household food security. They can provide training and support to urban poor households on sustainable urban small farming practices, urban gardening, and small-scale food production. By empowering households to grow their own food, these institutions can help reduce their dependence on external food sources and improve their food security.

Furthermore, the presence of socio-economic institutions in urban areas is vital for policy interventions aimed at providing job opportunities. These institutions can facilitate skill development programs and vocational training to enhance the employability of urban poor households. By creating job opportunities, these institutions can help alleviate poverty and improve the economic well-being of urban residents. Additionally, these institutions can play a crucial role in facilitating access to cooperative markets for urban poor households. By establishing cooperative markets, they can ensure that urban residents have access to affordable and nutritious food. These markets can also provide a platform for small-scale urban farmers and producers to sell their products, thereby promoting local economic development.

Moreover, these institutions are essential for monitoring market inflation and price increases on consumer goods. By keeping a close eye on market trends, they can identify potential food price hikes and take necessary measures to mitigate their impact on urban poor households. This includes implementing price control mechanisms, subsidizing essential food items, and regulating market practices to ensure fair pricing. In conclusion, the establishment of functional institutions that promote urban food security and educate communities on nutrition and sanitation is crucial in addressing food insecurity among urban poor households in Ethiopia's main cities. These institutions play a vital role in providing job opportunities, facilitating access to cooperative markets, ensuring affordable markets for urban poor households, and monitoring market inflation and price increases on consumer goods. By prioritizing the development of these institutions, both regional and federal governments can effectively address food insecurity and improve the livelihoods of urban poor households.

8. Acknowledgments

This research project would not have been possible without the financial support of the Ethiopian Civil Service University. In particular, I am grateful to the Research Publication and Coordination Office for their continued support during the actual work of this research project. I am very grateful for their tireless efforts to support me, and for that I am truly grateful for your outstanding support. And finally, I thank everyone who was able to work with me on this research project.

9. Author Contributions

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation. The author has made a considerable contribution to the concept or design of the article; or the acquisition, analysis, or interpretation of knowledge for the article; and drafted the article or revised it critically for important intellectual content. The author has agreed to be answerable for all aspects of the work in ensuring that questions associated with the accuracy or integrity of any a part of the work are appropriately investigated and resolved.

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