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INDRA GANDHI NATIONAL OPEN UNIVERSITY (IGNOU)

Determinants of Rural Female Headed Household's Vulnerability to Food Insecurity; A Case of Omonada District, Jimma Zone, Oromia Regional State, Ethiopia

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M.A Dissertation
Submitted to Indira Gandhi National Open University in partial fulfillment of the requirements for the degree of Master of Arts in Rural Development

By

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DECLARATION

I hereby declare that the thesis entitled, **"Determinants of Rural Female-Headed Household's Vulnerability to Food Insecurity; A Case of Omonada District, Jimma Zone, Oromia Regional State, Ethiopia"** submitted by me for the award of the Degree of Masters of Arts In Rural Development, Indira Gandhi Open National University, is original work and it has not been presented for the award of any other Degree or other similar titles of any other university or institution.

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CERTIFICATION

This is to certify that the thesis, entitled, "**Determinants of Rural Female-Headed Household's Vulnerability to Food Insecurity; A Case of Omonada District, Jimma Zone, Oromia Regional State, Ethiopia",** has been duly compiled by Mr. Asfaw Merga under my supervision to fulfill the requirement for the degree of Master of Art in Rural Development.

Name of Supervisor _____

Signature _____

Date _____

DEDICATION

I dedicate this thesis document to my mother **LIKITU BIRACHIS** and my father **MERGA MIRESSA** for directing me the way of the journey to success and for their dedicated partnership in the success of my life.

BIOGRAPHICAL SKETCH

The author was born in Small Village, called **Sochosa Gamachisa**, Jimma Rarea Woreda, Horo GuduruWollega Zone, Oromia Regional State, Ethiopia on September the 16th, 1989. He attended his Elementary School at Lelise Wayu and Junior Secondary Schools at Gedo Senior Secondary School.

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The author has one year government office work experience and more than Six years of progressive working experience working as different positions like; development facilitator, Livelihood Specialist and Operations and Quality assurance Officer in Non-Government Organizations.

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ACRONYMS

ADP Area Development Program

CSA Charity and Society Agency

FHHs Female headed households

HHs Households

IFAD International Fund of Agricultural Development

ILO International Labor Organizations

KAs Kebele Administrations

m meter

mm millimeter

ONRS Oromia National Regional State

P/Km^2 Population per kilometer square

SL Sustainable Livelihood

UN United Nation

UNDP United Nation Development Program

USA United States of America

TLU Tropical Livestock Unit.

Abstract

The objective of the study is to examine the determinants of rural female-headed household's vulnerability to food insecurity: A case of Omonada District, Jimma Zone, Oromia Regional State, Ethiopia. For the purpose of the study, primary data was collected from the sample of 200 female headed households in the study area. The study used seven variables namely; family size. family labor, level of education, distribution of family dependency, source of income, farm land size and livestock production. Descriptive statistics was employed to analyze the data. The research result shows that variables such as family size, number of dependent family members, and age of the female-head of the households have direct relationship with food insecurity of FHHs while education level, land holding size, family labor, source of income and livestock production have negative relationship with food insecurity. The annual mean income of female-headed households was analyzed to evaluate the status of female-headed households' food insecurity. The main source of income for rural female headed households were farm activities and non-farm activities, like working as daily laborer, selling fire wood and involvement in petty trade. The annual mean income of non-farm activities is lower (ETB 1313.96) when compared with farming income (ETB 1751.08) for female-headed households in the study area. The study recommends that government should increase family planning scheme in the study area. It also has to promote formal and non-formal education for FHHs to improve their food security. Moreover, policies that encourage income source diversification and access to land for FHHs has to be designed and implemented.

Key words*: Female headed households, FHHs income, Food insecurity and food security.*

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the study

The headship of the household is usually identified with the person who has the greater authority in the family or household. Power and authority in turn may be vested in the member who has control over the general affairs of the family unit, including decision-making concerning its economic, social and political interactions (Sanni, 2006).

The term household is defined by as a group of related or unrelated people living in a dwelling unit or its equivalence, eating from the same pot, and sharing common housekeeping arrangements (World Bank, 2001:1). According to this definition, the term is not only restricted to related people but to any group of people dwelling in the same house. A household usually has the head who is a household member with authority and income earning responsibility. The head of the house is usually nominated but can also take the headship even without any form of nomination. The male is usually the one who heads the household. In the absence of the male figure, a female family member takes over the role of headship giving rise to a female-headed household scenario (Ngwenya, 2008). The research interest in household headship arises because of the perceived economic and social differences between male-headed and female-headed households. Female-headed households have become a concern because of the high incidence of poverty and food insecurity in those households.

Fuwa (1999) gives three broad categories of Female Household Heads (FHHs) definitions: self-reported, demographic, and economic. The self-reported household category is often created based on respondents statements in surveys and censuses, although there is no precise definition. Demographic definitions take account of FHHs where there is male partner that is temporarily not present, and of FHHs where the female head is separated, divorced, widowed or single (1999). Further disaggregation of households can be done in terms of de facto to and de jure

FHHs. De facto FHHs are those households where the self-reported male head is absent the majority of the time (Fuwa, 1999). De jure female-headed households are those usually headed by widows or unmarried, divorced or separated women. Finally, FHHs may be defined depending on the level of economic contribution of females to the household. Fuwa (1999) suggests defining headship in terms of the largest cash earner in the household. Rogers (1995) advocates a distinction in terms of the 'major earner,' i.e. an earner who contributes 50 percent or more to the household earnings. Gammage (1989) uses the term 'female- maintained' to describe this particular type of household. Moreover, RosenHouse (1989) uses the working head definition for the household member most heavily engaged in income-generating activities, which includes activities in the labour market, as well as family Labour (but excludes household chores or child care) in order to emphasize the dual burden attached to female workers.

The definition of female-headed household, adopted for this study, is the one given by International Labour Organization (ILO). Household where either no adult males are present, owing to divorce, separation, migration, non-marriage or widowhood, or where men, although present, do not contribute to the household income (The ILO Thesaurus, 2005).

Female-headed household can also be explained as a situation where the main decision maker and the economic provider for the household is a woman regardless of her marital status. These households are usually embedded in a network of relationships for survival. The networking relationships are usually heavily dominated by women. Sometimes men may be present in these households but they are often few and less stable (Lingam, 1994).

1.2 Reasons of creation and proliferation of FHH:

According this definition, there are many reasons for creation of FHH. Among the main reasons, one can imply to male migration, the deaths of males in civil conflicts and wars, divorce, and family disruption.

In respect of routes into female household headship, it is fair to say that these are usually more 'involuntary' than 'by choice' i.e. in cases where women get pregnant and did not marry, or fell victim to separation or divorce. Men are, more often, the ones in the position of determining and/or instigating the process. This is partly because in most societies the pressures on women to contain their sexuality within a stable partnership and/or to keep marriages afloat are greater than for men (Chant, 2007).

What are the reasons behind the proliferation of FHHs? It varies. But in Europe and the United States an important reason has been the greater longevity of life for women as compared with men, as a large percentage of women are 60 and above years old (UNs, 1995). Another reason, pertinent to these regions, is the greater social acceptability of single mothers, female participation in the modern economy, and access to housing. Who constitute female-headed households? It is helpful first to distinguish between de jure and de facto FHHs. De jure FHHs maintain their households alone, while de facto FHHs may include men who are unable or unwilling to work. Female-headed households may consist of elderly women (widowed or divorced) with no dependents, or younger women (divorced or never-married) with dependent children. FHHs may be permanent or transitory or embedded in a wider kin network of support. They may represent family breakdown or a conscious lifestyle choice (Moghadam, 2005, p. 10).

The majority of women in FHHs in developing countries are widowed, and to a lesser extent divorced or separated. In the developed countries, most female-headed households consist of women who are never married or who are divorced. Perhaps because of flexible definitions of female headship, as well as inadequate data, estimates on the extent of FHHs tend to vary.

1.3 Economic and social conditions of households with female supervisor:

Thus, female headship is a concept that attracts policy attention as a social and economic issue in many cases. Since a substantial segment of female- headed households are "manless" households or households with no permanent male resident contributing to household income, female headship may imply a heavy economic burden on women who have the responsibility of maintaining the households. The situation is assumed to be particularly critical in developing countries like Iran where social welfare systems which could support this group are nonexistent or inadequate.

In developing countries, the majority of households that are headed by women have many economic and social problems. FHH often faced with issues such as cultural discrimination, lack of access to job opportunities, low literacy and lack of regular income. Socio-Economic factor of poverty directly and indirectly affects the cultural, social and ecological condition of FHH.

Poverty in female headed households is not an isolated case as literature maintains that women make up a disproportionate number of the poor. The United States also found that, of the world's poor, 60-70 percent are women (Dungumaro, 2008).

1.4 Statement of the Problem

Jimma zone is one of the zones in Oromia National Regional State (ONRS) from the nine regional states of the Federal Government of Ethiopia. Jimma zone is well endowed with cash crop resources contributing significantly to the national economy of the country. However, due to religious context, one man can marry more than two women in the study area, and as a result more female headed HHs is observed.

The main problem for female-headed households is that they have no legal right over resources that would make them eligible for loans.

At household level, the major type of risk include health (illness, disability, injuries), life cycle related problems (old age, death, dowry), social (inequitable intra-household food distribution) and economic risks (unemployment, harvest failure). These risks cause food insecurity by lowering food production, reduce income, reduce asset holding, increase indebtedness and reduce uptake of macro- and micro-nutrients (Lovendal and Knowles, 2005).

Gender differences in resource control, asset ownership, income earning, consumption and expenditure have been identified as important factors in household food security (Owotoki, 2005). Despite improvement in building women's capabilities, gender gaps in entitlement, the recourses which women and men can command through available legal means, continue to persist (Akinsanand Doppler, 2005).This is usually reflected in unequal right between men and women for both natural and physical capital which leads to inadequate and inappropriate use of resources and limited alternatives, low income, poor diet, and low living standards. These disparities have serious consequence for well-being not only for women themselves but also for their families and the society at large.

It is well-documented that women almost everywhere are disadvantaged relative to men in their access to assets, credit, employment, and education. Consequently, it is often suspected that female-headed households are poorer than male-headed households, and are less able to invest in the health and education of their children (Folbre, 1991; UNDP, 1995; United Nations, 1996; World Bank, 2001).

It has generally been observed that female-headed households are more food insecure than male-headed households. The former are said to be more vulnerable to food insecurity due to the "triple burden:" (i) the female head, who is the main income earner, faces various disadvantages in the labor market and many productive activities, (ii) she is also responsible for maintaining the household including household chores and child care in addition to working outside, and thus she is "activity burdened," and (iii) she faces a higher dependency ratio for being the single income earner (Fuwa, 2000).

Agricultural Development concludes that rural women particularly rural FHHs in developing countries were among the poorest and most vulnerable people in the world (IFAD, 2010).

1.5. Objective

The general objective of the research project was to assess rural female headed households' vulnerability to food insecurity nexus livelihood strategies in the research area. The specific objectives are:

- To identify causes of food insecurity for female headed households;
- To analyze determinants of food insecurity for female headed households ;

- To assess rural female headed households' livelihood systems.

1.6 Basic Research Questions

The research will answer the following main research questions:

1. What are the causes of food insecurity for female headed households in the research area?
2. What are the significant determinants for rural female headed households' food insecurity in the research area?
3. What are the livelihood systems for female headed households in the research area?

1.7 Significance of the Study

The following results are expected from the proposed research:

1. Empirical evidences on the causes of food insecurity for rural female headed households in the research area;
2. Empirical evidences on significant and insignificant determinants of rural female headed households' food insecurity in the research area;
3. Evidences on criteria to make rural female headed households' livelihood secured and food secured in the research area.

1.8 Limitation of the study

The study has undergone some limitations. As the location of the study is farther out from towns finding female-headed households and getting the required information was not easy, and also resources such as time and money were constraints to conduct the study. The study covers only the four peasant administration of the woreda; Lafteka, Waktola, Burka Asendabo and Seyo Adami. In addition, the response of the subjects about their income had some problems in reliability, lack of willingness among the subjects to provide information about their income and on the reason for being single which exposed them to family responsibility.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Concept and Meaning of Female headed households

There is no single or constant definition to FHHs found in the world although several definitions have been given to FHHs worldwide according to many literatures. One of the definitions to FHHs is given by Chant. Chant (1997) identifies seven typologies of FHHs and their characteristics in the world. Among these characteristics of FHHs, the researcher adopted and used the definition of FHHs as "households managed by a widowed, divorced, or a single woman without the mediation of a husband, father, or male relative in the routine day-to-day activities of the household" in the study.

Regarding the local community, they didn't have common name or definition to those segments of the society rather they treat them separately. Local communities have several names to FHHs, which really go in line with the causes of FHHs. For example, a widower is a woman whose husband is dead and the community understood them by default as head of the household. But, they named as *set adari.* On the other hand, a divorcee is a woman who divorced her husband legally or traditionally with her husband but she may live with her parents or independently. The community calls these women regardless of their living status as *galemota*. The other two causes of FHHs such as desertion and being never-married are also treated similar to divorcee woman as *galemota*. However, the attributes *galemota*and *set adari***(**or *setegnaadari***)** are familiar terms in the society, the community gives derogatory names to divorced, widowed and being never married females calling them as *galemota*, *gefi* and *edilebis*, respectively (Omonada Social affairs Office,2000).

Pinstrup-Andersen (2009) contends that food security exists 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 a healthy and active life . According to the same scholar, a household is considered food secure if it has the ability to acquire the food needed by its members to be food secure. There is a clear difference to be noted between transitory and permanent food insecurity. Transitory food insecurity, describes periodic food insecurity as for example seasonal food insecurity while the permanent food insecurity describes a long-term lack of access to sufficient

food (Pinstrup-Andersen, 2009). Scholars of food security and sustainable livelihood research contend that food security may be insured in developing community if and only if they pursue sustainable livelihood strategies. A livelihood which must be environmentally and socially sustainable comprises people, their capabilities, and their means of living, including food, income and asset (Chambers &Conway, 1996; Ellis, 1998; Butler & Mazur, 2007).

2.2 Causes of female headed household's food insecurity

Though many scholars of food security and livelihood research in Africa and Ethiopia have identified different factors as causes of food insecurity in general and household level food insecurity in particular, agro-ecological based empirical evidences on rural female headed households' (households headed by females) vulnerability to food insecurity nexus livelihood strategies in Ethiopia is an unaddressed researchable issue. In other words, comprehensive research in this area is required to design gender responsive policy interventions in developing countries like Ethiopia to reduce vulnerability of female headed households to food insecurity on sustainable basis (Sanchez *et al.,* 2009). Hence, this research project proposes to assess rural female-headed households' vulnerability to food insecurity nexus livelihood strategies in three rural districts of Ethiopia from sustainable livelihood perspective. To this end sustainable livelihood framework will be adopted. The sustainable livelihoods (SL) framework places priority on the livelihood systems of the poor, and the ways in which the poor adapt to maintain their livelihoods under conditions of severe environmental, economic or political stress (Mainka, 2002; Butler & Mazur, 2007; Hansen *et al.*,2007).

There are different factors to note as causes of hunger or food insecurity in developing countries. For instance, Ejeta (2009) asserts that the causes of food insecurity/hunger are many including natural, social, economic, and political factors. It was also asserted by food security and livelihood researchers that influencing factors for rural households' vulnerability to food insecurity in Ethiopia is not the same across different agro-ecologies. For example, Devereux (2009) claims that the 1999-2000 famine of Ethiopia did not affect a lot of farmers in the crop-producing highlands but farmers of lowland areas, where the direct consequence of the drought was on livestock(cattle, sheep and goats) production and equine (camels) production contributing to a collapse of livelihoods in pastoralist communities as a result of income shock. Moreover, Devereux (2009) identified food production failure, market failure or lack of purchasing power, and response failure as the three causes of food insecurity in Ethiopia.

According to Devereux (2009), vulnerability to food insecurity is closely correlated with vulnerability of livelihoods (Chappell & LaValle, 2011; Stringer, 2009; Pinstrup-Andersen, 2009).

FHHs are disadvantaged when it comes to access to land, livestock and other assets, health care, markets and extension services. These inequalities are caused by *inter alia* limited access to information, cultural practices that disenfranchise female heads of households or minimize the status of girls and women. The other precursor is less educational opportunities for females. Traditional norms about asset division marginalize women and girls. The cumulative effect of all this is less security in asset ownership, low human capital formation and diminished earning opportunities. Vulnerability becomes part of life for many FHHs. There are many visible and invisible factors that emphasize women's vulnerability in the field of agriculture thus contributing to food insecurity in their households. These factors have to do with local social norms and traditions that cannot be captured in a statistical survey.

Several factors have in recent times contributed to the rise in the number of FHHs. These include migration of male spouses for work, widowhood and changing social norms that have led to reduced marriage rates among women. All these factors have made women *de jure* (no spouse due to widowhood, divorce, separation or non-marriage) or *de facto* (spouse physically absent formany reasons) household heads. (Kassie, M 2014)

In the informal sector, the financial difficulty of female household heads is aggravated by women's limited access to 'physical capital assets' or 'non-labour resources' such as infrastructure, land and property ownership. For example, where informal businesses require homes, female household heads that have no place and have to rent or share their accommodation with others can see their choices or scale of entrepreneurial activities seriously constrained by property owners or co-dwellers. They may also face labour shortages due in part to the number and gender mix of their household members (Chant 2003).

2.3 Income source of female head households in rural area

FAO (1999) reports that employment in off-farm and non-farm activities is essential for diversification of the sources of farm households' livelihoods; it enables households to modernize their production by giving them an opportunity to apply the necessary inputs, and reduces the risk of food shortage during periods of unexpected crop failures through food purchases. Especially in Africa, diversification of sources of income has long been a survival strategy which allows household heads to reduce the risk of starvation for themselves and their families during periods of chronic or transitory food insecurity (Devereux 1993, Maxwell and Franken burger, 1992). In this study, households diversify their incomes by selling firewood, working on farms as daily laborers, and selling crafts. In this study participation in off-farm and non-farm activities was measured by whether or not a household was engaged in those activities.

There is a significant difference in the average size of land operated by both female headed and male headed households. On the average the male-headed households operated 2.19 hectors of land compared to the female-headed households which operated about 1.10 hectors of land. The findings of the study showed that there was a significant difference in the value of crop output by both households; the male headed households had a higher value of 229,926 Naira while the female headed households had a lower value of 184,881 Naira. This could be influenced by the difference in the size of land cultivated. The analysis of household income earned showed that there was a significant difference between male-headed and female-headed households in terms of the off farm income and total income. The male-headed households had higher off-farm income and total household income than the female-headed households. Off farm income was the main source of income for both male and female-headed households. Off farm income is very important for the well-being of both the households because income generated from the sales of farm produce alone could not be enough for the upkeep of the family (O.A. Omotesho, 2008).

2.4 Determinants of Female headed Household's Food Insecurity

Various studies carried out in developing countries have highlighted a number of factors considered as determinants of female headed household's food security status. Bahiigwa; (1999) showed that inadequate labour, inadequate land, not growing enough food during the seasons and soil infertility, poor health, lack of planting materials, lack of oxen for plaguing were the main factors contributed to household food insecurity in Uganda. Study by Alarcon et al (1993) for smallholder farm households in west highland of Guatemala found that lack of access to credit and cash crop production displace food crops and household consumption of own production is reduced. Thus the household's vulnerability to food insecurity tends to increase. Mucavele (2001) suggested that the main factors that affect food security in rural Maputo, Mozambique, are poverty, low family income, low availability of general alimentation at the family level, floods, family crisis, high unemployment levels and low levels of schooling and training and the absence of a social security system to alleviate the urban shocks. Von Braunet al.(1993), as stated in FAO, denoted that employment and wages, along with prices and incomes, play the central role in determining the food security status of households. As stated above, the situation in Ethiopia is not much different from the conditions in other developing regions. For example, World Food Programme stated(2009) that the common factors that cause household food insecurity in urban areas of the country are: household size, age of household, sex of household head, marital status of household, education level of household, dependency ratio, access to credit, ownership of saving account, total income per adult equivalent, expenditure level (food and non-food), asset possession, access to social services, owner of home garden, access to subsidized food, sources of food, availability of food commodities, and supply of food commodities. Shiferaw et al (2003) found technological adoption, farming system, farm size, and land quality are supply-side factors and Household size, per capita aggregate production, and access to market are demand-side factors affecting food security.

There seems to be little dispute over the fact that FHHs are usually disadvantaged in terms of access to land, livestock, other assets, credit, education, health care and extension services. For instance, in Zimbabwe, female-headed households have 30-50% smaller landholdings than male-headed households. There are similar findings on Malawi and Namibia. But there is disagreement as to whether or not they are poorer than male-headed households in terms of income poverty. On the one hand, the fact FHHs are usually smaller in size means that they

should be less poor, since the poor tend to be concentrated in larger households. On the other hand, the fact that they have a higher number of dependents relative to the number of income earners, which is also correlated with poverty, would argue the reverse (IFAD, 1999. Assessment of Rural Poverty in West and Central Africa. Rome. August.)

2.5 Economic situation of rural female headed households

Economic conditions of female household heads vary depending on their marital status, access to income and productive resources and their social networks (Wabwire 1997). However, study findings of O'Connell (1992), Selamawit (1994) and Fuwa (1999) have shown that female household heads are considered to be the poorest of the poor largely owing to their readily observable low economic and social status. Bennett (1992) further explains this, stating that access to and constraint of productive resources directly contributes to poverty of female household heads as it plays a major role in their choice of livelihood strategies. Todaro (1997) also states that low access to resources constrains choice of livelihood strategies. Accordingly, the restricted range of choices that female household heads have due to their low access to resources stagnates their productivity as it creates good opportunities for men to continue improving their livelihoods.

Roung (1995) mentions the social and economic supports of institutions such as development organizations, community based organizations and others in the life of female household heads. However, it is only a few women household heads who access these services. For instance, Wabwire (1997, p.38) describes some of the disadvantages of female household heads with regard to credit services by stating that "they have particular disadvantages in securing loans because of such problems as lack of information about credit programs, low and irregular income, lack of collateral, complicated loan application procedures, and women's lack of legal standing in certain areas".

Chant (2003) noted that poverty of female household heads has become a proxy for poverty in general and poverty of women in particular. She stated that female-headed households face more risk of poverty mainly in terms of income, health and nutritional status. In addition, women are more disadvantaged than men because of their lack of entitlement, 9 constraints in socio economic mobility due to cultural and legal factors and their heavier burdens because of their triple roles in the community (income generation, childcare and community/social activities).

2.6 Important Policy measures to ensure food security of rural female headed households.

Policy efforts can help bridge the gap between male-headed households and female-headed households by: strengthening social groups that uplift female-headed households (because belonging to certain social networks were found to be associated with better food security outcomes for these households; focusing on enhancing productivity of smallholder farmers because exploiting the agricultural frontier for more agricultural land (bigger farms) is no longer feasible, giving due recognition to factors that may negatively affect the welfare of female-headed households even if these are difficult to directly observe or quantify, yet their effects are critical, and because of this; we encourage those in policy positions to work closely with academia and other research institutions to bring to bear cutting edge social science research to unearth these issues and inform appropriate policy response. This brief is an illustration of this approach.(Stage, J. 2014)

Different scholars of food security and livelihood research forwarded different important policy measures to ensure food security in developing countries like Ethiopia. For example, Sanchez *et al.* (2009) affirm that rural household interventions must aim at increasing several kinds of capital: natural (soil nutrients), human (health, education, skills), social (community organization, gender empowerment, farmer organizations), infrastructure (roads, power, water, telecoms), and financial (household assets, banking, credit) to raise capital stocks above a threshold level, beyond which the rural households can move towards self-sustaining economic development. Moreover, (Ejeta, 2009) recommends the following critical measures to insure global food security: revitalizing the U.S. Land Grant University model to meet the needs of today; mobilizing the universities and research centers in earnest global efforts; strengthening the public-private partnerships of the educational and research programs; and embracing and leading dialogue and developing options for meeting emerging societal challenges. It is also worth noting the recommendation of Pinstrup-Andersen (2009) who asserts that estimates of household food security, combined with individual anthropometric estimates for children and a thorough understanding of household behavior provide a powerful input into the design and implementation of policies and programs to improve nutrition. The aforementioned claims and assertions call for comprehensive research on rural female headed households' vulnerability for food insecurity nexus livelihood strategies in Ethiopia.

CHAPTER THREE

3. RESEARCH METHODS

3.1 Description of the Study Area

Jimma Zone, is located in South Western Ethiopia, lies between 360 10´ E longitudes and 70 40´ N latitude at an elevation ranging from 880 m to 3360 meters above sea level. Currently Jimma Zone is divided in to 16 Weredas/districts (hosting a total population of over 2.4 million; (Source; CSA, 2004) with an agro-ecological setting of highlands (15%), midlands (67%) and lowlands (18%) (Dechassa, 2000). Farmers in the area practice mixed crop-livestock agriculture. The zone is one of the major coffee growing areas of southwest Ethiopia; cultivated and wild coffee is a main cash crop of the area (Agricultural and Rural Dev't of Jimma Zone, 2000).

Jimma zone is well endowed with natural resources contributing significantly to the national economy of the country. Major crops grown other than coffee are maize, teff, sorghum, barley, pulses (beans and peas), root crops (false banana and potato) and fruits. Teff and honey production is another source of cash after coffee. Enset is a strategic crop substantially contributing to the food security of the zone and is especially important in Setema and Sigimo weredas (highlands) (CSA 2004). The climate is humid tropical with bimodal heavy annual rain fall, ranging from 1200 to 2800 mm. In normal years, the rainy season extends from February to early October. The thirteen years mean annual minimum and maximum temperature of the area was 11.3 ºC and 26.2 ºC, respectively. The soil type of the study area is characterized with black to red soils.

Major agro-ecological zones of the woreda are categorized as Dega, Woinadega and Kolla that makes up 23.9%, 62.7% and 13.4%, respectively. According to a census conducted in year 2008, current population of the Omonada woreda is estimated to be 256,280 of which 134,301 are females with crude population density of 154.6 P/$km^{2.}$ There are about 45,375 household heads with average family size of 5.6 in the operational woreda. Ethnic wise, the majority of the resident population were Oromo and almost 98.5% of the population are Muslims (Omonada ADP).

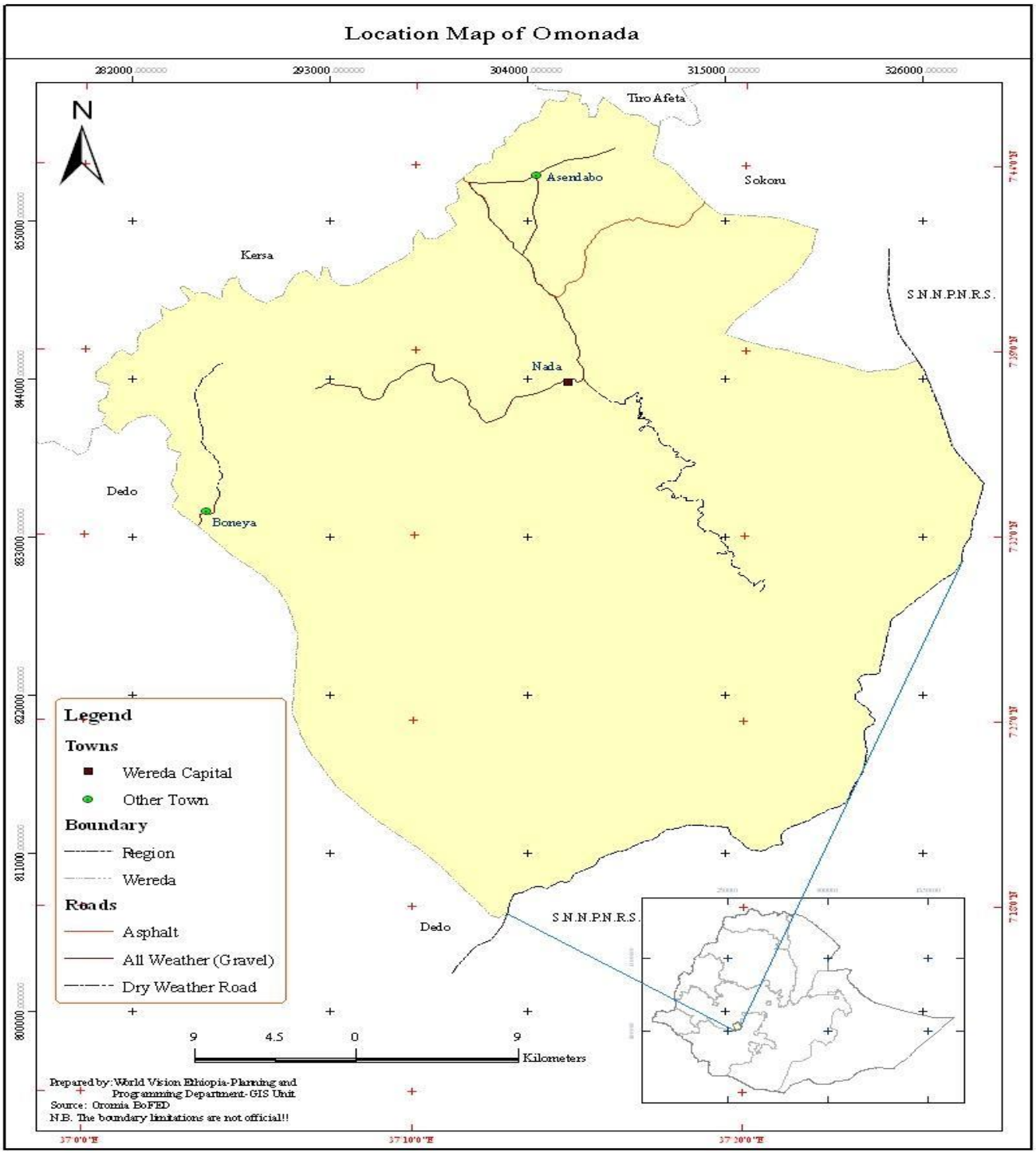

Fig 1 . Map of the study area

3.2 Research Approach:

Given the contribution of different set of knowledge for comprehensive understanding of Rural Female Headed Households' Vulnerability to Food Insecurity Nexus Livelihood Strategies in four KAs of the District, the study adopts a comprehensive research approach combining quantitative and qualitative methods. Such comprehensive approach, therefore, requires a multi-methodological setup, as it is necessary for each aspect of this study. The methodological tools that provide the most valid and reliable result were adopted.

3.3 Sampling methods and Procedures

The sample size was determined using the rule-of-thumb formula. Hence, the minimum sample size was $N \geq 50+8m$, where N is the minimum number of female headed households and m is an explanatory variable, The explanatory variable is eight (Green 1991). Accordingly, a total of 200 female headed households were sampled for the study. (Table 1)

Table 3.1 Sample size determination of female headed households.

S/N	Name of kebele	Total member of FHH	Sample size
1	Burka Asendabo	290	50
2	Waktola	365	63
3	Lafteka	298	52
4	Seyo Adami	202	35
	Total	1155	200

A multi-stage sampling procedure was employed to select 200 rural female headed households in Jimma Zone Omonada District. At the first stage, out of the woreda thirty nine KAs, four KAs from three agro-ecological zones (Highland, midland and lowland) were purposively selected. In the second stage probability proportional to size sampling technique was employed to draw sample female-headed households from the selected sample KAs. The number of female headed households in all sampled KAs is 1155. A sample of 50 (25%) out of 290 FHH, 63 (32%) out of 365 FHH, 52 (26%) out of 298 FHH and 35 (17%) out of 202 FHH were taken from Burka, Waktola, Lafteka and Seyo Adami sampled KAs respectively.

3.4 Methods of Data Collection

The structured questionnaire was designed and pre-tested to collect the primary data and the household head was the main respondent. The questionnaire try to encompass information on demographic characteristics, crop and livestock production, farming systems and productive resources, land use, as well as access to services. Qualitative data was collected through focus group discussions, key informant interviews and direct observation for triangulating data collected through structured questionnaire.

3.5 Method of Data Analysis

Both qualitative and advanced quantitative methods of data analysis were employed. The qualitative data captured through focus group discussions, key informant interviews, and direct observations. The data were transcribed, interpreted, and analysed in the form of descriptions and tables. To this end, content analysis and discourse analysis were also carried out for the qualitative data using appropriate software to reach the objectives of the study.

Simple descriptive statistics was employed to analyze the socio-economic household and village characteristics while inferential statistics was employed to analyze the association between variables. To analyze the relationship between the dependent variable (female-headed households' vulnerability to food insecurity which determined by their annual income) and the independent variables (socio-economic variables) descriptive statistics was applied. The dependent variable in this case, female-headed households vulnerability to food insecurity, is a binary variable which takes a value of one if a household is found to be food insecure, zero otherwise.

Based upon Pindyckand Rubinfeld (1981) formula, the cumulative logistic probability model can be econometrically specified as:

$$P_i = F(Z_i) = \frac{1}{1 + e^{-(\alpha + \sum \beta_i X_i)}} \qquad (1)$$

Where P_i is the probability that an individual is being food insecure given X_i

X_i represents the i^{th} explanatory variables

a & b_i are regression parameters to be estimated.

e is the base of the natural logarithm

For ease of interpretation of the coefficients, a logistic model could be written in terms of the odds and log of odd. The odds ratio is the ratio of the probability that an individual or household would be food insecure (P_i) to the probability of a household would not be food insecure (1- P_i).

That is,

$$\left(\frac{P_i}{1-P_i}\right) = e^{Z_i} \qquad (2)$$

and taking the natural logarithm of equation (2) yields:

$$\ln\left(\frac{P_i}{1-P_i}\right) = Z_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_m X_m \qquad (3)$$

If the disturbance term U_i is taken into account, the logit model becomes:

$$Z_i = \alpha + \sum_{i=1}^{m} \beta_i X_i + U_i \qquad (4)$$

The parameters of the model, α and β, can be estimated using the maximum likelihood (ML) method. The independent socio-economic variables and proposed hypotheses are outlined hereunder.

Review of literature and past research findings of the food insecurity situation of female-headed households in Ethiopia and elsewhere was used to identify the potential determinants of

household food insecurity. Therefore, the following variables will be selected to analyze whether they explain a household's food insecurity or not.

As family size increases, obviously the number of mouths to feed from the available food is expected to increase. Hence, it was hypothesized that family size and food insecurity are positively related. Age of female headed household head was also be expected to matter for its food security. Rural female-headed households mostly devote their lifetime or base their livelihoods on agriculture. The older the rural female-headed household head, the more experience she has in farming and weather forecasting. In addition to this, in a household where productive age groups are higher than the non-productive age groups, the probability of a household to be in shortage of food would be less, provided that the area provides good working atmosphere and production potential.

Education is expected to equip individuals with the necessary knowledge of how to make a living. For instance, literate individuals are expected to be keen to get information and use it**.** Hence, it is supposed that households who have had at least primary education or informal education are the ones to be more likely to benefit from agricultural technologies and thus become food secure.

Ownership of assets such as cultivated land and livestock as well as access to irrigation decrease the livelihood that the female-headed household to be food unsecured. As income determines the household's ability to secure food, it is expected to remain an important variable which explains the characteristics of food secure and food insecure female-headed households. For example, income earned from any source improves the food security status of the household. Moreover, households which manage to secure larger income from any source have better access to the food they need than those households which do not. Credit may also serve as an important source of income. Those households which receive the credit they requested have better possibility to spend on activities they wish. Either they purchase agricultural input (improved seed and/or fertilizer) or they purchase livestock for resale after they fattened them.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1 Descriptive Analysis Results

On average, the annual mean income of the female-headed HHs is ETB 1761.36, and the average consumption per annum is ETB 1723.04, indicating that the female headed HHs consumption was almost all of their annual produce. The annual average saving was ETB 38.62, which was extremely low amount, implying that the female-headed HHs is vulnerable to food insecurity (Table 4.1). Furthermore, relatively high family size, low family labor, low land holding size and low level of education also exposes the female-headed HHs to food insecurity. The mean family size, family labor, land holding size and education level of the female headed HHs were 4.08, 1.91, 0.439 and 1.06, respectively (Table 4.1). This result is almost similar with other findings (Shiferaw et al; 2003, Frehiwot; 2007, Dercon et al,; 2005 and Bahiigwa; 1999). It is clear that households food insecurity is associated with a number of socioeconomic and environmental characteristics, such as household income/asset, parents' education/occupation, household size, level of employment, area of residence and access to land holdings, and land size. Several studies have argued that female-headed households are more likely to be vulnerable to food insecurity and poverty as compared to their male counterparts (Kassiel et al., 2012:5). Carter et al., (2012:7). They found that incidents of food insecurity are much higher in female-headed households as compared to male headed households. Females are most likely to be single parents than their male counterparts and this increases the burden of taking care of the household needs.

Table 4.1: Summary of descriptive statistics of major selected variables

Variables	Frequency	Minimum	Maximum	Mean	Std. Deviation
Farm income	26	990.00	3025.00	1826.0385	696.68113
Non-farm income	27	240.00	1900.00	1313.9630	436.28435
Income	200	240	4200	1761.36	666.470
Consumption	200	240	3680	1723.04	638.732
Saving	200	0	520	38.62	97.000
Number of Livestock (TLU)	200	.00	2.80	0.325	.53017
Family size	200	2	10	4.08	1.308
Family labor	200	1	6	1.91	.895
Dependency	200	1	5	2.04	.912
Farm land size in ha	200	.00	2.00	0.4397	.52995
Level of Education	200	1.00	3.00	1.0600	.25833
Age of female-head	200	25	65	40.81	8.620
Valid N (list wise)	0				

Source: Own Survey

4.2 Female-Headed Households Family Size

It is hypothesized that family size has negative relationship with income. The result in this study had indicated that the average mean income of female head HHs with family size 2 is ETB 1772.84 while the average mean of FHHs with family size 3 is ETB 1606.37 per annum. Most of the female-headed HHs of the study area was having largely a family size of 3 to 5 (Table 4.2).The female headed HHs with family size 3 and 4 were 25.5% and 33.0%, respectively. The positive relationship of FHHs family size and food insecurity shows that the probability of being food insecure increases with increase in HHs family size (Table 4.2). This finding agree with the study conducted by MesfinWelderufael (2014) who had stated that as the number of family size increases family food demand also increases. The possible explanation is as family size increases, the amount of food for consumption in one's household increases, thereby, that additional household member shares the limited food resources. The model also reveals that the important role of household consumption expenditure in contributing to household food security was as expected. This means that each additional member of a household increases household food insecurity (Teshome, 2010; Frehiwot, 2007). Household size exerts more pressure on consumption than it contributes to production (Shiferaw et al, 2003).The increasing family size implies a larger number of dependents on fewer earners and this might lead to fewer earning and lesser per capita consumption. This finding is consistent

with that of Okurut et al., (2002) who reported that large households are likely to be food insecure. The other study by Babatunde et al. (2007) concluded that larger household sizes are more likely to be food insecure than smaller size households. Jacobs (2009) notes that households with many members are expected to consume more food than small households

Table 4. 2: Distribution of household's family size with their annual mean income

Family size	Mean income	Frequency	Std. Deviation	Minimum income	Maximum income	% of Total N
2	1772.84	19	681.097	950	2960	9.5%
3	1606.37	51	437.898	745	2840	25.5%
4	1823.98	66	659.582	795	3680	33.0%
5	1998.61	31	719.490	900	3370	15.5%
6	1542.54	28	753.289	240	3226	14.0%
7	2160.50	4	1364.444	1400	4200	2.0%
10	2490.00	1		2490	2490	0.5%
Total	1761.36	200	666.470	240	4200	100.0%

Source: Own Survey

4.3 Number of female-headed household's family labor

As family labor increases, the mean income of the female-headed HHs increases. For instance, the mean income of the FHHs with 1 family labor is ETB 1654.86 while the mean income of the female-headed HHs with family labor 4 is ETB 1,937.86. It shows that when family labor is increased, the annual mean income also increased (Table 4.3). Moreover, the proportion of the HHs with low family labor is high. The female-headed HHs with family labor of 1 and 2 were 38% and 37.5%, respectively. But the proportion of the FHHs with high family labor was low. Female headed HHs with 6 family labors and with 4 family labor accounts only to a total of 4%. Such conditions expose the female-headed HHs to food insecurity (Table 4.3). The result indicates that the family labor size had a negative relationship with food insecurity; in which when family labor size increased food insecurity of female-headed households decreased. Family labor of female headed households is more required under subsistence farming. In similar studies, Hofferth (2003) had stated that subsistence farming is generally characterized

by greater reliance on labor than commercial agriculture. In subsistence farming, households with larger labor supplies are better positioned to increase the productivity of their land. Availability of a relatively larger labor force, regardless of farm size, can be an advantage to those households who strive to achieve food security, provided that the excess labor force is engaged in other income generating activities. Similar studies by Jiggins (1986), Thomas and Leatherman (1990), and Chen (1991) had reported that labor availability is an important determinant of household productivity and food security, especially in subsistence-oriented households given the necessary landholding and rainfall. It is thus expected by this study that labor availability will affect food security positively.

Table 4.3: Distribution of family labor among female-headed households and their annual mean income.

Family labor	Mean income	Frequency	Std. Deviation	Minimum income	Maximum income	% of Total N
1	1654.86	76	563.506	745	2960	38.0%
2	1861.49	75	609.010	240	3680	37.5%
3	1727.71	41	783.197	850	3370	20.5%
4	1937.86	7	1302.907	800	4200	3.5%
6	2490.00	1	.	2490	2490	0.5%
Total	1761.36	200	666.470	240	4200	100.0%

Source: Own Survey

4.4. Educational status of FHH in the study area

Table 4.4 indicates that the great majority of the FHHs were illiterate (94.5%). Only 5% of FHHs had attained educational level of grade 1 to 4. There was no FHH who has even high school level of education. Such low level of education could contribute to the vulnerability of rural female HHs to food insecurity (Table 4.4).This result is supported by previous studies of Aschalew Feleke (2006), in that low educational level and illiteracy are directly related to food insecurity. For that matter, the educational status of other household members, especially income earners, is also important.

Table 4.4: Frequency distribution of educational level of female-heads in the households

Education Level	Frequency	Percent	Valid Percent	Cumulative Percent
Illiterate	189	94.5	94.5	94.5
Grade 1 to 4	10	5.0	5.0	99.5
Grade 5 to 8	1	.5	.5	100.0
Total	200	100.0	100.0	

Source: Own Survey

According to this study, as the educational level of rural female-heads of HHs gets higher, their mean income increases. The mean annual income rises to ETB 1809.30 when they attained an educational level of grade 1 to 4. This implies that illiterate female headed HHs are more vulnerable to food insecurity than literate FHHs (Table 4.5). Education seems to play a role on female-headed HHs food insecurity. This finding agrees with earlier studies that proved the relevance of household education in reducing household food insecurity and malnutrition. Thus, household head education has significant and positive impact on reducing chronic food insecurity in urban and rural areas. This implies the importance of human capital investments in improving household's food security status (Amsalu et al,(2012).

Table 4.5. Educational level of female-heads and their household annual income in the study area

Level of Education	Mean	N	Std. Deviation	Minimum	Maximum	% of Total N
Illiterate	1755.21	189	681.257	240	4200	94.5%
Grade 1 to 4	1809.30	10	267.078	1180	2145	5.0%
Grade 5 to 8	2445.00	1	.	2445	2445	0.5%
Total	1761.36	200	666.470	240	4200	100.0%

Source: Own Survey

4.5 Dependency Ratio of the Family in FHH

The other determinant factor that influences female-headed household's food insecurity is the dependency ratio in FHH's family members. Seventy-seven percent of households in the study area had children with young age (under five). The result indicates that unproductive age group of under five years of female and male children were much higher than the productive age group of 15-64 years (22.5%) (Table 4.6). It shows that the rise of the number of unproductive age group increases the dependency ratio in female-headed households which would expose them to food insecurity. Furthermore, when the dependency ratio of female-headed household increases, the mean income of FHHs decreases (Table 4.6). But a household with more inactive productive labor force compared to the active age shows a high dependency ratio and it is more likely to be food insecure (BIGSTEN et al., 2002). Therefore, it is hypothesized that family dependency distribution in female headed-households and food insecurity are positively associated.

Table 4.6. Number of dependent persons in female-headed households

Dependency	Mean	Frequency	Std. Deviation	Minimum	Maximum	% of Total N
under five years male	1699.10	58	714.394	795	4200	29.0%
Under five years female	1802.21	96	661.484	745	3680	48.0%
15-64 years female	1837.11	27	623.015	1200	3025	13.5%
15-64 years male	1637.11	18	632.909	240	2840	9.0%
> 65 female	1642.00	1	.	1642	1642	0.5%
Total	1761.36	200	666.470	240	4200	100.0%

Source: Own Survey

4.6 Income Source of Female-headed Household

The result in table 4.7 indicates that 13.%% FHHs had no farmland of their own and as such they secure their livelihood by engaging themselves in non-farm activities like working in farms as daily laborers , selling fire wood and in petty trade. The mean annual income of this group in

the study area was ETB 1313.96which was the lowest income from among the three groups. As a result, they are vulnerable to food insecurity. The mean annual income of the FHHs (ETB 1845.35) who engaged in both farm and non-farm activities was better than income from farming alone (Table 4.7). The positive impact of non-farm activities on food security has been well acknowledged theoretically as well as from empirical studies. For instance, Beyene and Muche 2010, Demeke et al (2011) for Ethiopia; Aiodoo et al for Ghana and Omotesho et al (2007) for Nigeria have reported a positive and significant effect on household food security of non-farm activities in rural areas. The other relative study shows that; diversification of sources of income has long been a survival strategy which allows household heads to reduce the risk of starvation for themselves and their families during periods of chronic or transitory food insecurity (Devereux 1993, Maxwell and Frankenburger, 1992)

Table 4.7. Female-headed households income source

Source Income of FHHs	Mean	N	Std. Deviation	Minimum	Maximum	% of Total N
From farm income	1751.08	26	666.725	990	2960	13.0%
From non-farm income	1313.96	27	436.284	240	1900	13.5%
Both from farm and non-farm income	1845.35	147	671.770	745	4200	73.5%
Total	1761.36	200	666.470	240	4200	100.0%

Source: Own Survey

4.7 Size of Farmland of FHH

The size of farmland owned by female headed households was determined by summing the fragmented plots and converting it to hectares. The result indicates that 13.5% have no farm land of their own and hence their mean annual income is the lowest from among the whole group shown (Table 4.8). The table also shows that as the mean annual income of the FHHs increases the farm land size increases (Table 4.8). For example, the mean annual income of the FHHs with farm land size of 0.5 ha, 1.00 ha and 2 ha were ETB 2100.00, 2246.91, 2332.55, respectively (Table 4.8). Hence, farm land size and FHHs mean annual income have positive relationship and negative relationship with HHs food insecurity. So, farm land size of female-headed households

determines their food insecurity. This is in line with findings of many other previous studies (Shiferaw et al. 2013, Goshu et al 2013, Beyene and Muche 2010). Given that land is one of the important asset and basic input in farming among rural households, it is directly associated with the ability of household to produce crop for consumption and sale, thereby, positively contributed to household food security. Additionally, according to Najafi (2003), food production can be increased extensively through expansion of areas under cultivation. Therefore, under subsistence agriculture, holding size is expected to play a significant role in influencing farm households' food security. Not only farm land size determine the food security of female-headed households but also the fertility of the farm land also affects the status of food security of FHHs. Under optimal management, better land quality boosts crop production (Sah, 2002). Stephen (2000) also found that a decline in soil fertility negatively affects food security.

Table 4. 8. Farm land size of FHHs

Farm land size by Hectare	Mean	Frequency	Std. Deviation	Minimum	Maximum	% of Total N
0.00	1313.96	27	436.284	240	1900	13.5%
0.12	1500.00	1	.	1500	1500	0.5%
0.13	1576.73	82	379.355	900	2840	41.0%
0.15	1225.00	1	.	1225	1225	0.5%
0.25	1713.83	30	727.889	745	3215	15.0%
0.50	2100.00	1	.	2100	2100	0.5%
1.00	2246.91	47	729.859	795	3370	23.5%
2.00	2332.55	11	922.504	1245	4200	5.5%
Total	1761.36	200	666.470	240	4200	100.0%

Source: Own Survey

4.8 Female headed households livestock production in Tropical Livestock Unit (TLU)

Number of livestock owned determines the food insecurity status of FHHs. The result in this study indicates that as the livestock number increases from none (0) to large number (2.8) the annual mean income of FHH's also increases from ETB 1655.27 to ETB 2992.5. This result reveals that livestock size is negatively associated with the probability of being household

vulnerability to food insecure. This result agreed with previous findings of Shiferaw et al (2003). The negative relationship is explained by the fact that households with large herd size have better chance to earn more income from livestock production. Based on this study, almost 52.5% of respondents had not owned any type of livestock while only1.0% of FHHs had relatively large number of livestock, 2.8 TLU (Table 4.9). Thus, those with small number of livestock can easily be exposed to food insecurity. According to study by Alem Shumiye (2007), the wealth status of the household head was measured by the number of livestock owned, since livestock is the most important indicator of wealth in rural Ethiopia's household level of farm resources (e.g., livestock) and can be expected to affect its ability to survive unexpected changes in production, prices, income or unforeseen events that create the need for additional expenditures. The smaller the wealth status of the household head the higher the food insecurity. In addition, livestock products serve as an asset and may provide a reserve that can be converted to cash in times of need. A study by Kassa*et al* (2002) found that households who own livestock have good food security status as well as sustainable farming.

Table 4.9. Livestock ownership of female-headed households in tropical livestock unit

No of Livestock (TLU)	Mean	N	Std. Deviation	Minimum	Maximum	% of Total N
.00	1655.27	105	537.499	795	3126	52.5%
.10	1629.13	32	594.462	745	2960	16.0%
.70	1899.65	43	851.851	240	4200	21.5%
.80	2262.50	2	229.810	2100	2425	1.0%
1.40	2249.77	13	705.520	1108	3370	6.5%
2.10	1631.67	3	904.715	800	2595	1.5%
2.80	2992.50	2	45.962	2960	3025	1.0%
Total	1761.36	200	666.470	240	4200	100.0%

Source: Own Survey

CHAPTER FIVE

5 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study was conducted with specific objective of identifying causes of food insecurity, analyze determinants of food insecurity for female-headed households and assess rural female- headed households' livelihood systems in Omonada woreda , Jimma Zone, Oromial Regional State. The research objectives were realized through conducting sample female headed households survey in the study area.

The study shows that the major factors that determine food insecurity of female-headed households are family size, number of dependent family members, and age of female-headed households which have direct relationship with food insecurity of FHHs, while education level, land holding size, family labor, source of income and livestock production have inverse relationship with food insecurity. The main source of income of rural female headed households are farm activities and no-farm activities like working in farms daily labor, selling fire wood and petty trade. Those female-headed households who were engaged in both farm and non- farm source of income are food secured than those involved in a single source of income. So, source of income of female-headed households determine their food security status.

5.2 Recommendations

- Family size of female-headed household was found to be directly related with household food insecurity. Larger family size has higher probability to be food insecure. The increase in nonproductive family size has contributed to the deterioration of income generation capacity of food insecure households. With these scenario, having a larger family size worsen the problem of meeting food requirements, earning education, health and other non-food demands of household that will bring future return. So, action based awareness creation on the impacts of population growth at the family, community and

national level should be strongly advocated for use of family planning and lengthen birth spacing that may result in smaller household family size.

- The study showed that about 94.5% of female household heads were illiterate and similarly the annual mean income of these illiterate household heads is relatively low. This situation exposed female-headed households to food insecurity. Therefore, policy interventions are required to promote education of rural female-headed households to improve their livelihood. Interventions should also need to be focused on household head at least by promoting adult education around their residence. This can be carried out through establishing learning or training center for household heads especially female-headed households to increase their awareness and knowledge level. Therefore, strengthening both formal and non-formal education and vocational or skill training program for female headed households should be promoted to reduce food insecurity in the study area.
- Farm land size of female headed households has negative relationship with food insecurity. The result shows that about 13.5 % of female headed households have no farmland and it exposed them to food insecurity. Therefore. government as policy making body should implement equity in land holding size distribution between female-headed households and male headed households. Household heads who have no farmland, earns their livelihood by engaging in non-farm activities should be provided farm land. .

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Jiggins (1986); Thomas and Leatherman (1990); and Chen (1991) report that labor availability is an important determinant of household productivity and food security.

Kassa*et al* (2002) found that households who own livestock have good food security status as well as sustainable farming

Kassiel et al., 2012:5). Carter et al., (2012:7) found that incidents of food insecurity are much higher in female headed households

Kassiel et al., 2012:5. Carter et al., (2012:7),Shiferaw et al; 2003, Frehiwot; 2007, Dercon et al,; 2005 and Bahiigwa; 1999) it is clear that households food insecurity is associated with a number of socioeconomic and environmental characteristics, counterparts

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APPENDICES

Interview schedule for respondents

This Interview schedule is prepared to collect data from the Female headed households' members for the purpose of studying the Female Headed Household's Vulnerability to food insecurity.

General instruction

- Make brief introduction to the respondents before starting the interview. Get introduced to the respondents through the local way of exchanging information called "Afan Oromo" and clarify the purpose of the study you are undertaking.
- Make the questions clear, understandable and avoid using jargon words while discussing with the respondents.
- Be make the respondents free to explain their idea that they feel depending on the question provided for them without any means of disturbance.

Instructions for the interviewer:

- Introduce myself for the respondents
- Use only pencil
- Put tick mark (√)□ on the corresponding box
- Thank for the respondents at the end of interview

Part I. Questionnaire

1. Name of household head_____
2. Sex of household head: a) male □ b) female □
3. Age of household head (in years)_____
4. What is your literacy status? _____
   a) can read and/or write □
   b) cannot read and write □
   c) cannot write □
   d) cannot read □

e) primary (grade 1-6) □

f) junior (grade 7-8) □

g) secondary and above □

h) Others (specify)_____

5. Marital status: 1) single □ 2) married □ 3) divorced □ 4) widowed □ 5) Others (Specify) __

6. Religion: 1) Orthodox □ 2) Muslim □ 3) Protestant □ 4) Other (specify) _____

7. Total number of family size (number) _____

8. Depending on Q# 7 what is the age group and gender of all family members? Use the following table.

S/N	Age group	Total Family Size	Gender		Remark
			Male	Female	
1	Under five years old				
2	6 - 15 years				
3	16 – 18 years				
4	19 – 30 years				
5	Above 30 years old				
	Total				

9. Do you have your own land for cropping and pasture? a)Yes□ b) No □

10. If the answer for Q# 9 is yes, how much is your total farm land size (hectare)? _____

11. Slope of your land: a) plain □ b) hilly □ c) steep □ d) other (specify) _____

12. How do you perceive the quality or fertility of your land?

a) fertile □ b) medium fertile □ c) less fertile □ d) poor fertile □ d) other (specify)_____

13. Do you have land use/tenure/ownership certificate? a) yes □ b) no □

14. If the Q# 13 is yes, what is your attitude towards the land use right certificate?

a) builds my confidence □

b) doesn't build my confidence □

c) other comments (specify)_____

15. How much of the following cereals crops did you harvest during the year (using local measurement unit like, Feresula or Kg)

Barely_____ Millet_____

Wheat_____ Sorghum_____

Teff_____ Others_____

16. How was the availability of rain on your fields during the year?

a) enough □ b) too much □ c) too little □ d) other_____

17. What were the different sources of food for your family during the year?

Food Items	Total amount using the local unit of measurement				
	Own Production	Received from food work	Purchased from the market	Received from hiring out of labor	Received from food aid or relief food
Maize					
Wheat					
Barely					
Teff					
Sorghum					
Chat					
Coffee					
Pepper (barbare)					
Others					

18. Household food consumption during the year

Food Items	Total amount of food consumed (using the local unit of measurement like, Feresula or Kg)						
	Used for seed	Given out for hiring in labor	Given out for sharing in oxen	Repayment of crop loan	Marketed	Share crop	Remark

Maize							
Wheat							
Barely							
Teff							
Sorghum							
Chat							
Coffee							
Pepper (barbare)							
Others							

19. What employment and income earning opportunities are available in your area? (You may choose more than one)

a) only own farming (self-employment) □
b) own non-farm employment (trading crafts) □
c) farm laborer (work on other farms) □
d) migration to work in other areas □
e) non-farm laborer (work in cities) □
f) other (specify)_____

20. How many meals did you eat per day?

a) once per day□ b) twice per day□ c) three times per day □

d) others (specify)_____

21. What was the major source of income for your household during year? (Multiple responses are possible)

a) Agricultural production □ b) Trading □

c) Mining □ d) Charcoaling □

e) Daily labour □ f) Pottery □

g) Black-smith □ h) Handcraft □

i) others (specify) _____

22. Does your household have supplementary income? a) Yes □ b) No □

23. If the answer for Q# 22 is yes, what is the major source? (Multiple responses are possible)

a) Weaving □ d) Fishery □
b) Herding □ e) Bee Hiving □
c) Carpenter □ f) Others (specify)_____

24. Who is more involved in supplementary income activities? (Multiple responses are possible)

a) Household Head □
b) Son □
c) Daughter □
d) All HHs member □
e) Others (specify)_____

25. During a year, how much estimated cash income did you earn per month from the following activities and sources?

S/N	Source of activities or cash	Earning per Month (Birr)	Total earning per year (Birr)
1	From sales of own produced crops		
2	From sale of coffee, chat, enset,etc		
3	From livestock products(milk, eggs, butter, chickens)		
4	From sale of food aid		
5	From sale of firewood, charcoal, cow dung cake		
6	From non-farming activities(pottery, weaving, etc)		
7	From off-farm jobs (daily, labor, farm labor)		
8	Women household activities (tella, areke, tej, kolo,		
9	bread selling)		
10	Others		

26. What is the annual progress of your income as compared to the previous years?

a) Extremely increasing □ d) Decreasing □

b) Increasing □ e) slowly decreasing □

c) Slowly increasing □ f) extremely decreasing□

27. Do you have educated children for financial support? (a) Yes□ (b) No□

28. If yes for Q # 27, how much you gain monthly from your children (in birr)? _____

29. Based on the above questions, which source is relevant for your income improvement?

(a) income from animal product □ (b) income from crop production □

(c) wage or salary □ (d) from children □

(e) other □ (specify)_____

30. Who is responsible for household resource management?

a) Head □ c) Daughter □

b) Son □ d) Others (specify)_____

31. Do you have/own livestock? a) yes □ b) no □

32. If yes for Q# 31, how many of the following livestock do you have?

S/N	Types of Livestock	Currently owned (number)
1	Oxen	
2	Cows	
3	Bulls	
4	Heifer	
5	Calves	
6	Sheep	
7	Goats	
8	Horses	
9	Donkeys	
10	Mules	
11	Camels	

12	Chickens	
13	Other	

33. What is your attitude towards food aid? a) food aid is good □ b) food aid is not good □

34. Do you engage in farming or other activities during dry season? a) Yes □ b) No □

35. If the answer of Q# 34 is yes, what kind of farming system you used or you engage in?

a) Irrigation development □
b) Animal fattening □
c) Trading □
d) Poultry production □
e) Other (specify)_____

36. What is the major means of livelihood of your household? (Multiple responses are possible)

a) Farming □
b) Herding □
c) Daily laborer □
d) Weaving □
e) Growth vegetable and fruit □
f) Bee hiving □
g) Pottery □
h) Carpenter □
i) Trading □
j) Selling fire wood □
k) Fishery □
l) Others (specify)_____

37. Which factors could reduce food insecurity of female headed households in rural area?

a) Agricultural land productivity □
b) Investment in market infrastructure □
c) Extension service □
d) Irrigation infrastructure □
e) Education of household head □
f) Others (specify)_____

38. Do you have saving culture from any income you gain throughout the month/year?

a) Yea □ b) No □

39. If the answer for Q # 38 is yes, what is term of saving throughout the year?

a) weekly □ b) bi-weeks □ c) Monthly

d) every two months □ e) bi-annual □ f) annually □ g) others (specify)____

40. Depending on the above question, how much money you save each term? (in birr)_____

41. What is the main cause of food insecurity in your family?

a) Adverse climatic condition (drought, flood) □ b) Lack of skill □

c) Mismanagement □ d) Family size □

e) Erratic climates change □ f) others (specify) _____

Part II: Checklist for In-depth Interview

Key informants-community Elders (male, female)

1. What is your occupation?
2. How long did you stay in the current place?
3. How is the female headed household encouraged by community?
4. What is your household consumption?
5. What do you think is the major causes of food insecurity?
6. What do you think are the consequences of food insecurity?
7. Who do you think are the main vulnerable group to food insecurity?
8. Is there age variation among female headed households?
9. Is there income variation? Among female and male headed households?
10. What is your source of information on female and male headed HHs variation?
11. Mention the livelihood system of female headed households.
12. Mention main determinants of female headed households' food insecurity.
13. Do they cooperate with the community?

Part III: Guide line for Focus Group Discussion (FGD)

1. How do you perceive female headed households?
2. What major challenges face female headed households?
3. What may be the challenges face female headed households?
4. Who do you think are the food insecurity of female headed households? (Why?)
5. Do you expect any negative impact on the lives of your family member?
6. What do you think is the level of perception of community towards food security?
7. What do you think are the consequences of food insecurity?
8. What do you think should be done in order to increase income of female headed households?