PRODUCTIVE SAFETY NET, SHOCKS AND FEMALE HEADED HOUSEHOLDS' STRATEGIES: CASE OF MAIZEGZEG WATERSHED IN NORTHERN ETHIOPIA

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Productive Safety Net, Shocks and Female Headed Households' Strategies:

Case of Maizegzeg Watershed in northern Ethiopia

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ABSTRACT

In poor areas risk of sliding down to chronic food insecurity is part of daily life. This is more serious for female headed households where these households are subjected to shocks of recurrent drought, disease and other natural disasters. Long term ex-ante mitigation and ex-post coping strategies are an essential element of their concern. Therefore, based on the premise that people who live in marginalized environment develop different mechanisms to cope with shocks, this study examined how Productive Safety Net beneficiary and non beneficiary female headed households in two tabias of Maizegzeg watershed, northern Ethiopia, do deal with shocks and explored the perception of these households towards the programme. Both quantitative and qualitative methods were implemented. The quantitative method used primary data collected based on an open and closed ended questions. The qualitative method involved focus group discussions with key informants and an in depth interview with selected households.

The study showed that the major on-farm ex-ante mitigation strategies used by female headed households were diversification of crops to be grown and saving of crops in kind (leaving of cereals in their pots for difficult times). The off-farm ex-ante mitigation strategies were petty trade, sale of 'siwa' and wage labor. Moreover, the research showed that the main ex-post coping strategies were reducing frequency and quantity of meals, exchange of food with family/neighbors, borrowing money and sale of livestock. Difference in terms of mitigation and coping strategies of households was not observed between the two tabias studied.

The government of Ethiopia has provided Productive Safety Net to beneficiary households to better mitigate and cope, but this paper concludes that in the study area the programme didn't make difference for beneficiary female headed households' responses to shocks. Finally, the study found that majority of the female headed households in the study area, are aware about the objective of the programme and its impact at the community level. However, due to variations in the limits on the number of household members permitted to take part in the Productive Safety Net Programme, its impact at the household level is perceived differently.

Keywords: Female Headed Households, Productive Safety Net Programme, Shocks, Ex-ante mitigation strategies, Ex-post coping strategies, Perception, tabia, Maizegzeg watershed, Northern Ethiopia

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LIST OF ABBREVIATIONS

BoARD- Buearo of Agriculture and Rural Development

FSP- Food Security Programme

FDRE- Federal Democratic Republic of Ethiopia

FSCB- Food Security Coordination Bureau

HFS- Household Food Security

MoARD- Ministry of Agriculture and Rural Development

MZZ-Mayizegzeg

OFSP-Other Food Security Programme

PSNP- Productive Safety Net Programme

SHHs- Sample households

SFHHs-Sample female headed households

REST-Relief Society of Tigray

WOARD- Woreda Office of Agricultural and Rural Development

1. General Introduction

1.1 Background

Ethiopia with an estimated population of 73.9 million is the third populous country in Africa. According to 2007 estimation, the population of Ethiopia is growing at an estimated annual rate of 2.6 %. From the total population of the country more than 85% are rural populations which rely on agriculture and livestock production for their livelihood (CSA, 2007). The Agricultural sector supports employment of about 80% of the population, consists of 45-50% of the national GDP. The smallholder mixed farming system is largely in the highlands and medium altitude zones, while the pastoral livestock production system exists mostly in the warmer lowland areas of the country (Berhanu, 2006).

Ethiopia is one of the least developed countries in the world. It faces sever food insecurity problems due to widespread poverty, rapid population growth, and recurrent drought. A total of 7.5 million chronically food insecure people receive either direct support or assistance through employment in public works under the Productive Safety Net programme(WFP Ethiopia, 2009).

Like the other regions of Ethiopia, risk of sliding down to chronic food insecurity in Tigray region is also high. This is more serious in rural areas where people are subjected to shocks of recurrent droughts, diseases and other natural disasters. The key constraints on improving food security include, severe environmental degradation, inadequate and erratic rainfall, land fragmentation and small size of holdings, lack of appropriate technology, improved seeds and inputs, lack of capital for investment, poor livestock development, vulnerability to pests and plant diseases, and low nonfarm income opportunities. As result, many rural households remain vulnerable to shocks.

Though there is lack of sophisticated analytical research conducted specifically on rural female headed households in Tigray region, women in general constitute nearly 51 percent of the total population, among which over 30 percent of the total households are estimated to be female headed households (CSA, 2007).

Female headed households have greater responsibility outside and inside the home; the workload is more complicated for female headed households as they are labor poor. Due to lack of labor and asset (specifically, oxen) in the household, they are considered to give out their small plots of lands in sharecropping arrangements from which they usually earn half up to one-fourth of the harvest. This indicates that female headed households have lesser agricultural produce income compared to male headed households. For example, the study of the UN Food and Agriculture Organization (FAO, 2006) showed that "being a member of a female-headed household in highland Ethiopia means having a 35 per cent chance of being destitute, compared with only an 8 per cent chance if one belongs to a male-headed household".

There is evidence that rural households in highly food insecure areas often develop their own strategies to mitigate or reduce risk (ex-ante risk management) as well as coping strategies (ex-post strategies). Dercon (2005) stated that households including rural female headed households in "risky environment are not passive victims rather they have developed (ex-ante) risk management and (ex-post) risk-coping strategies". For example, though the strategies used may vary based on many factors, households may diversify their economic activities, including by engaging in more off-farm work to manage risks, they may choose risk reducing techniques ex-ante and may reduce non –essential expenditure to increase income availability to buy food (Dervereux, 2001).

Likewise many studies (e.g. Pankhurst and Bevan, 2003; Dercon, 2002; etc.) show that poor households in Ethiopia dispose productive assets in face of shocks, i.e. they sold household assets, gold and 'even land', trees, their livestock and other assets to cope with shocks ex-post. Although households use different strategies to reduce and cope with shocks, rural households in Ethiopia and specifically in Tigray region remain highly food insecure and vulnerable to different shocks.

When different shocks are encountered, poor households suffer from effects of poverty and hunger, making them less productive and less able to make a living (WFP 2004). "Because of their narrow margin of survival, they are at the same time extremely sensitive to risk and unable to take chances that might improve their livelihoods, such as investing in education or crop diversification" (WFP, 2004).

In most cases, when they are hit by a shock, they are forced to employ negative coping strategies such as reducing food consumption, selling productive assets and drop their children from school. These strategies, in turn, diminish their coping capability and make them more vulnerable to the next shock (Holzmann, R. *et al.* 2003). Recognizing the significance of these problems, in 2004, the government of Ethiopia initiated a Productive Safety Net Programme (PSNP). The PSNP is one component of the government's Food Security Program (FSP), and it is also the vital element of a regular food security investment strategy for chronically food insecure *woredas* (districts) of Ethiopia (MOARD, 2006).

Many studies (e.g., Dercon, 2005; Holzmann, R. *et al.* 2003), have focused on households' ex-ante and ex-post strategies to shocks. These studies generally focus on the type and relative effectiveness of responses employed. Analyzing mitigation and coping strategies of rural households to food insecurity can indicate food insecurity level at household or community level and also show long term vulnerability and alternatives for rural households to deal with food insecurity (CARE and WFP 2003). Though Female headed households account large percent in the region where different shocks such as drought and diseases are common features, there is lack of data and analytical research on them.

Therefore, this study focused on how vulnerable rural households do deal with shocks given the introduction of Productive Safety Net Programme in the study area and explored their perception towards the programme. The study was concentrated on rural Female headed households in Degua Tembein *woreda*, northern Ethiopia. The study implemented household survey, in depth interview with selected households, and focus group discussion with key informants of the selected *tabias* (Michael Abiy and Mizan brihan) in the *Woreda*.

1.2 Problem statement

In poor areas risk of sliding down to chronic food insecurity is part of daily life. This is more serious for rural female headed households where these households are subjected to shocks of recurrent droughts, diseases and other natural disasters. In addition to this, Female headed households have greater responsibility outside and inside the home; the workload is more complicated for female headed households as they are labor poor. Due to lack of labor and asset (specifically, oxen) in the household, they are considered to give out their small plots of lands in sharecropping arrangements from which they usually earn half up to one-fourth of the harvest.

As a result of the mentioned problems, they often develop their own strategies to deal with shocks. In most cases these strategies may have negative impacts on future household food security statuses. For example, they may prefer their traditional ways of doing things to new practices/technologies/ but more productive methods. On the other hand, they may develop negative coping strategies to deal with food shortages like selling of productive assets, reducing of quantity of meals and its frequency per day and withdrawing of children from school during food shortages in the household.

Recognizing the significance of these problems to sustainably alleviate food insecurity and overall poverty, governmental and nongovernmental organizations have been implementing different programs that help households mitigate such effects. The Productive Safety Net Program (PSNP) is one component of the government's Food Security Program (FSP), and it is also the vital element of a regular food security investment strategy for chronically food insecure *woredas* of Ethiopia (MOARD, 2006). The objective of PSNP is to "provide transfers to the food insecure population in chronically food insecure woredas in a way that prevents hunger and asset depletion at the household level and creates assets at the community level". In the context of the mentioned objectives the Programme is expected to encourage households to engage in different activities that bring positive impact on their livelihoods without fearing risks associated with these activities (MOARD, 2006).

Such activities include adopting of new technologies and improved agricultural inputs. This program may thus help households to choose and develop “effective risk management” strategies. Likewise, this programme is also expected to prevent households from employing negative coping strategies so that their future food security status is not affected.

However, depending on their characteristics, female headed households may respond differently to the introduction of PSNP in this area. Moreover, risk reducing (ex-ante) and coping strategies (ex-post) may vary based on different factors such as access to community support and access to public interventions. For example, beneficiary female headed households may become less averse to new production inputs such as fertilizers than non-beneficiaries or beneficiaries may deplete fewer assets than non-beneficiaries after production shocks.

To the contrary, as Teshome and Devereux (2009) pointed out in the Ethiopian Economics Association Seventh International conference, one of the main challenges to social protection activities like the PSNP is dependency i.e. it might have negative consequences such as aspiration failure to search for other opportunities.

Therefore, it was also of interest to see to what extent the strategies employed by female headed households in face of shocks are in line with the objectives of PSNP, e.g. to encourage risk-taking behavior in order to break out of poverty traps, avoiding distress asset depletion (to reduce negative coping strategies), etc. In sum, this study focused on how vulnerable rural households do deal with shocks given the introduction of Productive Safety Net Programme in the study area and explored their perception towards the programme.

1.3 Research Questions

Based on the premise that people who live in marginal environments develop a variety of mechanisms to cope with food shortages, this research examined how PSNP beneficiary female headed households and non PSNP beneficiary female headed households do deal with shocks and what is their perception towards the PSNP?

Specific questions:

1. What are the mitigation strategies used by PSNP beneficiary female headed households and non PSNP beneficiary female headed households in the face of production shocks?
2. What are the coping strategies employed by PSNP beneficiary female headed households and non PSNP beneficiary female headed households during food shortages?
3. Do these strategies differ between household categories i.e. PSNP beneficiary female headed households and non PSNP beneficiary female headed households?
4. What is the perception of beneficiary and non-beneficiary female headed households towards the PSNP?

1.4 Thesis outline

The remaining part of this thesis is organized in to five chapters. The second chapter deals with review of literature that includes the concepts and measurements of household food security, Productive Safety Net in Ethiopia, types of shocks, and mitigation and coping strategies of households. The third chapter provides the research methodology that was employed in sampling, data collection and analysis. The general description of the study area and the data used is also included in chapter three. Chapter four deal with the results and discussion of major findings. Finally, chapter five presents conclusions and recommendations based on the findings of the research.

2. Literature Review

2.1 Household Food Security

Food security is the current issue of discussion across the developing world and governments, non-governmental organizations and international donors are engaged in it. For example, in Ethiopia it is dealt with a Plan for Accelerated and Sustained Development to End Poverty (PASDEP) as well as in the New Coalition for Food security program. Therefore, in order to look at the underlying causes and dimensions of food insecurity, it is important to have a clear understanding about the concept of food security.

2.1.1 Concepts and Definitions of Household Food Security

Before defining the term and concept of food security, it is very important to consider the household as a fundamental unit and to look at the different definitions for the gender of household heads. The gender of household heads is categorized in to male and female heads of households. A male-headed household is defined as a household in which there is an 'unbroken' couple or at least other adult female if not the man's partner. The female headed household is also defined as a household where an adult woman (usually with children) resides without a male partner i.e. a head of household is female in the absence of a co-resident legal or common-law spouse (or, in some cases, another adult male such as a father or brother) (Chant, 1997 and Ali, 2000 cited in Asefaw, 2005). Female headed households are again categorized into two main types:

First, de-jure female-headed households where the male partner is permanently absent due to separation or death, and the woman is legally single, divorced or widowed (Moser, 1993 cited in Asefaw, 2005). In regard to the situation of rural Tigray, a de-jure female-headed household is identified as a household where the land is owned and managed by the woman herself.

The second type of female headed household is the de-facto female-headed households where the male partner is temporarily absent. Here “the woman is not the legal household head i.e. she is often perceived as a dependent although she may, for most of her adult life, have primary if not total responsibility for the financial as well as the organizational aspect of a household” (Moser, 1993 cited in Asefaw, 2005). For the case of rural Tigray, a de-facto female-headed household is regard as a household where a woman is responsible for all aspects of managing the household and the farm due to the absence of her husband. Based on the information gained from Tigray Bureau of Agriculture and Rural Development, the proportion of rural female-headed households in Tigray region is 30%. Based on the study carried out by Dessalegn (1994) which is cited in Asefawe(2005), the proportion of female headed household in Ethiopia is increasing, i.e. it is noted that 10 to 15 percent of women membership in peasant associations in the past has increased to an estimated level of 20 to 25 percent.

The factors that contribute for the female headship greatly vary from place to place. For example, Chant (1997) which is cited in Asefaw (2005), has argued that “factors leading to female headship involve social and economic factors, which among others include economic changes, economic downturns, lack of jobs in rural areas, population growth, rapid urbanization, social pressures, conflict, male and/or female out-migration, disruption of family for various reasons, deterioration of traditional security systems, divorce, death of husband, the practice of polygamy, etc”. In the context of Tigray region, some of the mentioned factors could contribute for the female headship like the other parts of the country, but the civil war which was happening in the region for the last 2-3 decades also has its own great contribution for this situation. Therefore, the research subjects of this study are de-jure female headed households.

Household Food Security is a concept that evolved through time and there are lots of literatures regarding the concept and its definitions. It has also brought considerable interest among different research institutions, international development aid agencies, government and non- governmental agencies that are involved in developmental activities (Maxwell and Frankenberger, 1992).

Food security was considered as adequacy of food supply at global and national levels in the mid-1970s. This analysis focused merely on food production variables and disregarded the several forces that in many ways affect food access. In the 1980s, the concept of food security got wider attention that moved from global, national, and regional level to household and individual levels (Maxwell and Frankenberger, 1992).

The most widely used definition of food security today originated from the World Food Summit in 1996 which states that "Food security exists when all people, at all times have physical, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life". Based on this definition Food security is built on three pillars i.e. Food availability (sufficient quantities of food available on a consistent basis); Food access (having sufficient resources to obtain appropriate foods for a nutritious diet) and Food utilization (appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation).

Food insecurity, on the other hand is a situation that exists when people lack secure access to enough food, safe and nutritious food required for an active and healthy life. This problem may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate use of food at the household level. According to food security analysts there are two general types of food insecurity i.e. chronic food insecurity, it is " long-term and occurs when people are unable to meet their minimum food requirements over sustained period of time, results from extended periods of poverty, lack of assets and inadequate access to productive or financial resources", and transitory food insecurity, it is "short- term and temporary occurs when there is a sudden drop in the ability to produce or access enough food to maintain a good nutritional status, results from short –term shocks and fluctuations in food availability and food access, including year to year variations in domestic food production, food prices and household incomes" (FAO, 2008).

2.1.2 Food Security Indicators and Measurements

Many scholars pointed out that food security is a complex and multi dimensional phenomenon. For example, Hoddinott, (1999) stated that though there are about 200 definitions of food security and 450 indicators of food security, it is difficult to measure it, and Maxwell (1995) stated that "defining and interpreting food security, and measuring it in reliable, valid and cost-effective ways have proven to be stubborn problems facing researchers and programs intended to monitor food security risks". Therefore, the following parts review the most commonly used food security indicators and food security measurement methods.

2.1.2.1 Food Security Indicators

Food security indicators are generally categorized in to two main categories (Maxwell and Frankenberger, 1992), 'processes' and 'outcome' indicators. Process indicators are again divided in to two categories, indicators that reflect food supply and indicators that reflect food access. Food supply indicators indicate the availability of food in an area for households to obtain. A number of factors can affect food availability and the options that households have for food access. Supply indicators give information on the possibility of a shock or disaster occurrence that will harmfully influence household food security. Examples of such indicators are like information on natural resources, meteorological data, agricultural production, and food balance sheet information, information on pest management, information on markets and institutional support structures, and information on regional conflicts (Maxwell and Frankenberger, 1992). According to Borton and York (1987) which is cited in Maxwell and Frankeberger (1992), supply indicators are mostly too aggregated to identify pockets of vulnerability for a given area though they provide important information about regional trends in food availability.

Unlike that of the supply indicators, food access indicators are relatively quite effective to monitor food security situation at a household level. The significance of these indicators became evident when governments and different development organizations noticed that household food insecurity conditions were taking place despite availability of food. These types of indicators give information about the capability of population affected by a shock to with stand its effects and these types of indicators are referred as coping ability indicators (Borton and Shoham, 1991 cited in Maxwell and Frankenberger, 1992). Their use as indicators is location specific, i.e. it differs by regions, seasons, households and social strata (Chambers, 1987 cited in Maxwell and Frankenberger, 1992).

The other indicators of food security are the Outcome indicators, these indicators are used to measure the status of food security at a given point in time. Household food security outcome indicators can be grouped into direct and indirect indicators. Direct indicators of food consumption include those indicators 'which are closest to actual food consumption rather than to marketing channel information or medical status'. For example, household budget and consumption surveys, household perception of food security and food frequency assessments can be used as direct indicators (Maxwell and Frankenberger, 1992). Indirect indicators are generally used when direct indicators are either unavailable or too costly in terms of time and money to collect and the indirect indicators include storage estimates, subsistence potential ratio and nutritional status assessment (Alison and Slack, 1999)**.**

2.1.2.2 Food Security Measurements

It is important to measure food security at different levels so as to characterize the severity of the food security problem in given area and to make basic information available for measuring impact. However, as the issue of food security is multi-dimensional, complex and different level of consideration there is no permanent rule to which method to make use of in measuring it.

Hence, the decision to rely on a particular method usually depends on different factors for example, resource and time constraints, objectives of the study, availability of data, type of users and degree of accuracy required (Debebe, 1995). According to Hoddinott (1999), there are four measures of household and individual food security status i.e. individual intakes, household caloric acquisition, dietary diversity, and indices of household coping strategies. The following section outlines the mentioned four ways of measuring household and individual food security status.

Individual intake: This is a method used to measure the amount of calories or nutrients consumed by individual in a specified period of time, usually 24 hours. There are two approaches that are used to gather data for this method i.e. observational and recall. The first approach (observational) is conducted by residing an enumerator in a household throughout the entire day and then measuring quantity of food served to each individual with in the household. The second approach (recall) is conducted by interviewing each household member about the food they consumed in the previous 24 –hours period. The main advantage of this method is that it can produce the most accurate measures of individual caloric intake and then it can be the most accurate measure of food security status of an individual and it is also helpful to show and verify that the food security status varies with in the given household. The disadvantage of this method is that it needs well skilled enumerators who are capable of observing and measuring the quantities of intake quickly and correctly (Hoddinott, 1999).

Household caloric acquisition: This is a method in which the number of calories available for the consumption by household members during a specified time is measured. Thus, the one who is responsible for preparing of meals is asked a set of questions about the food prepared for meals over specific period. This measure generates a rough estimation of the number of calories available for consumption in the household. Hence, the advantage of this method is that the level of skill required by enumerators is less than that needed to obtain information on individual intake and the disadvantage of this method is that, the method produces a large quantity of numerical data that needs to be carefully checked both in the field and during data entry and the method is not also accurate as compared to that of individual intake (Hoddinott, 1999).

Dietary diversity: This method measures the sum of the number of different foods consumed by an individual over a specified time i.e. the data for this is generated by asking the individual in the household about different items she/he has consumed in a specified period. The advantage of this method is that it is simple to train data collectors to ask these questions and this measure is also 'correlated with levels of caloric acquisition; tracks seasonal changes in food security—measures of dietary diversity are highest just after harvest time and lowest during the hungry season; and also appears to capture differences in distribution within the household'(Hoddinott, 1999) The disadvantage of this measure is that it does not record quantities, so it will be difficult to estimate the degree to which diets were inadequate in terms of caloric availability (Hoddinott, 2002; Migotto *et al*., 2005).

Indices of household coping strategy*:* This is a method conducted based the household responses employed during food shortages. The individual in the household who is more knowledgeable and responsible (in most cases a woman) of preparing and serving meal is asked different questions concerning how the household respond to threats of food shortages. The advantage of this method is that, it is simple to train data collectors and to ask these kinds of questions to the respondents and "it directly capture notions of adequacy and vulnerability: currently, is there enough food to eat in this household?; and also the vulnerability of households—those households using a larger number of coping strategies, or using more severe strategies are more likely to be poor and more vulnerable to destitution" (Hoddinott, 1999). Like the other measurements of food insecurity, this method also has its own disadvantages; as it is collected based on the individuals' perception and ideas towards food shortages, it can mislead the report i.e. as it is a subjective measure, different people have different ideas and perceptions to what is meant by "eating smaller portions", so it can misreport a household's circumstances and comparison across households or across different areas is difficult (Hoddinott, 1999; Smith *et al*., 2006).

When we compare each of the four measures described above, measures such as dietary diversity and indices of coping strategies are easier and less expensive to collect and analyze than the measures of household caloric acquisition and individual intake, but all of them are valid indicators of different dimensions of food security (Hoddinott, 1999).

2.2 Food Security Situation in the Study Region

The food security situation in Ethiopia has been extremely worse due to widespread poverty, rapid population growth, and recurrent droughts. Food insecurity as a problem at the national level was felt in 1960s though its 'influencing in policy is started in 1980s when food self-sufficiency became one of the objectives of the Ten-Year Perspective Plan that took place after the 1983/84 drought and famine, which claimed millions of lives' (Haile *et al,* 2005). More than 45% of the population of Ethiopia does not have access to the minimum average calories requirement. And the urban unemployed, people in areas of conflict, destitute rural households, and pastoralists who depend on markets for cereal supply are the food insecure social groups in Ethiopia (FDRE-FSCB, 2004).

Transitory and chronic food insecurity problems are severe in Ethiopia. Chronic food insecurity exists due to: high ratio of urban unemployment, limitation of rural landholdings (i.e. more than one third of the households have less than 0.5 hectares), rain fed agriculture, and lack of draft animals like oxen intensifies the vulnerability associated with excessively smallholdings. Northern, eastern and southern are the most drought prone and affected areas of the country. Many literatures often stated that the recurrent drought is the major cause for the total failure or shortage of rainfall, and harvest failures (Dawit and Solomon, 2004).Such a problem is further aggravated by the prevailing socio-economic situations in the country (DPPC, 2003)

In Tigray region in general, and *woreda* Degua tembien in particular, the problems of chronic and transitory food insecurity are the main features. Though agriculture is the main economic activity of the region, it is highly dependent on rainfall, which is erratic both in terms of quantity and periodicity and dominated by small peasant holder producers with high farmland fragmentation resulting in declining agricultural Productivity. Agricultural Productivity in the region is also further affected by climatic changes and environmental degradations including desertification, soil erosion and loss of soil fertility. Livelihoods are difficult to maintain in many drought prone areas as the vast majority of the population do not have enough capacity to support themselves even in seasons with favorable climatic condition. This is more serious in

rural areas where people are subjected to shocks of recurrent droughts, diseases and other natural disasters.

Recurrent drought is the most disastrous natural event affecting food security status of many rural households in the region. The drought condition has extended over several seasons and has caused extreme stress on coping mechanisms. The recurrent drought situation is not the only cause for food insecurity problem, but the civil war for the last 2 -3 decades has also its own contribution to severe food shortage. To overcome hunger and to cope with this kind of shock thousands of people were forced to migrate and sell key household assets as well as productive means such as oxen (Dawit and Solomon, 2004). Thus, the depletion of assets due to shocks has affected the livelihood of rural households by decreasing their means of production and these strategies could in turn diminish their coping capability and make them more vulnerable to the next shock (Holzmann, R. *et al.* 2003).

According to the USAID report (2009), despite relief food distributions and intervention of PSNP, the high levels of food insecurity continue among vulnerable households in the region due to " 2009 *belg* production failure, and below normal production of 2008 *meher"*. Coping options for the current food insecurity have been decreasing in many households due to the sale of livestock is constrained by poor livestock body condition and low local agricultural labor opportunities (WFP, 2009).

In general, the key constraints on improving food security are understood to include: inadequate and erratic rainfall; land fragmentation and small size of holdings that hindered farming households to achieve food production self- sufficiency; lack of appropriate technology, improved seeds and inputs; lack of capital for investment; poor livestock development; vulnerability to pests and plant diseases, and limited-off farm income employment opportunities restrict diversification and irrigation options, leaving households trapped in increasingly unreliable agriculture. As result, many rural households remain vulnerable to shocks (Kidane, 2005).

2.3 Productive safety Net in Ethiopia

The Productive Safety Net Program (PSNP) is the largest social protection program in Ethiopia. Social protection is defined as "public interventions to assist individuals, households, and communities better manage risk, and provide support to the critically poor" (Holzmann and Jørgensen, 2001). The programme was funded by the UK Department for International Development, the US Agency for International Aid, the World Bank, the European Commission, the Canadian International Development Agency, Ireland Aid, the World Food Programme (WFP) and the Swedish International Development Agency. And it is the vital component of the Ethiopian Government's Food Security Programme, which is an essential feature of food security investments strategy for chronically food insecure woredas of Ethiopia (MOARD, 2006).

According to Ethiopian Ministry of Agriculture and Rural Development, the objectives of the PSNP are to "provide transfers (cash or food) to the food insecure population in chronically food insecure woredas in a way that prevents asset depletion at the household level and creates assets at the community level". In Short, the specific objectives of the cash and food transfers provided through the PSNP include (a) smoothing household consumption in order to bridge production deficits in chronically food insecure households that are not self sufficient, (b) protecting household assets to prevent poor households from falling further into poverty, (c) reducing vulnerability to future shocks and chronic dependence on external assistance and (d) creation of community assets by linking activities that enhance productivity whose outcome is sustainable development (MOARD, 2004).

The programme has two components: (the information below is taken directly from the PSNP implementation manual of the year 2006).

● ***Labor-intensive Public Works component****:* Public Works are labor intensive community based activities which are designed to provide employment for chronically food insecure people who have "able bodied" labor.

The key PW activities include soil and water conservation, social infrastructure (schools and health posts), rural road construction, water supply, small-scale irrigation and earth dams and agricultural services including the construction of farmer training centers.

● ***Direct Support component:*** to ensure support to those households who have no labor at all, no other means of support and those who are chronically food insecure.

A household is considered as chronically food insecure " if it is located in one of the chronic food insecure *woreda* and it has been faced continuous food shortages (usually 3 months of food gap or more) in the last 3 years and received food assistance prior to the commencement of the PSNP"(MOARD, 2006). Therefore, this study will focus on food insecure households that are participating in the programme and on those that are not currently under PSNP.

2.3 Shocks

Shocks are defined as realizations of highly unexpected events that cause welfare losses and risk refers to possibly occurring events that can damage wellbeing (Dercon, 2001). According to many literatures shocks are classified into a number of broad categories: Climatic/Natural, Economic, Social, Policy/political**,** Crime**,** Health, and Agricultural production shocks. It is clear that shocks affect the livelihood of many households across the world, and it is a dominant characteristic of the poor's livelihood. Households in Ethiopia, like households in many parts of the developing world, are vulnerable to a wide variety of shocks. These can be either covariate shocks such as recurrent drought or idiosyncratic such as illness or localized insect infestation (Decrcon, 2002). Shocks can affect welfare and behavior yet people never anticipated the shock to happen and took no precaution against it. People frequently respond to a shock, trying to minimize its undesirable effects or maximize its beneficial effects (Fafchamps, 2009). So for the purpose of this study, the term is referring to the following categories of shocks:

i) Livelihood and reproductive asset-shocks, (including drought, pests and livestock diseases, etc.).

ii) Health-shocks *(*including illness, death, etc.)

iii) Social -shocks (including divorce, theft, exclusion from local organizations, etc.

2.4 Mitigation and coping strategies of Households

Different studies shows that shock such as livelihood and reproductive asset shocks, health related shocks and social shocks are central to life of many poor households in developing countries and these have always been a concern to individuals and society in general. So in order to survive individuals and households employ different risk management strategies. Risk management strategies can be implemented before, during or after risks are realized and can be categorized as ex –ante and ex –post (coping) strategies. The ex-ante includes the prevention strategies which aim at reducing the probability of a shock or negative event occurring and these are introduced before a risk occurs for example," policies regarding sound macroeconomics, public health, the environment and education, and the mitigation strategies (Holzmann and Jorgensen, 2001). Therefore, based on the above concepts, this study will focus on ex-ante and ex-post strategies and the ex-ante strategies refer to the mitigation strategies and the ex-post strategies refer to the coping strategies employed by households.

2.4.1 Mitigation Strategies

Mitigation strategies seek to reduce the impact of a negative event. As with preventive strategies, mitigation strategies are also employed before the risk occurs. Whereas preventive strategies reduce the probability of the risk occurring, mitigation strategies reduce the potential impact if the risk were to occur. In short, mitigation strategies refer to measures intended to reduce income shortfall by reducing the variability of income.

Mitigation strategies include income portfolio diversification strategies such as crop diversification, income diversification, and migration by either the entire household or selected members to areas where employment prospects are better. These may also include the preventive establishment of mechanisms for compensating income loss such as reciprocal exchanges of gifts, loans, and social obligations, and the accumulation of food and other assets that can be employed during periods of stress (Ezemenari, et. al., 2004).

People who live in poor and marginalized areas face the threat of shocks in production and consumption patterns; so long term mitigation strategies are an essential element of their concern. Swift and Hamilton (2001) argue that in food insecure areas in dry land Africa, uncertainty is the key constraint to which farmers should adapt. Successful households, therefore, are those who are able to diversify economic activities, ecological niches, economic contexts, social networks and political jurisdictions. Livelihood diversification is widespread in Africa, performed in order to increase and protect household income and security (Swift & Hamilton, 2001).

2.4.2 Coping strategies

The definitions of coping strategies differ from encompassing strategies to handle short-term crises to managing chronic and seasonal food stress. However, the aim of coping strategies is universal: “to maintain the various objectives of the household, including livelihood security, consumption, health and status, thus ensuring individual and/or collective well-being” (Adams et al, 1998). Another set of authors consider coping strategies as an incorporated and intrinsic part of rural livelihood systems which are always present to some degree which are employed when needed.

Shortly, coping strategies are responses to adverse events or shocks i.e. to relieve the impact of the risk once it has occurred and are intended to reduce the consequences of income shortfall once it has occurred. These measures include withdrawing of savings, reduction of food intake, sale of assets, borrowing to stabilize consumption needs, migration and reliance on public transfers and family networks for financial assistance.

In the event of failure to smooth consumption, a family will have to reduce resource allocation among its members, which may ultimately threaten its existence as a unit (Holzmann and Jorgensen, 2001).). In other words, coping begins when a household is forced to mobilize resources in order to respond to crisis (Adams et al, 1998).

Many literatures define coping strategies as actions that are taken following a decrease in 'normal' sources of food, and which are considered as involuntary reactions to unexpected failure in major means of survival. However, the term "coping" is also used to refer to the ways in which people deal with chronic or seasonal food stress. For example, rural households, especially those in arid or semi-arid areas, routinely plan for and manage uncertainty associated with regular seasonal fluctuations and recurrent drought-induced shocks, concluding that this planning for seasonal fluctuation should be considered as coping strategies, since they assist households in mobilizing resources and opportunities (Chen, 1991).

Lilongwe (2003) stresses the importance of recognizing local knowledge developed in response to food stress, by arguing that societies construct their livelihood systems in response to constraints and opportunities and that the ability to cope with changing conditions over time implies that there is local knowledge built around these factors. In other words, households form expectations of periodic crisis and adapt their resource management strategy taking that risk into account (von Braun, et.al, 1998).

In Ethiopia, many households suffer from chronic food insecurity due to annual food gap, but this structural insecurity in rural areas makes households more vulnerable to transitory food insecurity, which must be taken in to account when studying coping strategies. For example, though the strategies used may vary based on many factors i.e. responses to shocks vary based on different factors such as, household characteristics, gender, age, place, resource base, the nature of the shock, the intensity and duration of stress, access to community support and access to public interventions i.e. periodic or chronic food stress does not cause all members of a community to be uniformly affected (von Braun et al., 1998). Hence by considering these variations, households may reduce non –essential expenditure to increase income availability to buy food (Dervereux, 2001).

Likewise many studies (e.g. Pankhurst and Bevan, 2003; Dercon, 2002; etc.) stated that poor households in Ethiopia dispose productive assets in face of shocks, i.e. they sold household assets, gold and 'even land', trees, their livestock and other assets to cope with shocks ex-post.

As mentioned earlier, the objectives for a household can be maintaining consumption, protecting health, preserving household assets and livelihood, and/or preserving social status. For example, Swift (1993) shows that households and individuals purposefully evaluate the costs and consequences associated with different coping strategies and that maximizing consumption is not always a household's priority i.e. tradeoffs is often made between and within different strategies. Rahmato, (1991) stated that tradeoffs also exist between erosive (non-sustainable) and non-erosive coping strategies. Erosive coping strategies are those that have a cyclical nature, and can lead to more vulnerable livelihoods. For example, selling productive assets, withdrawing children from school and consuming crops before maturity and harvesting period due to hunger satisfies an immediate need of consumption a household, but in turn these strategies may diminish their coping capability and make them more vulnerable to the next shock (Holzmann, R. *et al.* 2003).

Why Study Coping Strategies?

Adams et al. (1998, p. 263) argues that if programmers and policy makers better understood how rural households "mobilize and allocate resources in times of crisis", then "the design, delivery and sustainability of a broad range of rural development policies and programs would be improved". Additionally, analyzing coping strategies of rural households to food insecurity can indicate food insecurity level at household or community level and also show long term vulnerability and alternatives for rural households to deal with food insecurity (CARE and WFP 2003). In addition to this, analyzing the different coping strategies employed by rural households in face of shocks can also help to see and understand to what extent these strategies are in line with the objectives of public interventions such as PSNP, e.g. to encourage risk-taking behavior in order to break out of poverty traps, avoiding distress asset depletion (to reduce negative coping strategies), etc

3. Research Methodology

The research involved fieldwork data collection. Both quantitative and qualitative methods were implemented. The quantitative method used primary data collected based on an open and closed ended questions. The qualitative method involved data collected based on in depth interviews with selected female headed households from each category of the PSNP and focus group discussions with key informants in the field. In general the research consisted of three major components such as review of relevant literatures, field work and data analysis and report writing periods.

3.1 Description of the Study Area

Tigray is the northern-most region of Ethiopia. It shares common borders with Eritrea in the north, the State of Afar in the east, the State of Amhara in the south, and the Republic of the Sudan in the west. It is divided into six administrative zones and comprises 36 woredas. The current population is estimated to be 4.3 million of which 82% are living in rural areas and the total area of the region is about 53,638sq.km (Central Statistic Agency of Ethiopia, 2007).

The economy of Tigray is almost entirely dependent on agriculture with small holder cultivation of cereals and pulses mainly characterized by subsistence farming mixed with livestock rearing. Though agriculture is the main economic activity of the region, it is dominated by small peasant holder producers and high fragmentation of farmland resulting in declining agricultural Productivity.

The study area, Maizegezg watershed, is found in Degua Tembein *woreda*. Degau tembein is one of the thirty six *woredas* of the Tigray region. Its *woreda* town, Hagereselam, is 50 Km away from Mekelle, the Capital city of the region. Degau tembein has tewenty three *tabias* (the lower administrative unit). The total population of the *woreda* is 113,526 of whom 56605 are men and 56921 are female.

The rural population in the *woreda* is about 94 percent which is higher than the region average estimation by 12%.The estimated number of rural households is 27911 of these 20734 are Male headed households and 7177 are Female headed households (25.7% of them are FHH) with an average family size of 5. The average landholding in the *woreda* is 0.79 hectares and these holdings are fragmented (CSA, 2007). There are 28 primary schools, 31 secondary schools, 1 High school, 5 health centers, 15 health posts, 1 credit office and one all weather road . There are no colleges and banks in the *woreda* at all.

According to Tigray region livelihood profile report (TLPR), 2006, Degua Temben is situated in Endert Dry Midland livelihood zone and the prevailing agricultural system is one of integrated annual crop and livestock production in which oxen provide the draught power for ploughing smallholders' fields. The main rainy season in Degua Temben extends from June to September, but is preceded by three months of dispersed, less intense and less reliable rains. Recurrent drought conditions, pests and infertile soil expose this zone to chronic food insecurity (TLPR, 2006). The off-farm opportunity is also very limited in this *woreda.*

Location of Tigray Regional State

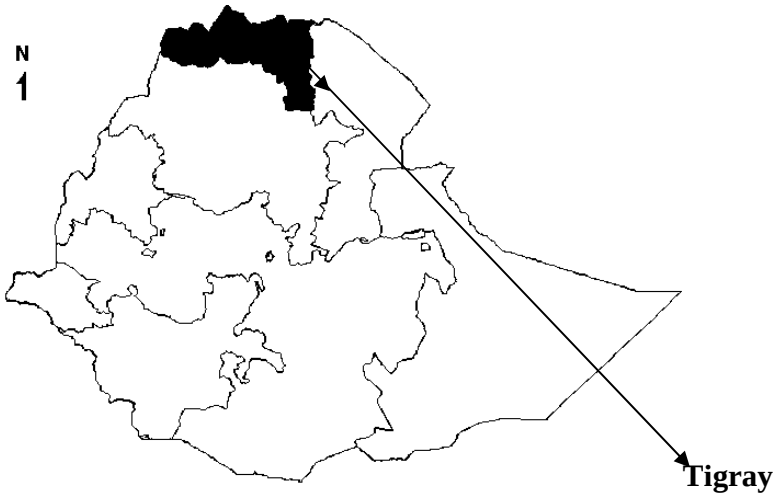
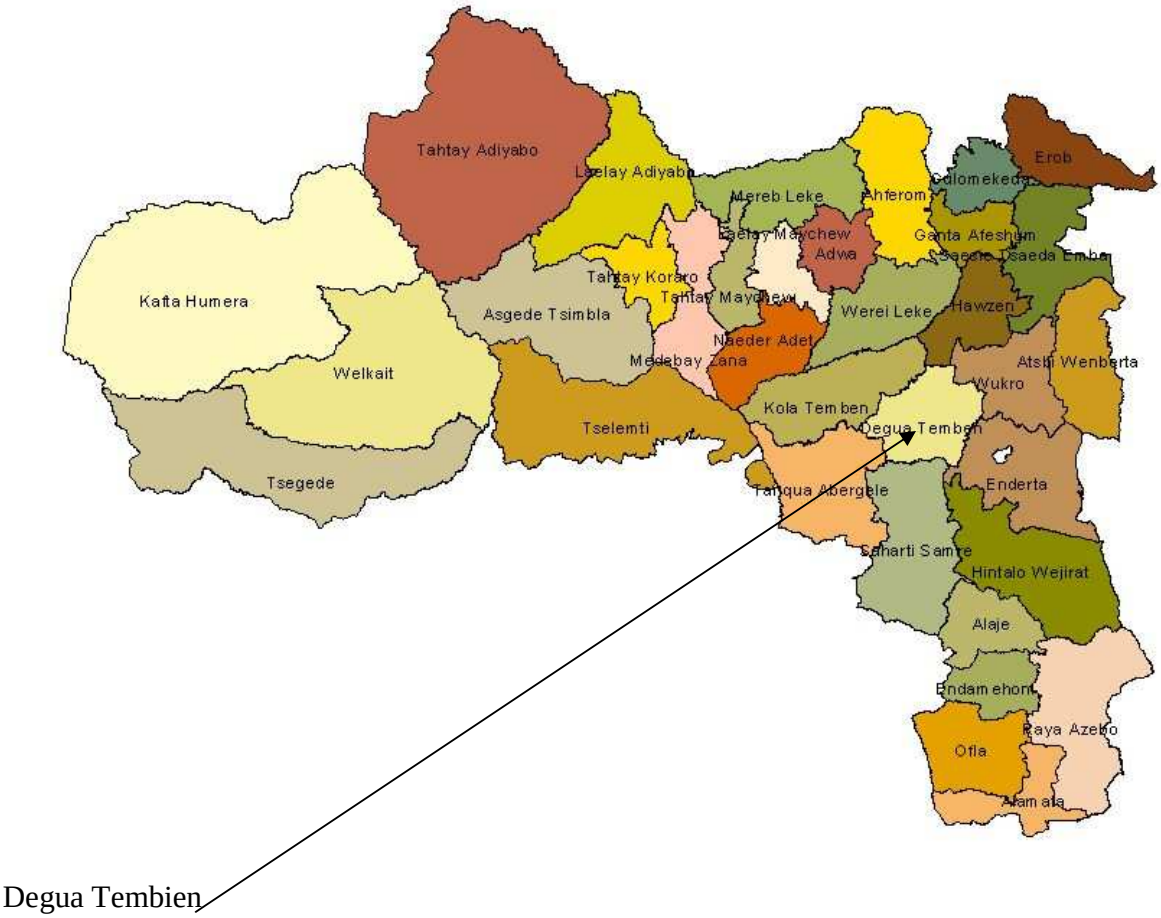


Figure 1: Location of the study Region, (*Map adopted from MZZ Project, 2009*)

Tigray Subdivided in to Districts



Degua Tembien

Figure 2: Location of the study *woreda* (*Map adopted from MZZ Project, 2009*)

3.2 Sampling Procedure

Sampling was taken place at two stages. Cluster sampling was used where *tabias* were considered as one cluster. As the study was conducted at watershed level, two *tabias* were selected purposely from the total *tabias* (7) in the watershed. The main criterion used for the selection of the *tabias* was their proximity to *woreda* town (Hagere selam) so as to compare the results.

Based on the stated criteria Michael Abiy and Mizane birhan were selected. Michael Abiy is 7km far from Hagere selam. The total population of the *tabia* is 6741 and there are 1700 households of which 430 of them are female headed households. There are 3 primary schools, 1 secondary school, 1 health post, 7grain mills, 2 wireless phones, 11 hand-dug wells and one rural road in the *tabia.* Mizane brihan is 18km far from Hagere selam. The total population of the *tabia* is 4109 and there are1230 households of which 380 of them are female headed households. There are 2 primary schools, 1 health post, 3 grain mills, 3 wireless phones, and one rural road in the *tabia.* There is no electricity service in the two *tabias.*

After selecting the two *tabias*, Female headed households in each sample *tabia* were stratified in to three strata based on PSNP beneficiary status i.e. in this case, those who participate in public works, direct support and those who never joined to PSNP for some reason. Data about the total number of female headed households in each category was obtained from *Woreda* office of Agriculture and Rural Development. So based on the data obtained, sampling frame was developed first for each category, and then sample households were selected randomly.

102 farm female headed households were interviewed i.e. 17 households from each category. As the number of non PSNP beneficiary households was lesser than the number of PSNP beneficiaries (both public works and direct support) the sample proportion was 67% for PSNP beneficiaries and 33% for non PSNP beneficiaries from the total sample. Based on the developed questionnaire the required information was collected from the sample subjects.

3.3 Data collection methods

This study employed various methods of data collection, which undertook during September - December, 2009. A structured questionnaire, with both open-ended and pre-coded types of questions, was used for the field interviews. The questionnaire was pre-tested by administering it to selected respondents. On the basis of the results obtained from the pretest, necessary modifications were made on the questionnaire.

For the case of qualitative data, discussion with focus groups and an in depth interview with selected households were conducted. The focus group discussion was carried out with key informants: *Tabia* leader, Development agent, Women affairs representative, Women association representative, youth affairs representative and one community member in each sample *tabias*. Checklists were developed for focus group discussion and selected households so as to guide the discussion and to collect necessary information. All the checklists were translated in to the local language for ease communication and the information is also collected in local language.

3.4 Data analysis

The quantitative household questionnaire data was coded, cleaned up and entered for analysis in Statistical Package for Social Science (SPSS version 15). Analysis was in the form of frequency distributions, measures of central tendency and variations. In addition, the Chi-square was employed to test the difference between the independent groups. Qualitative data from cases, informal interviews with cases, focus group discussion and open ended questions were analyzed thematically (Silverman, 2006). This involved reduction and summarizing of data into themes.

3.5 Data Description

The data for this thesis came from a one year (2009) household survey in the two *tabias* (Michael abiy and Mizane brihan). Among the other information, the data include primary income source, livestock holding, landholding size, input use, mitigation and coping strategies of households.

The two study areas were chosen because of their difference in access to *woreda* town. All the necessary information recorded during interviews with the head of the households. For comparison purpose, to get insights in the type of response and to see to what extent the Ethiopian productive safety net programme is encouraging beneficiary female headed households to adopt 'effective' mitigation and 'non erosive' coping strategies, sample households were stratified into three groups based on their PSNP status (Public group, Direct support and Never joined groups). In regard to the PSNP, the reason why the data is gathered based on one year recall is that the survey coincided with the end of the first phase (2005-2009) in the study areas.

Finally, about the research subjects, it is obvious that the female headed households experienced idiosyncratic shocks (either death of spouse or divorce) in the past time before the year 2009.Therefore, it is important to give due attention while we discuss on the type of shocks that female headed household experienced.

4. Results and Discussions

The following result and discussion focus on socio-economic and demographic characteristics of sample households, types of shocks that female headed households faced in the last twelve months (in the year 2009), household responses and perception of respondents towards PSNP.

4.1 Socio-economic and demographic characteristics of Households

This section presents Age composition, Family size, Literacy status, Dependency ratio, Income sources, Land holding size, Fertilizer use, Livestock holding, and Participation of respondents in Other Food Security Programmes.

4.1.1 Age Composition

The total number of Female headed households interviewed for the study was 102 i.e. 34 households from each category of PSNP, of which 50% are from *tabia* Michael abiy and 50% are from *tabia* Mizane brihan. The mean age of female household heads in the public work category was 41 years and 40 years for the never joined compared with 62 years for the direct support. The total mean age for all household heads is 48 years with standard deviation of 13.229. As it can be seen in appendix 1, the statistical analysis reveals that there is a difference (p-value <0.05) in the mean age of sample household heads between the three PSNP categories. However, when we compared the age distribution of respondents in the two *tabias,* there was no difference.

The analysis of the mean age of female headed households in both studied *tabias* for the three categories of PSNP showed that both the public work and the never joined groups were predominately young as compared with the direct support group. This corresponds with the expectation that those who were in the direct support group are generally assumed to be labor deficit and older than the two groups since this was the main criteria that was taken in to account to be targeted in direct support component of the programme.

4.1.2 Family size

Like the other developing countries, in Ethiopia, a large proportion of the population live in rural areas and this population continue to grow at a substantial rate. It is clear that the population growth rate of one country is the result of the family size growth of each household in that country. The present study shows that there is significant difference (Fig.3) in the mean family size at less than 5 percent probability level between direct supports, public work and never joined household groups.

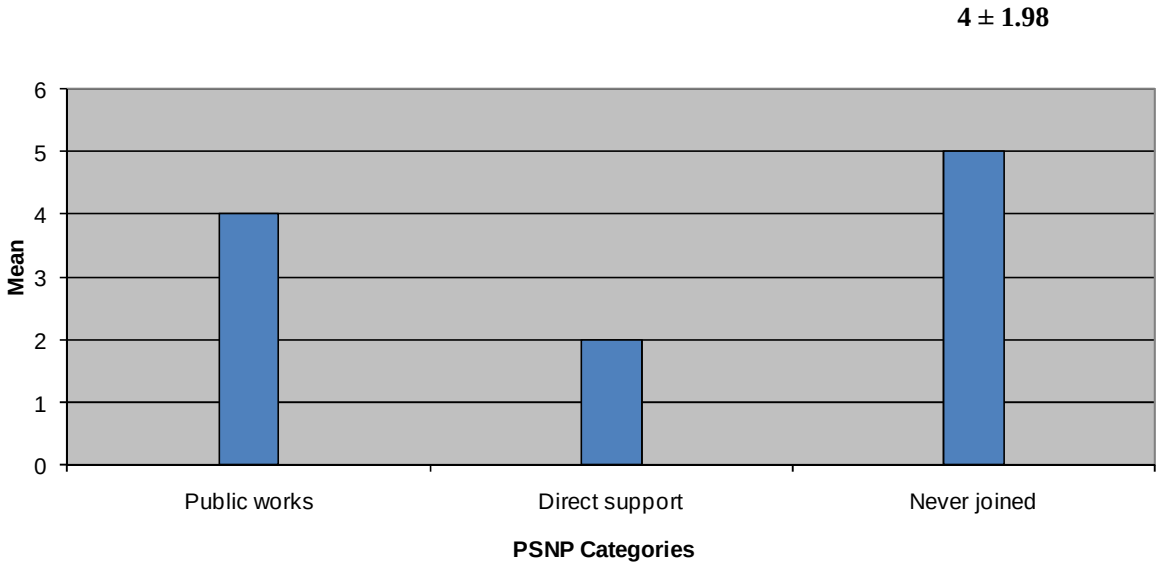


Figure 3: Mean of family size of female headed households by PSNP category (*sources: own household survey, 2009*)

This implies that family size increases with wealth status of the household. For the never joined group the average family size was 5, while for public work and direct support groups it was 4 and 2 respectively. The result agrees with the situation in the region that 'better off' households have larger family size than poor households (Tigray livelihood zone report, 2006). However, this doesn't mean that all the households in the never joined group were 'better off'; only 7(20.6%) of them were 'better off' so it is convinced that this could bring a difference in the two groups.

The average family size distribution in both *tabias* was found to be the same (appendix1), this go with the fact that they are in the same agro- ecological zone so that difference couldn't be expected. While the overall mean family size of the sample household was 4. This was below the regional and national average family size.

4.1.3 Number of able bodied and dependents in a household

In the context of this study, the number of able-bodied member of a household is defined as a household member that is both physically and mentally healthy and who is older than 15 and younger than 65. In rural Ethiopia in general and in the region in particular, children are often engaged in productive activities as of 7 years old, but it is conventional to categorize children under 15 as dependents. On the other hand, old people who are above the age of 65 too are considered as dependants. These variables (number of able bodied and dependents) were also used as indicators for the number of economically active family members in a given household.

According to the survey result, the average number of able bodied members in a household was 0, 1 and 2 for direct support, public work, and never joined groups respectively. In line with this, the mean of dependents in a household was 3 for both the public and never joined groups and 2 for direct support. There was statistical difference in the number of able-bodied and dependent members in a household across PSNP categories (Appendix 1).

Table1.Mean of able-bodied members in a household by PSNP category

	PSNP-category			
	Public work	Direct support	Never joined	***Total***
Mean	1	0	2	1
Std. Deviation	0.524	0.475	0.663	0.757
F			**42.862**	
p-value			**0 .000**	

Source: Own household survey, 2009

Since large ratio of dependents in a population of an area indicates the burden that the active population should bear. Those households that have more number of children under the age of 15 years and older people above the age of 65 appear particularly vulnerable to food insecurity. Here, we can clearly see and understand that all of the female heads in public works and never joined group are the only responsible persons in the household who provide labor for the existence of their household and have the responsibility of in and out. In addition, the analysis showed that the sample households have highest dependent members which forced them to invest more on satisfying the dependent members rather than constructing their future asset that help them to better cope with shocks.

4.1.4 Literacy status

Literacy status of a given society tells the degree of educational service expansion in that certain area. It is also an important indicator to show the level of socio-economic status of a given society as it plays a great role in improvement of the labor forces creativity and productivity. Therefore, based on the stated logic this study also examined literacy status of respondents. From the total sample, only 8(7.8%) of female household heads were literate, and about 94 (92.2 %) of them were illiterate. When we see the distribution of literacy status among the groups, 6(17.6%) of the never joined were literate (those who had either primary or secondary) this was relatively higher when compared with the public groups. This indicates that literacy status is strongly related with wealth. In contrast, all female headed households from the direct support groups were illiterate. The difference between the three PSNP groups with regard to literacy status was found to be statistically significant at less than 5 percent probability level (Fig. 4).

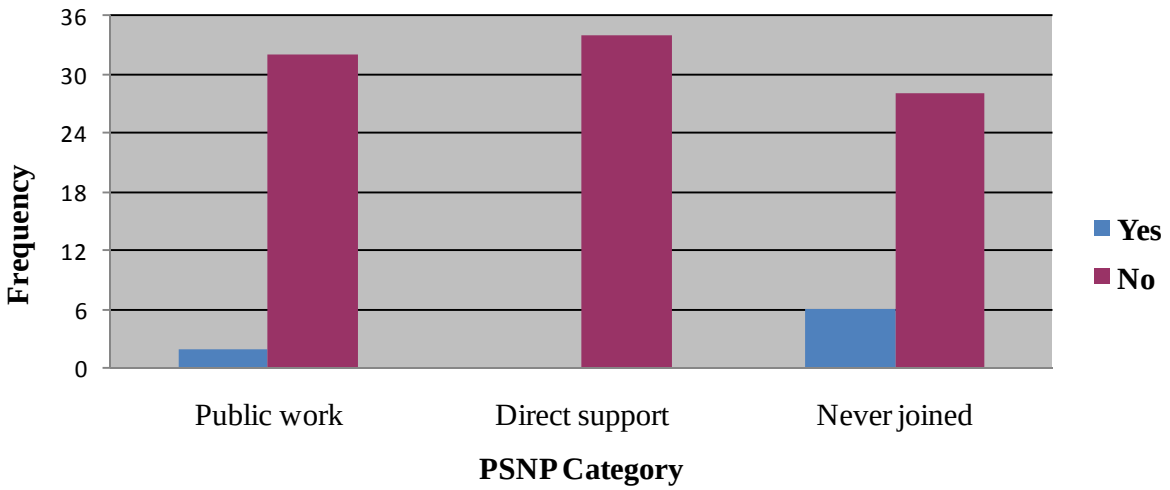


Figure 4: Literacy status of female headed households by PSNP category; a household head is considered as literate if she attended either primary or secondary school (*sources: own household survey, 2009*)

Despite the fact that the spread of education access at this time is in smooth move in the rural areas of the region and in the other parts of the country, the literacy status distribution for all the groups was found to be very limited. This indicates and supports that in the past women's access to education was extremely limited. For example, the study conducted by Fitsum and other team members of Mekele university (2005) in the region showed that women's access to education was found to be extremely limited compared to men i.e. illiteracy rate among female-headed households is higher than male headed households.

4.1.5 Primary and Secondary income sources

As part of the socio-economic characteristics, the primary and secondary income sources of respondents were also examined, 87(85.3%) of the female headed households reported that their primary income source in the last 12 months was Agriculture. However, agriculture as the primary source of income for the public works and the never joined groups was less than that of the direct support group. And about 4(11.8%) and 2(5.9%) of the public work and the never joined group respectively reported that their primary income source was petty trade in the last 12 months (Fig. 5). This result may indicate that those households who reported petty trade as their primary income source might not have land to depend on agriculture, so they may search other means of livelihoods.

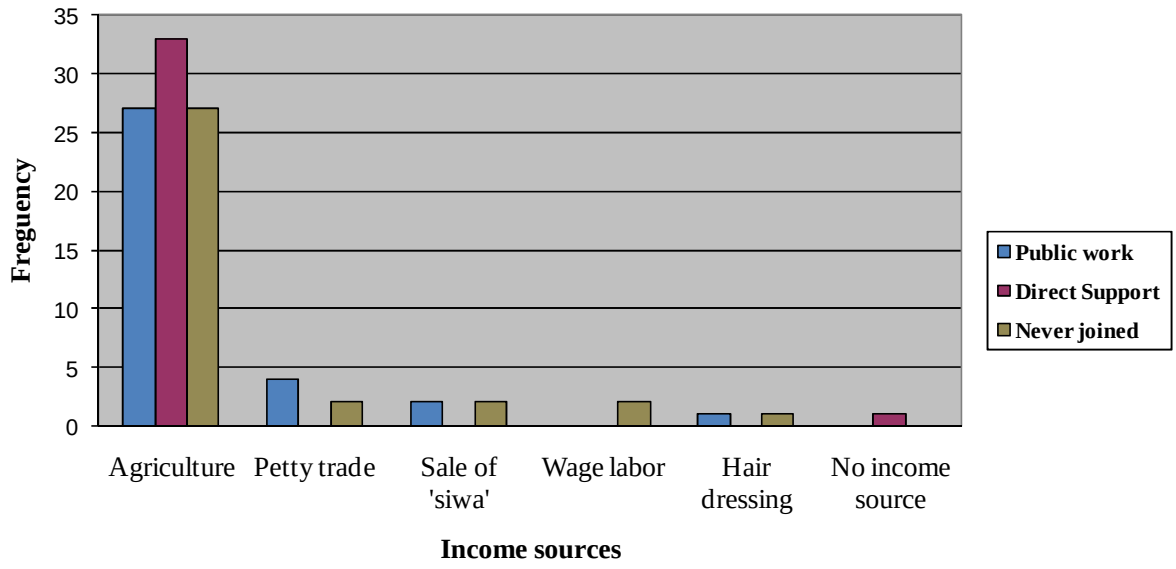


Figure 5: Primary income sources of female headed households by PSNP category (*sources: own household survey, 2009*)

Few households from both the public works and the never joined groups had secondary income like petty trade, sale of ‘siaw’ (local alcohol drink) or hair dressing (Appendix 1). As the direct support are labor deficit almost all of them had no secondary income sources. It is believed that rural households in the region don’t limit themselves to one economic activity but receive

incomes from different sources (Nigist, 2007). However, in the situation of female headed households, this result contradicts with this premise due to the general truth that these households are labor constrained as compared with their male counter parts, so they have no enough time to engage in different economic activities; and they are limited to a single activity.

4.1.6 Farm Land size of SHHs

Prior to the 1974 Land Reform Act, land tenure system in Ethiopia was very complex and complicated. There were many land tenure systems, among which "*risti*" (lineage) and private ownership were the major ones. "Risti", by which a person could claim land through both male and female ancestors, was the most common form of land holding. In the context of Tigray region, women have access to land in terms of ownership like their counter partners, men. According to Zenebewerk (2000) which is cited in Mebrat(2005), "the land proclamation in the region have given an opportunity for women to benefit from the law, the proclamation granted females and males who had reached the minimum ages of 15 and 22 respectively irrespective of their marital status and the assets of their parents". At this time the tenure system in the country forbids private ownership and sale of land, but permits temporary land transfers by lease.

From the total households interviewed 39(38.2%) reported that their farm size was 0.5 ha and for about 33(32.4%) was 0.25 hectare. when we compared the farm land size between the groups, 18(53%) of the public work group owned 0.5 ha of land, this was much higher than that of the never joined group in which 6(17.6%) of them own 0.5 ha of land. For the total sample the land holding size of the households vary from 0.0 hectare (ha) to 1 ha i.e. there were households who didn't have farm land at all and there were also households who owned the largest(1 ha) farm land as compared with other groups. These extremities mostly was found in the never joined group, because 5(14.7%) of them had not farm land at all, which was the highest percentage as compared with the other groups and 7(20.6%) of them had 1 ha of land, again this was the highest percentage as compared with the other groups. The reason for the largest size (1 ah) farm land which was owned mostly by the never joined group was that 7(20.6%) of them were "better off". This result relates with wealth break down in the region that 'better -off' households own large farm land as compared to poor households.

Therefore, when we see the overall average land holding size of the households, majority of them owned 0.5 ha which was same like the regional average landholding size. However, though female are granted by the land proclamation, due to shortage of land in the study areas, there are still households who don't have land at all. This implies that they are dependent on off-farm economic activities like Petty trade, wage labor, etc.

Along with the land holding size of households, it was also assessed whether female headed households plow their farm land by themselves or not, as these issues are very important in discussing the resilience of female headed households to shocks as compared to their counter partners, male headed households, which in turn should be considered beside to the small size of farm. Based on the survey result, from the total sample households 27(26.5%) of them cultivated their farm land by themselves, but majority of them i.e. 72(70.6%) of the sample households rented out their farm land for sharecropping. The reasons for households to rent out their land include: lack of labor (due to age or sickness, lack of adult male labor), and lack of oxen The share cropping rates range between 1/4 and 1/2 of the harvest output (Appendix 2) and it is done either with close relatives (mostly) or with rich farmers. According to the information gained from the respondents, these sharecropping rates depend on quality of the land more than who owns the land. The Chi-square test reveals that there was no significant difference between the groups (Appendix 2).

Though the households who rented out their farm land may receive part of the harvest, they do not control the selection of crops, nor the amount of inputs used. As a result of this, benefits from sharecropping are usually very small to satisfy the consumption requirement of the household. This result corresponds with general truth that as female-headed households in the studied region lack oxen they rely heavily on renting out of their land.

4.1.7 Fertilizer use

Agricultural inputs such as, chemical fertilizers; adoption by small-scale farmers is one of the development agenda in low-income countries due to its contribution to increase agricultural yields. Ethiopian farmers have been encouraged to adopt chemical fertilizers. However, poor farmers fail to use it since they do not afford the cost. Because of this fact, the Ethiopian Productive safety Net is also meant to encourage beneficiary households (poor households) to

adopt agricultural inputs that have positive impact on agricultural yields in addition to its key objective of providing transfers in way that prevents asset depletion at the household level. As it can be seen in figure 6, use of fertilizer for the beneficiary households was very low when compared with the non beneficiary households.

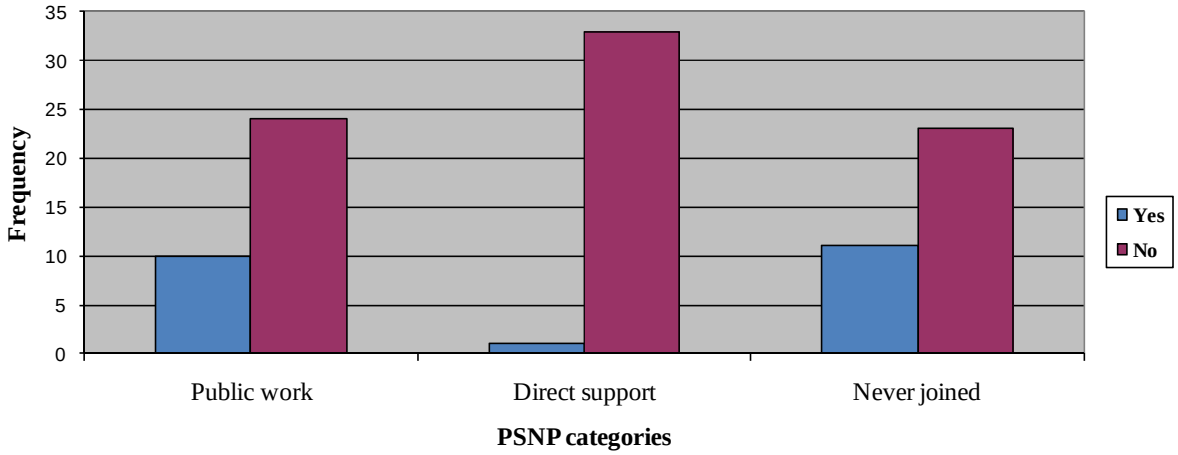


Figure 6: Fertilizer usage of female headed households by PSNP category (*sources: own household survey, 2009)*

The finding contradicts with other studies which reveal that any mechanism that permits farmers to smooth consumption ex-post will raise ex-ante fertilizer adoption (Nigsti 2007). This could be due to two different reasons. The first reason could be that some of the non beneficiary households are assumed to be "better" than the beneficiary in terms of economic status so that they can invest on agricultural inputs like chemical fertilizers as economic reason is believed to make decisions to use or not to use agricultural input based on its objectives and constraints as well as cost and benefit it is accruing to it. Based on the information obtained from PSNP beneficiary households in study area, the programme was not full family targeting. Thus, the second reason could be that the benefits which is obtained from the programme was not enough to feed the whole family members of the beneficiary households, so these households spent the money they had on purchasing of food, but the beneficiary households would have been

investing on agricultural inputs if the transfers from the programme had been enough to feed the household as a whole.

4.1.8 Livestock holding

Livestock provides an important economic asset to rural households after land and it is crucial asset that farmers heavily depend on to safeguard their household from any sort of crisis. Households normally sell cattle after their productive lives, or when they encounter idiosyncratic risks that require access to relatively large income (Tigray livelihood zone report, 2006). The main livestock reared in the study area are cattle, goats, and sheep. Oxen provide draught power. They have important social function as well. Hence, livestock ownership is an important indicator of wealth.

The result is not presented in Tropical livestock unit (TLU) as this doesn't indicate the diversity in number and kind of livestock held by different PSNP category. Thus, giving special emphasis to poultry, sheep, goat, cows, and oxen ownership, the mean value for each kind of livestock for all the groups was very small. More over, except for Poultry, sheep and goat, for the rest kind of livestock holding there was significant statistical difference between the three groups with increasing mean values for cows, oxen and donkey in never joined group as compared with the public works, and the least livestock holding was found in the direct support group (Table 2). The reason for the increasing mean values in the never joined group is that 7(20.6%) of the households in the group were 'better off'. This result relates with expectation that the households in the direct support group have less livestock holding as compared to the other two groups because these households are labor deficit so they couldn't able to engage in production of live stock.

Table2. Mean livestock holding by PSNP category

Kind of livestock	*PSNP Category*						*F*	*P-Value*
	Public work		Direct support		Never joined			
	Mean	SD	Mean	SD	Mean	SD		
Poultry	1.82	2.42	0.79	1.92	2.00	2.74	2.538	0.084
Sheep	0.38	1.15	0.00	0.00	0.53	1.99	1.441	0.242
Goat	0.88	3.53	0.73	4.29	2.13	3.74	1.370	0.259
Cow	0.73	1.08	0.06	0.34	1.12	1.17	10.993	0.000
Ox	0.18	0.46	0.03	0.17	0.65	0.85	11.061	0.000
Donkey	0.09	0.38	0.00	0.00	0.23	0.50	3.700	0.028

Source: Own household survey, 2009

In general, the mean value for each kind of livestock for all the three groups was very small. This may be due to the fact that female-headed households in the region have limited access to productive assets such as oxen as compared to male-headed households (Fitsum et.al. 2005).

4.1.9 Participation in OFSP loans

The 'Other Food Security progamme' (OFSP) is one of the three main components of the Federal food security programme which contains many different activities, including soil and water conservation, road construction, and extension services to support livestock and crop production. However, the OFSP 'household package' is most visible element from the other elements, which is a loan provided by woreda office of agriculture and rural development to farmers so as to participate in different agricultural and non-agricultural activities, which can be selected based on the preferences of specific households. The main assumption and logic for linking PSNP with the OFSP is that households that are involved in both PSNP and OFSP are more likely to increase their assets, improve their livelihoods, and graduate from PSNP than those that are only involved in the PSNP (Rachel et al., 2006).

From the total sample households only 22(21.6%) of them participated in OFSP loans. The statistical analysis revealed that there was difference in participation between the three groups, but this comes from the fact that almost all households in the direct support group didn't participate in OFSP loans. However, when we compared the public work and never joined groups, there was no much difference in percentages for the two groups (Fig. 7).

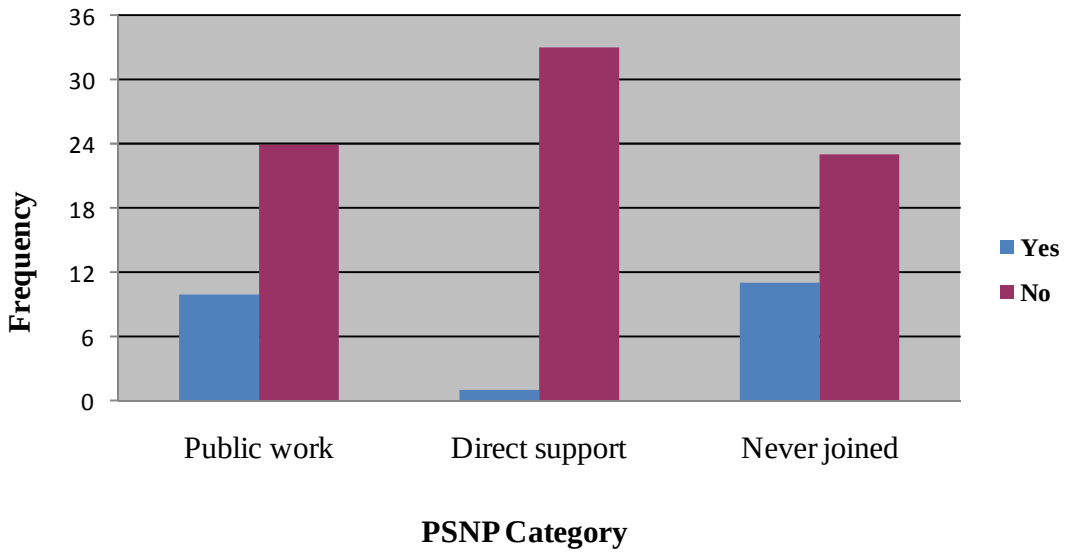


Figure 7: Participation of female headed households in 'ÓFSP' by PSNP category (*sources: own household survey, 2009)*

Therefore, Participation in other food security programmes was found to be low. This result probably implies that PSNP didn't encourage public work groups to participate in other food security programme loans. Thus, the logic of linking PSNP with 'ÓFSP' may not work for specific types of households for example, female headed households. These types of households are suffered from social shocks (either divorce or death of spouse), more likely to be among the poor households and believed to be labor constrained. Hence, it is less visible to participate in different package technologies and to make it work.

In general, the reason for not participating in the OFSP loans may be multi-dimensional, the main reasons are: lack of labor, lack of confidence that repayments will be done on time, and inflexibility of loans i.e. in practice the loans are meant for agricultural activities and mostly

recommended by development agents. This finding supports the work of Pankhurst (2009) which argued that combination of the PSNP and 'ÓFSP' may not be proper for more vulnerable households including female headed households.

4.2 Shocks

As it is already defined in the literature, shocks are defined as the realizations of highly unexpected events that cause welfare losses. Households in Ethiopia, like households in many parts of the developing world, are vulnerable to a wide variety of shocks. These can be either covariate shocks such as recurrent drought or idiosyncratic such as illness or localized insect infestation. Respondents were asked whether they faced shocks (either livelihood and asset related-shocks, including shortage of rain fall or drought, pests and livestock diseases, Health-shocks, including illness, death, etc. or Social –shocks, including divorce, theft, exclusion from local organizations, etc.) in the last twelve months (in the year 2009) or not.

Therefore, as it can be seen in table 3, in the year 2009 about 97(95.1%) of the total sample households reported that they faced shocks, in which 29(28.4%) of them were from the public work category where as all the households in both the never joined and direct support categories faced shocks in the specified year. Almost all the groups reported that the major type of shock they faced was loss of crop due to shortage of rain fall (Appendix 2).

Though the major shock was crop loss due to shortage of rain fall, few households reported loss of key livestock, illness, death and divorce (Appendix 2). The result also showed that there was no significant difference for livelihood and asset related and other types of shocks between the three categories of PSNP (Appendix 2).

Table3. Shock experienced by PSNP category (based on one year recall)

Shock faced	*PSNP Category*			*Total*
	Public work	Direct support	Never joined	
Yes	29(85.3%)	34(100%)	34(100%)	97(95.1%)
No	5(14.7%)	0(.000%)	0(.000%)	5(4.9%)
Chi- square		**10.515**		
P- value		**0.005**		

Source: Own household survey, 2009

This result corresponds with the information gathered from the focus group discussion, which involved from 5- 7 selected community members for each *tabia* studied, that in the year 2009 there was shortage of rain fall in the area that affects large number of farm households in the community.

And the rapid mid *meher* assessment in the region, which is conducted from September up to October, 2009, also reported that the food security situation in the area has deteriorated considerably due to the failure of the last short rain (*belg*) and the poor performance of the long rain (*meher*) seasons. However, the statistical analysis implies that households who were under the public works faced less shock than the other two groups. But this doesn't imply that the contribution of PSNP for the public works was great to prevent households from shocks, because 2(5.9%) out of the 5(14.7%) from those who didn't report any kind of shock in the specified year had not land at all, so it is less likely that they could report crop loss due to shortage of rain fall which was a covariant shock for the community members as a whole. Dercon (2002) and other studies have also revealed that households in Ethiopia are vulnerable to shocks. Specifically, recurrent drought is the major problem people face in the study area. This makes it worse for female headed households to minimize its undesirable effects as they are poor in terms resource base (for example, small land size, livestock holding, limited income sources and high dependency ratio) and even their small plot is rented out for sharecropping which makes again difficult to choose 'effective' mitigation and coping mechanisms.

4.3 Household Responses

4.3.1 Mitigation Strategies of households

Households who live in poor areas face the threat of shocks in production and consumption patterns. Long term mitigation strategies are essential elements of their concern i.e. household survival depend on the ability to anticipate and cope with these shocks. Successful households, therefore, are those who are able to diversify economic activities, social networks, etc. Around eleven mitigation strategies were identified from the SHHs. For convenience of analysis these mitigation strategies are grouped in to two groups, on-farm and off-farm. The following parts present these issues in detail.

4.3.1.1 On- farm mitigation Strategies

In the context of this study, on-farm mitigation strategies are defined as the strategies that are related with farm activities and undertaken by households to reduce the impact of a negative event (shock). Thus, the major on-farm mitigation strategies reported by the respondents were diversification of crops to be grown and saving of crops in kind (leaving of cereals in their pots for difficult times) respectively (Fig. 8).

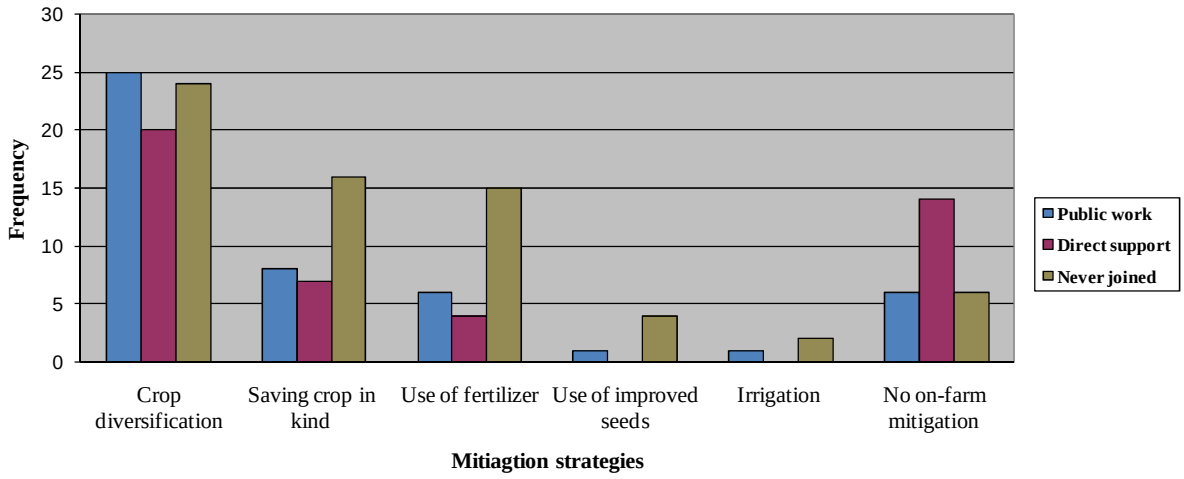


Figure 8: On–farm mitigation strategies of female headed households by PSNP category (*sources: own household survey, 2009)*

The findings support other studies in the study region which reveal that crop diversification is usually adopted as an ex-ante response to rain fall risk (Nigist, 2007). There was no great difference on the number of households who reported crop diversification as their mitigation strategies between the public work groups and the never joined groups.

However, the number of households who employed fertilizer and improved seeds as their ex-ante response was very limited in all the categories, but when we compared the groups it was a bit higher in the non beneficiary households than the beneficiary of PSNP. This implies that farmers who live in areas with uncertain rain fall are less confident to adopt new technologies and improved agricultural inputs as ex-ante response. Likewise, the programme didn't encourage beneficiary households to invest on these activities without fearing the risk associated with them i.e. as the programme was not full family targeting, specifically in the study area, it is less likely to raise ex-ante improved agricultural inputs and new technologies.

The result also showed there were households who didn't employ on farm mitigation strategies at all in all the three categories.). This probably implies that the scope of female headed households to employ even on-farm mitigation strategies is limited. This because most of the time they rented out their farm land, so less likely to choose the type of cereals to be grown, and to diversify the crops as this is decided by the person who rent in the land. Therefore, this situation makes worse their capability to cope with shocks.

4.3.1.2 Off-farm mitigation Strategies

Petty trade, wage labor, sale of 'siwa', and hair dressing were some of the common off-farm mitigation strategies listed by few sample households. Majority of the households in all the three categories didn't employ off-farm strategies.

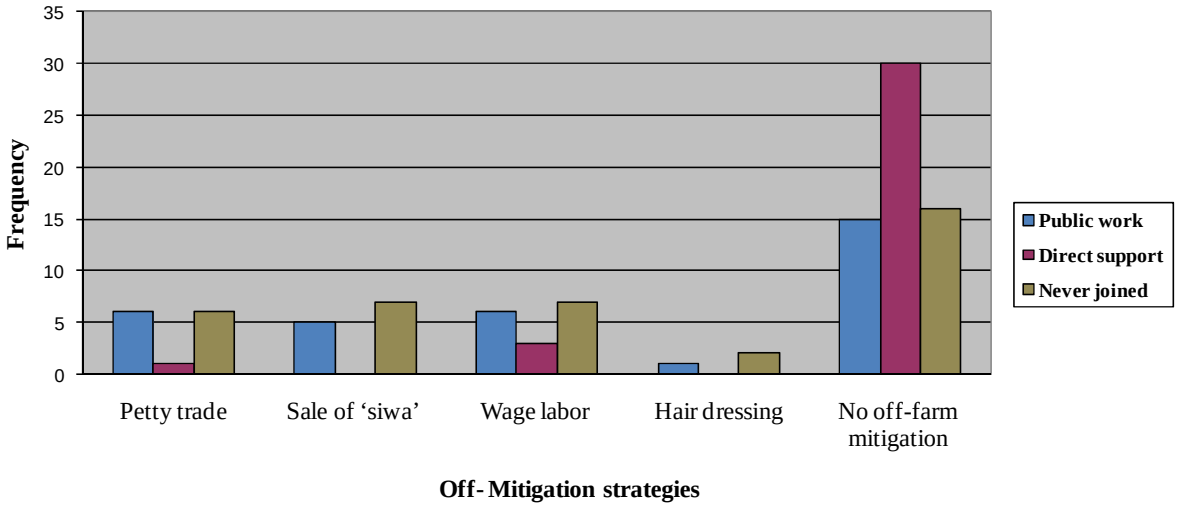


Figure 9: Off–farm mitigation strategies of female headed households by PSNP category (*sources: own household survey, 2009)*

Off-farm wage labor as ex-ante response was expected to be higher for farmers who live in uncertain environment, but this study doesn't support this premise. This could be due to the general truth that these households are labor constraint unless older son is present in the household.

Moreover, the study indicated that differences were not observed between the two *tabias* studied due to proximity to *woreda* town, i.e. it was expected that more off-farm mitigation strategies could be employed by households who live in *tabia* Micahel abiy which is nearby to the *woreda town* than in Mizane brihan based on the theoretical premise that people who live in areas near to cities might have good opportunity to diversify their income, but in practice this is not happing in the study area, this may be due to two different reasons, first as it is already explained in the specific characteristics of female headed households, lack of labor to engage in diversified economic activities could contribute to the same result in both *tabia* studied. The second reason is that the market and other infrastructures in the nearby city (*woreda* town) itself is not well functioning and developed.

4.3.2 Coping Strategies of households

Based on the degree of severity and recurrence of shocks households often develop coping strategies to minimize the negative impact of a shock and maintain livelihoods. Around eighteen coping strategies were identified from the SHHs who experienced shocks which threaten their food security status. For convenience of the analysis these coping strategies were grouped in to four groups, including Consumption related activities, Altering Sources of Food/Income to acquire food, livelihood impacts and formal food aid network. The following parts depict these issues in detail.

4.3.2.1 Consumption related coping strategies

Previous studies showed that maximizing consumption is not always a household's priority, and that consumption is often a trade off made while attempting to maintain other household current or future objectives (Adams, 1992). In other words, part of coping is to become hungry. The major consumption related activities reported by the respondents were reducing quantity of meals and reducing frequency of meals.

From the total sample of households about 89(87.2%) of households reduced quantity of meals, and 86 (84.3%) reduced frequency of meals (Fig. 10). This implies that 86(84.3%) of the households employed both i.e. reducing of quantity and frequency of meals. Although reduced quality of meals was not included in the survey, most people in both *tabias* mentioned that meat or oils are consumed in 'times of plenty' either following a good harvest or during celebrations. These types of coping strategies have negative impacts on the nutritional status of children and even on the female heads themselves. Thus, as different studies confirmed this could affect the performance of children in education (D.L. Pelletier et al., 1995)

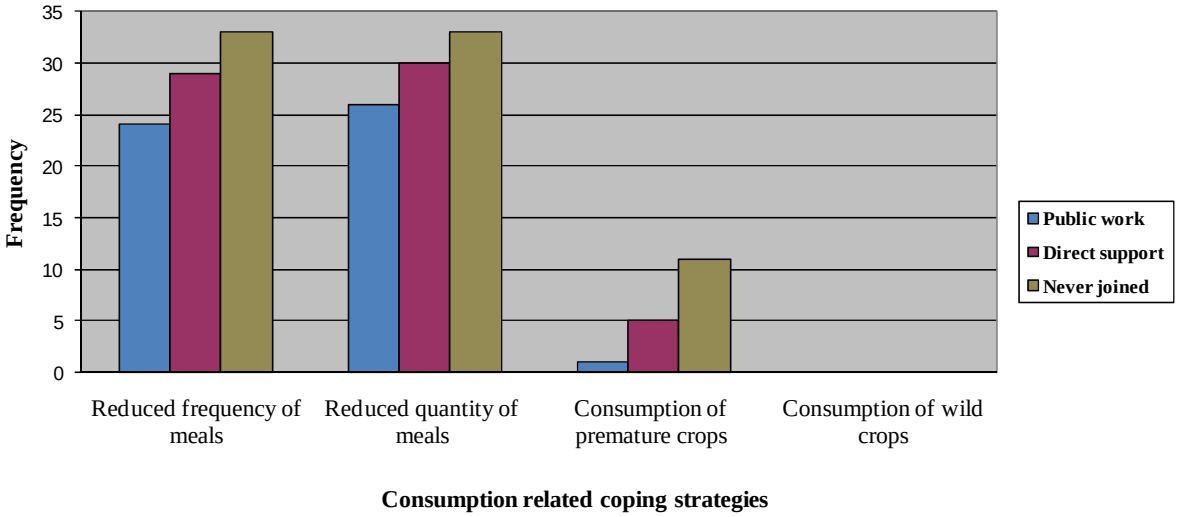


Figure 10: Consumption related coping strategies of female headed households by PSNP category (*sources: own household survey, 2009)*

Consumption of premature crops was also reported as coping strategy which was done in combination with the other stated two consumption related activities. Consuming crops before maturity and harvesting period, is an indicator for how the situation was difficult for households. As Holzanmann R. et al.(2003) stated, consuming crops before maturity and harvesting period due to hunger satisfies an immediate need of consumption of a household, but in turn these strategies may diminish their coping capability and make them more vulnerable to the next shock.

The number of people who used reducing frequency and quantity of meals and consumption of premature crops as their coping strategies during food shortages within each category was different, i.e. the absolute number was higher in the never joined (Fig.10). However, this couldn't enable us to conclude that the programme had great impact on smoothing of consumption of beneficiary households as the difference was not that much as compared with the aim of the programme i.e. it was assumed that the prgramme will greatly help beneficiary households to smooth their consumption, but in reality this is not happing specifically in the study area. This could result from the fact that the transfers from the programme are not enough

to feed all the household members as the programme was not full family targeting and even the amount of benefits given didn't consider the high food prices in the area. Thus, beneficiary households are forced to employ negative coping strategies.

Another finding in relation to this category of coping strategy is that, there was no great difference in the number of households reporting reduced frequency and quantity of meals and consumption of premature crops between the two *tabia* studies (Appendix 4).This could indicate that people who live in the same agro ecological zone and with related socio-economic characteristics employ similar types of coping strategies.

4.3.2.2 Altering Sources of Food/Income to acquire food

The most commonly used coping strategies in this category were exchange of food with family/neighbors, borrowing money and sale of livestock.

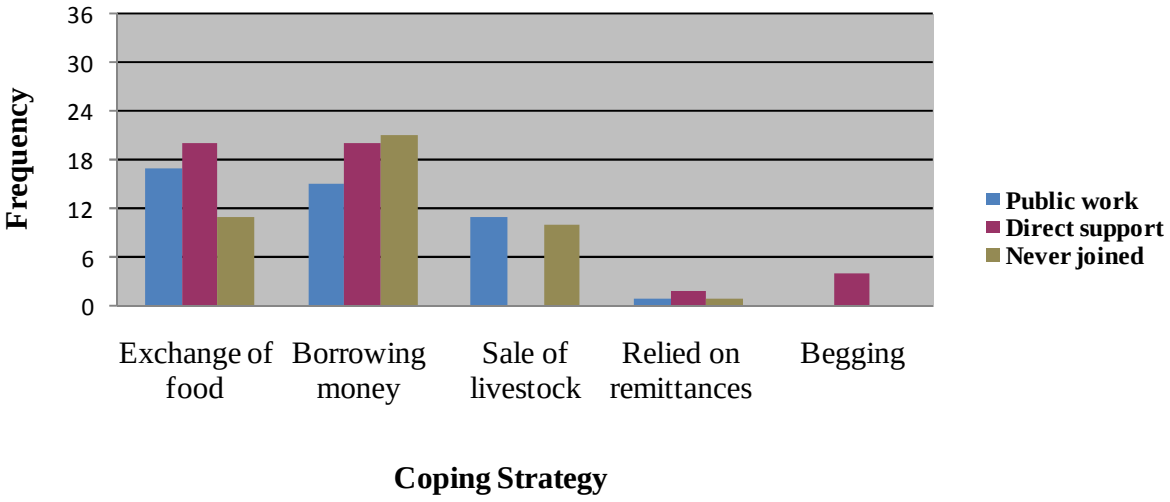


Figure 11: Altering source of food / income for food as coping strategy of female headed households by PSNP category (*sources: own household survey, 2009)*

Exchanging food with family/neighbors and borrowing money: the number of households who exchanged food with family/neighbors during food shortage was higher in beneficiary groups than the non beneficiary groups. However, the number of people who borrowed money was greater in the non-beneficiary. This implies that as the beneficiary households receive some benefits from the programme they tend to exchange food with family/neighbors until the next benefit arrives, where as the non beneficiary households tend to take loan either from relatives or local credit and saving institutions called Dedebit Credit and Saving, because in most cases during periods of hardship 'better-off' households are tended to seek loans (Tigray livelihood profile report, 2006).

Another analysis could be also that exchange of food with family/neighbors and borrowing of money implies that social capital is an important safety net for the distressed households. The households borrow grain as a loan or directly money to cope with food deficit periods. In the beginning, the poor people knock the door of neighbors, friends and relatives for food grains and money, but in extreme cases and when there are not many people in the community with the surplus of food, they have to visit local food traders to ask for food grains as a loan or visit local moneylenders to borrow in advance and pay later. However, based on the information obtained from the focus group discussion and informal interviews, these trends (exchange of food and borrowing money) are now decreasing as a result of the increasing number of poor households in the community and the question is whether it will continue to cope in future

Sale of livestock as coping strategy: was almost the same for never joined and public work groups (Fig. 11). None of the households in the direct support group reported sale of livestock. This result was not a surprise, because almost all of the households in this group didn't own livestock so they couldn't use it as coping strategy. The findings support other studies in Ethiopia which reveal that households dispose productive assets (livestock) to cope with shocks ex-post (Pankhurst and Bevan, 2003). Giving emphasis to the public work group, sale of livestock was higher in this group as compared to the never joined group. This implies that beneficiary households are going against the primary objective of the programme, avoiding distressed asset depletion.

Reliance on remittances: was the least in both *tabia* studied. This clearly shows that there is no anybody who can support female headed households even in time of crises. They are the only one who struggles to sustain the household.

Begging: there were very few people benefiting from the direct support that are relied on begging. It was surprise to find this because the main aim of the programme is to prevent households from such social crises. Moreover, begging is perceived as shameful activity in the community. The first question that came in to mind was that if they are supported by the programme, why they engage in begging? Mrs Hadash from tabia Mizane brihan said this*: "Really this summer was difficult to sustain life because the food prices increased and the benefits from the PSNP changed in to cash (50 ETB/month)."* This implies that the application of standard country wide transfers (either in kind or cash) doesn't consider the differences in poverty levels and food gaps evident in various parts of the country. Secondly, this could show us emphasis was not given to beneficiary households that are without substantial support.

4.3.2.3 Livelihood impacts

Migration: only one household from the direct group reported temporary migration to urban area as coping strategy. This probably indicates that the existence of long term designed programme aimed at vulnerable households in a given community could impact migration negatively. This result matches with the information gathered from the focus group discussion, they explained that the prgramme prevented households from migration to other places for example, one participant in the focus group discussion said: *"a great number of households would have migrated to other places if the PSNP were not existed in our area."*

With drawing of children from school: few households in the public work category reported that they withdraw their children and sent them to relatives/ neighbors during the time of food shortage. This is mainly done to reduce the resource that should be allocated for school materials. This result relates with other researches that proved in the event of failure to smooth consumption, poor households in developing countries reduce resource allocation among their members, which may ultimately threaten their existence as a unit (Holzmann and Jorgensen, 2001). However, this kind of coping strategy (withdrawing of children from school) in turn can

diminish their long term coping capability though it can satisfies short term need of consumption.

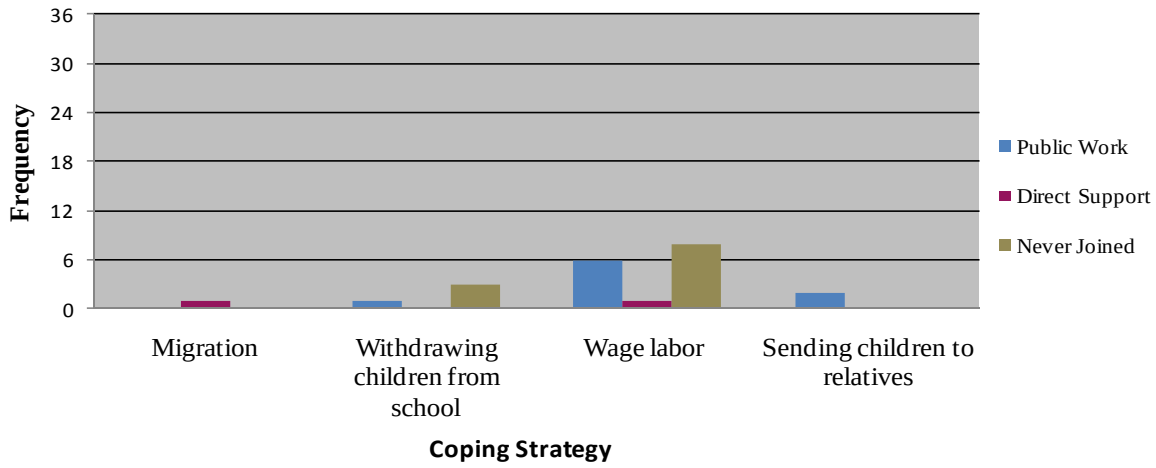


Figure 12: Livelihood Impacts coping strategies of female headed households by PSNP category (*sources: own household survey, 2009)*

4.3.2.4 External formal food Aid

In both *tabia* studied all the households in the public work and direct support category received transfers from the PSNP either in kind or cash. The programme is meant different in terms of its objective, targeting, and period of implementation from the previous formal food aid traditions in the region. About 25 (73.5%) of the households in the never joined group reported that they received food assistance from DPPC (Appendix 4). The food assistance from the DPPC which is given to some of the non beneficiary households are different from the transfers of the PSNP i.e. the benefits from DPPC are given for poor households which are affected by covariant shock and it is for short period of time (not more than three months).

However, the PSNP grants households for five years. It is meant to households who have faced continuous food shortages (usually three months of food gap or more) in the last three years and who have received food assistance, and for those who have no family support and other means of social protection. Practically, the main criteria for selection of households to

participate in the programme is the number of livestock in the household, this a bit deviates from the criteria stated in the implementation manual of programme sated above. This could be due to different reasons. First, there are no trained personnel at the community level who can collect, monitor and record the necessary socio-economic characteristics of households. Second, given special emphasis to the study areas, it is believed that the amount of land and oxen ownership is the main differentiating criteria. But using the oxen ownership as main selection criteria could create unintended side effects. First, as the off-farm opportunities in these chronic food insecure areas are very limited or not existed at all, households may sale their livestock to participate in the programme. Thus, further consideration is needed in the selection criteria.

4.4 Perception towards PSNP

In the context of this study, perception towards PSNP is referring to how the different categories of households see the programme. It was great interest to assess this issue at the ground, as it is already stated in the problem statement, there are myths about the programme for example, like the other social protection programmes PSNP could create dependency syndrome among the community. To validate this different questions related to PSNP were covered like; do you know the objective of PSNP, do you believe PSNP is so important for your household, do you believe that PSNP protects from hunger and asset depletion, how could you cope up if PSNP stops and so on. The following section summaries this. Finally, the experiences of some cases from each category of PSNP are also presented in this section.

A. The case of public work groups:

Most of the households in this category were not targeted in the same year i.e. some of them were targeted for about five years (2005-2009), others were also targeted for two years and there were also households that were targeted for one year only. One question was raised during the focus group discussion that, if all the households were eligible for the programme, why some of them were targeted in 2005 and the others not? Is it because of the graduation process and entering of new households or what? Participants of the discussion mentioned that it was not

because of graduation; just it was because of fluctuations in selection criteria i.e. at the start of the programme poor households were targeted, but after two years poor households who couldn't graduate within four or five years were resigned and the chance was given for other farmers who could take loan from the government so as to participate in other food security programmes. However, as it is sated in some sections of this report, it is obvious that participation in other food security programmes could have positive impact for some types of households, but it may not for others. Hence, great emphasis should be given to this issue and putting participation in 'OFSP' as a precondition for joining to the PSNP is against of its key objective.

Households from both villages consistently mentioned that the programme was not full family targeting (i.e. limits on the number of household members permitted to take part in the PSNP didn't line up with the actual household size, in average two out of five members of one household or four out of 7 were targeted). Hence, due to this factor the transfers were not enough to meet the minimum household monthly consumption requirement and households are forced to employ negative coping strategies for example, reducing frequency and quantity of meals, and sale of livestock.

Almost all of the respondents in this category were aware of the objective of the programme. They clearly identified the importance of the developmental activities like construction of schools, rural roads, gully treatment activities etc. which are carried out by the programme at the community level. Though the households explained the positive impact of the programme at the community level, based on their perspective the public works that were provided by the perogramme were in far places from their immediate localities. One female household head from *tabia* Michale abiy said the following: *"we spent almost four hours to go to the work place and then back home, after that we became tried to do the household chores."* As these households are the only one who is responsible in and out of home, this in turn could affect them in looking after their children.

Accordingly, due to the variations on the number of members per a family to be targeted, beneficiary households perceived differently its contribution on their household. Every household had its own story in relation to the programme i.e. few households explained that the programme have helped them to better cope with food insecurity as almost all the family

members were targeted. To the contrary, from the same group, there were households in which only few members of their family were targeted and they explained that the programme didn't contribute much in smoothing of their consumption. Therefore, in order to achieve the premised objectives of the programme and to bring sustainable results at the household level, fully family targeting should be implemented for the entire eligible household as per the implementation manual. So as to share some experiences of households with the programme, here below are presented some cases as an example

The case of Mrs. Fotiyen Desta:

"If I had not participated in the PSNP, Some of my children would have gone to other places to work as daily laborer, but now all of them are attending school." (Mrs. Fotien, 2009)

Figure 13: Photo of Mrs. Fotiyen Desta from *tabia* Michael abiy (Source*: Picture taken during field work, 2009*)

Mrs. Fotien Desta is a household head with an age of 50 and family size of seven. She is living in *tabia* Michael abiy, Degua Tembien woreda. In the year 2005 her husband got sick and needed treatment badly. The treatment was expensive. To pay the treatment cost, they sold their oxen and spent all their savings. Besides all these costs, she didn't save the life of her husband. He died in 2008. *"As I told you before, life became very difficult; I sold two of my oxen to treat my husband and to purchase food during the hard time, nothing left in the house, but thanks to God the government gave me the chance to participate in the PSNP in 2007."* From the total family size, four members were targeted. Prior being targeted in the programme, agriculture was the only means of livelihood for the household. When she was targeted in the PSNP she had a chance to get a credit for oxen and to engage more in vegetable production. Today she is more engaged in vegetable and fruit production as means of livelihood. She underlined that if farmers get some help and work hard the land has a big potential to deliver. According to her, PSNP is providing the food that otherwise would have been secured by working for other people. This probably indicates that the programme help her to spend the money in other productive activities that would have been spent in purchasing of food. Thus, if almost all of the family members of a given eligible households are supported by the programme, the programme could have great contribution for poor households to better cope up with shocks and positive impact on school attendance of children.

She stated also that the developmental activities which are carried out by the programme has many advantages for the community at large; *"for example if you look at the construction of rural roads and gully treatment, really these practices have great importance for our area. "*

The case of Mrs. Kindihafiti Teklehayimanot:

"Of course life is really difficult, in the hard time before the harvest I give the food what I have to my little children, but the older ones eat one meal in a day." (Mrs. Kindihafiti, 2009)

Figure 14: Photo of Mrs. Kindihafiti Teklehayimanot from *tabia* Mizane brihan (Source*: Picture taken during field work, 2009*)

Mrs. Kindihafiti Teklehayimanot is a household head with an age of 37 and family size of six. She is living in *tabia* Mizane birhan, Degua Tembien woreda. Her husband died before 8 years left her with five children. She was targeted in the programme from 2006-2009. From the total family size, two members only were targeted. Prior being targeted in the programme, agriculture was the only means of livelihood for the household. Still life is difficult for her as she is the only one responsible to feed her five children with limited income from PSNP and from the farm land. Her farm land was also rented out for half of the output harvest (sharecropping). She stated that as the programme didn't target all members of the household, the benefits could not be enough to feed all members for a month during food shortages. She was also obliged to borrow money and crops from rich farmers in her village; *"you know what I do sometimes, I drink coffee with salt to reduce my appetite and I send my children to neighbors during summer to look after their animals so they can get food."* According to her, though the activities of PSNP have many advantages for the community at large, the transfers didn't prevent her household from hunger totally.

To sum up, the public work has had some positive impacts in terms of developmental activities at the community level, but as the programme was not full family targeting its significance in terms of altering the strategies of beneficiary households that help better to mitigate and cope with shocks was limited among the households. For example, if we look at the case of Mrs. Fotien from public work group, she explained that the programme had positive impact on her household and she notified how the programme saved her household during the hard time she experienced. To the contrary, if we see the case of Mrs. Kindihafit from the same group, she was not satisfied with the benefits as it doesn't meet the minimum consumption requirement of her household (i.e. only two members out of six were targeted). Thus, great consideration should be given for these types of households as they are affected by social shocks, either or death of spouse, which make it in turn more difficult for them to cope up with chronic food insecurity when compared to their male headed households counter parts. And to enable beneficiary households to graduate as it was assumed in its design; the programme should be full family targeting and should consider the current market inflations in the country.

B. ***The direct support groups:***

Unlike the public work groups, almost all of the households in this category were targeted in the same year (2005-2009). The beneficiaries of this category were old people. Like the public work groups, some respondents from both villages constantly stated that the programme was not full family targeting (i.e. majority of the old people live with their grandchildren, but for some households the grandchildren were not permitted to take part in the PSNP). Thus, the transfers were not enough to meet the minimum household monthly consumption requirement. Almost all of the respondents in this category perceived the programme as formal aid. However, like the households benefiting from the public work, there were different perceptions on the impact of the PSNP at household level. Here below are presented some cases.

The case of Mrs. Lilit Gebregergis:

"I would have rented out my farm land if I were not targeted in the PSNP." (Mrs. Lilit, 2009)

Mrs. Lilit Gebregergis is an old woman with an age of 70. She is living with her grandchild in *tabia* Michael abiy, Degua Tembien woreda. She was targeted in the programme from 2005-2009. She, including her grandchild, received direct assistance for free from the programme. Prior being targeted in the programme, agriculture was the only means of livelihood for the household and her farm land was rented out for half of the output harvest (sharecropping). When she was explaining about the impact of the programme on her household, she said that she is really happy for being participated in the programme as the transfers help them during critical time; "*thanks to the government now we are eating three times a day and now we didn't borrow either money or crops from the lenders in our village and we plough our farm land with the money that would have been spent for purchasing of food."*

The case of Hadash Gebrekidan:

"If the prgramme had targeted all of us, my grand child would not have migrated to Mekelle to work as domestic worker." (Mrs. Hadash, 2009)

Mrs. Hadash Gebrekidan is an old woman with an age of 68. She is living in *tabia* Mizane brihan, Degua Tembien woreda. Before two years her grandchild was living with her, but now she is living alone. She was targeted in the program from 2005-2009, but her grand child was not targeted. Her farm land was rented out for one fourth of the output harvest. As the benefit from the programme was not enough to feed two people, the orphan grandchild withdraw from school and migrated to Mekelle to work as domestic worker. She said that her grandchild was 15 years old; she was grown up with her since her mother and father died. When she was explaining about the impact of the programme on her household, she said that, "yes *it is true that even the 15 kg of wheat can help to some extent, but as I rented out my farm land for one fourth of the output and I don't have other means to rely on, life became really difficult*." According to

her, though the activities of PSNP have positive impacts for the community at large, the transfers didn't prevent her household from hunger totally.

C. *The case of Never joined groups:*

Female household heads in this category pointed out different reasons for not participating in the programme. From the total number of households in this group, 7(20.6%) said that the reason was that they were considered as 'better off', 6(17.6%) stated that it was because they refused to take loan from the government, 2(5.9%) mentioned nepotism, and 19(55.9%) said it was because of lack of quota for example, one female household head from *tabia* Micahel abiy said: *"My neighbors know very well how I am needy, but I didn't get the chance to participate in the programme due to lack of quota during the selection time."*

Majority of them had information about the targeting criteria. Some households reported that non eligible households were also participating in the programme. Though the interviewed households didn't participate in the planning of the activities, almost all of them clearly explained the importance of the developmental activities which are carried out by the programme in their area. In addition to this, they also mentioned that the PSNP is very important during bad years, one farmer said: *"this summer was very difficult time for me; I would not sell my cow if I were the beneficiary of PSNP."*

The case of Mrs. Birhan Desaley:

"I am working for a rich farmer in my village, but the rich farmer whom I am working for is targeted in the PSNP." (Mrs. Birhan, 2009)

Figure 15: Photo of Mrs. Birhan Desaley from *tabia* Micahel abiy (Source*: Picture taken during field work, 2009*)

Mrs. Birhan Desaley is a household head with an age of 35 and family size of four. She is living in *tabia* Michael abiy, Degua Tembien woreda. She divorced from her husband in 2007. As she didn't have marriage certificate, she was not able to share productive assets (like land and oxen) from her husband. Up to the year of 2008, she hadn't land at all and even she didn't own any type of livestock. After the divorce she was living with her neighbor for two years. In 2009, the local administration gave her a land, so she built a small house (even very difficult to call it as a house). She was working as daily laborer for a rich farmer in her village. This was her main means of survival. The type of work she performed was collecting of 'gesho' (a local tree in which its leaf is used to prepare local alcoholic drink, 'siwa'). 'Gesho' is used as a means of income source for some of the farmers in the area.

When she talked about the amount of the benefit she got from performing that work, *"I have to collect four 'kefer' (local measurement) of 'gesho' in order to get one 'kefer', and then I sale it in the nearby market to purchase food"* I asked her whether the money was enough to cover the expenses of food, she replied *"no it is not enough at all, I work this just because I don't have other options at all and sometimes the farmer offer me a dinner."* My question continued, why didn't you participate in productive safety net? She replied: because I refused to take a loan from the government, *"you know, I am very poor woman and even I hadn't land till 2008, so how could I take loan to buy a cow and goats, this is impossible and I fear that I could spent it in purchasing of food."* According to her, some eligible farmers were not participating in the PSNP rather rich farmers were participating so as to become model in the village, "for example, *I am working for a rich farmer in my village, but the rich farmer whom I am working for is targeted in the PSNP."*

In general, based on the survey and in depth interviews, almost all households from the two groups (i.e. the public work and never joined groups) in both *tabia* studied were aware about the objective of the programme. They clearly explained and identified the importance of the developmental activities which are carried out by the programme in their area. However, almost all of the households from the direct support group perceived the PSNP as formal food aid and they didn't recognize the developmental contribution at the community level. This implies that the issue of dependency was delinked in the direct support component of the programme. However, the finding of this study doesn't agree with the myths that states the programme could create dependency syndrome among people, because the working groups (public work and never joined groups) clearly know what the programme is a bout and its impact at the community level for example, they explained that before the introduction of the programme, there were a lot of gully formation in their area, but due to the physical soil and water conservation activities carried out by the public works, soil erosion has been minimized and there was no sign of dependency found except that as the off-farm economic opportunities are very limited and due to uncertainty of rain fall, people want to participate in the programme to support their livelihood. This implies that due to the non-existent or minimal alternative employment opportunity in the chronic food insecure areas, people may seek and compete to join to the programme, but it is not because of aspiration failure to work. Local people are trying their best to survive and make their lives

better. For example, households were asked how could cope if the programme stops, they explained that their main threat is the recurrent drought. But they said that if the rain is ok, they could invest on their farm land by engaging more in crop, vegetable and livestock production. And an other analysis could be that due to the structural poverty and recurrent drought the results/impacts of different programmes like the PSNP could not be observed and realized in short period of time, so could lead to the myths of dependency. Thus, long term development policy is a big concern.

5. Conclusions and Recommendations

5.1 Conclusions

Female headed households in rural areas are suffering from different problems. It was tried to show in this study, by describing the general socio-economic characteristics of the female headed households, the diverse and inventive strategies female headed households were using to reduce the negative impact of shocks and cope with them. Thus, the general objective of this study was to investigate the mitigation and coping strategies PSNP beneficiary female headed households and non PSNP beneficiary female headed households used to deal with shocks and to explore their perception towards the PSNP.

The research questions are discussed below:

What are the mitigation strategies used by PSNP beneficiary female headed households and non PSNP beneficiary female headed households in the face of production shocks?

Crop loss due to lack of rain fall and death of livestock were the major shocks in both *tabia* studied. All the socio-economic characteristics of female headed households were poor in each category. Hence, this could make it worse for the households to mitigate and better cope with the problem they faced. The finding supports other studies in Ethiopia which reveal that specifically recurrent drought is the main problem that rural households face and by all socio economic indicators the situation of female headed households is said to be low.

Diversification of crops to be grown and saving of crops in kind were the main on-farm mitigation strategies female headed households employed to reduce the impact of rain fall risk. More over, use of fertilizer and improved seeds as on-farm mitigation strategy was found to be higher in the non beneficiary households than the beneficiary households. This probably implies that the programme didn't encourage to beneficiary female headed households to adopt 'effective' on farm strategies like new production in puts such as fertilizers and improved seeds.

Petty trade, sale of 'siwa' and wage labor were the main off-farm ex-ante responses used by few female headed households from the public work and never joined groups. Differences were not found between the two *tabias* in terms of mitigation strategies. Off-farm wage labor as an ex-ante response was expected to be higher for households who live in uncertain environment, but this study doesn't support this premise specifically for female headed households.

What are the coping strategies employed by PSNP beneficiary female headed households and non PSNP beneficiary female headed households during food shortages?

The analysis of this study revealed that the major strategies adopted by female headed households to cope up with the time of difficulties specifically food deficit in the study area includes, reducing frequency and quantity of meals, consumption of premature crops, exchange of food with family/neighbors, borrowing money, and sale of livestock. The PSNP, which was aimed for preventing asset depletion and avoiding negative coping strategies, didn't make a difference for beneficiary female headed households. Moreover, in terms of coping strategies also, differences were not observed between the two *tabias*.

What is the perception of beneficiary and non beneficiary female headed households towards the PSNP?

Majority of the female headed households in the study area are aware about the objective of the programme and its impact at the community level. However, due to variations in the limits on the number of household members permitted to take part in the Productive Safety Net Programme, its impact at the household level is perceived differently. All the households benefiting from the direct support didn't realize the developmental activities of the programme. Thus, they perceived the programme as formal food aid. The sign of dependency was not observed in the public works and the never joined groups.

5.2 Recommendations

Based on the present study, the following points are mentioned to be considered.

● To motivate beneficiary households to use 'effective' mitigation and coping strategies, the programme should target all members of a given eligible households. Particularly, special emphasis should be given to female headed households as these households are very poor in terms of resource base, have high dependency ratio and rent out their small farm land for sharecropping which makes it worse to cope with shocks.

● The programme is creating asset at the community level. However, as the public works are provided in far places from the immediate localities households who participate in these activities, it is affecting female headed households in looking after their children. Therefore, the activities of the public works should be provided in the immediate localities of households working in the programme and especial consideration should be given to the situation of female headed households.

● It is obvious that participation in other food security programmes may have positive impact on the livelihood strategies of some rural households. However, the logic of linking PSNP with 'ÓFSP' may not work for specific types of households for example, female headed households. These types of households are suffered from social shocks (either divorce or death of spouse), more likely to be among the poor households and believed to be labor constrained. Thus, it is less visible to participate in different package technologies and to make it work. Therefore, Loan to participate in other food security programmes should not be set as a precondition to participate in the PSNP, but the stated criteria in the implementation manual of the programme should be considered. Hence, to ensure sustainable results responsible stakeholders should monitor and follow the implementation process of the programme

● Due to the conventional way of doing i.e. the quota system, large number of poor households are excluded from the PSNP. Hence, to meet its stated aims, the PSNP should include all chronic food insecure households and the resources allotted to the programme should also adopt the specific situations of a given area.

● Drought and the increase in food price are affecting poor households to deal with food insecurity, so the programme should adopt specific situations in a given area and special emphasis also should be given for direct beneficiaries (aged, disable, orphan, etc.) who have no other sources of income in terms of the length of transfers and its kind i.e. the country wide general standard of the programme couldn't fit for some places, so considering differences in poverty levels and food gaps is advisable

● Campaign is needed to increase the awareness of households benefiting from the direct support about the objective of the programme

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Appendices

Appendix 1: Result about general characteristics of sample households

Table1. Age distribution by PSNP categories

	PSNP category			*Total*
	Public works (N=34)	Direct Support (N=34)	Never joined (N=34)	
Mean	41	62	40	48
Std. Deviation	8.623	6.029	9.699	13.229
F		79.972		
p-value		0.000		

Source: Own Household Survey Data, 2009

Table2. Age distribution by *tabia* categories

	Name of tabias		
	Michael abiy		Miazen birhan
Mean	46		49
Std. Deviation	13.014		13.451
F		0.917	
p-value		0.341	

Source: Own household survey, 2009

Table3. Family size distribution by *tabia* categories

	Name of tabias		
	Michael abiy		Miazen birhan
Mean	4		4
Std. Deviation	1.803		2.161
F		0.089	
p-value		0.766	

Source: Own household survey, 2009

Table4. Number of able bodied members' distribution by PSNP categories

	PSNP category			*Total*
	Public works (N=34)	Direct Support (N=34)	Never joined (N=34)	
Mean	1	0	2	1
Std. Deviation	0.524	0.475	0.663	0.757
F		42.862		
p-value		0.000		

Source: Own household survey, 2009

Table5. Number of able bodied members' distribution by *tabia* categories

	Name of tabias		
	Michael abiy		Miazen birhan
Mean	1		1
Std. Deviation	0.678		0.835
F		0.068	
p-value		0.795	

Source: Own household survey, 2009

Table6. Number of dependent members' distribution by PSNP categories

	PSNP category			*Total*
	Public works (N=34)	Direct Support (N=34)	Never joined (N=34)	
Mean	3	2	3	3
Std. Deviation	1.707	0.819	1.629	1.585
F		11.560		
p-value		0.000		

Source: Own household survey, 2009

Table7. Number of dependent members' distribution by PSNP categories

	Name of tabias	
	Michael abiy	Miazen birhan
Mean	3	3
Std. Deviation	1.545	1.637
F	0.190	
p-value	0.664	

Source: Own household survey, 2009

Table8. Literacy status distribution by *tabia* categories

	Name of tabias	
	Michael abiy	Miazen birhan
Yes	5(9.8%)	3(5.9%)
No	46(90.2%)	48(94.1%)
Chi-square	0.543	
p-value	0.461	

Source: Own household survey, 2009

Table9. Distribution of Primary income source by *tabia* categories

Name of tabia	*Primary income source in the last 12 months*					
	Agriculture	Petty trade	Sale of 'siwa'	Wage labor	Hair dressing	No income source
Micahel abiy	41(80.4%)	3(5.9%)	2(3.9%)	2(3.9%)	2(3.9%)	1(2%)
Mizane brihan	46(90.2%)	3(5.9%)	2(3.9%)	0(.0%)	0(.0%)	0(.0%)
Total	87(85.3%)	6(5.9%)	4(3.9%)	2(2%)	2(2%)	1(1%)
Chi-square = 5.287, P-value= 0.382						

Source: Own household survey, 2009

Table10. Distribution of secondary income source by PSNP categories

PSNP Category	*secondary income source in the last 12 months*					
	Agriculture	Petty trade	Sale of 'siwa'	Wage labor	Hair dressing	No secondary income source
Public work	4(11.8%)	4(11.8%)	4(11.8%)	1(2.9%)	1(2.9%)	20(58.8%)
Direct Support	0(.0%)	0(.0%)	0(.0%)	0(.0%)	1(2.9%)	33(2.9%)
Never joined	1(2.9%)	5(14.7%)	5(14.7%)	2(5.9%)	0(.0%)	20(58.8%)
Total	5(4.9%)	9(8.8%)	9(8.8%)	2(2.9%)	2(2.9%)	73(71.6%)
Chi-square = 27.163, P-value= 0.081						

Source: Own household survey, 2009

Table11. Distribution of secondary income source by *tabia* categories

Name of tabia	*secondary income source in the last 12 months*					
	Agriculture	Petty trade	Sale of 'siwa'	Wage labor	Hair dressing	No secondary income source
Micahel abiy	1(2.0%)	4(7.8%)	5(9.8%)	3(5.9%)	2(3.9%)	35(68.6%)
Mizane brihan	4(7.8%)	5(9.8%)	4(7.8%)	0(.0%)	0(.0%)	38(74.5%)
Total	5(4.9%)	9(8.8%)	5(8.8%)	3(2.9%)	2(1.9%)	73(71.6%)
Chi-square = 8.146, P-value= 0.320						

Source: Own household survey, 2009

Table12. Land size holding by PSNP Category

PSNP Category	*Land size in hectare*				
	0.0	O.25	0.5	0.75	1
Public work	2(5.9%)	9(26.5%)	18(53%)	4(11.8%)	1(2.9%)
Direct Support	1(2.9%)	15(44.1%)	15(44.1%)	2(5.9%)	1(2.9%)
Never joined	5(14.7%)	9(26.5%)	6(17.6%)	7(20.6%)	7(20.6%)
Total	8(7.8%)	33(32.4%)	39(38.2%)	13(12.7%)	9(8.8%)
Chi-square = 23.022, p-value = 0.011					

Source: Own Household Survey Data, 2009

Table13. Summary statistics for cultivating of farm land by PSNP category

Who plow your farm land?	*PSNP category*			*Total*
	Public work	Direct Support	Never joined	
By myself	11(32.4%)	3(8.8%)	13(38.2%)	27(26.5%)
Sharecropping for half of the harvest output	14(41.2%)	22(64.7%)	11(32.4%)	47(46.1%)
Sharecropping for half of the harvest output	3(8.8%)	2(5.9%)	1(2.9%)	6(5.9%)
Sharecropping for half of the harvest output	1(2.9%)	1(2.9%)	0(.0%)	2(2.0%)
Relatives('ritiban')	0(.0%)	1(2.9%)	2(5.9%)	3(2.9%)
Someone to get straw	3(8.8%)	4(11.8%)	2(5.9%)	9(8.8%)
Chi-square = 18.267, P-value= 0.108				

Source: Own household survey, 2009

Table14. Mean livestock holding by *tabia* category

Kind of livestock	*Name of tabia*				*F*	*P-Value*
	Michael abiy		Mizane brihan			
	Mean	SD	Mean	SD		
Poultry	1.22	2.352	1.86	2.466	1.839	0.178
Sheep	0.57	1.836	0.04	0.280	4.145	0.044
Goat	1.51	4.925	1.00	2.458	0.438	0.510
Cow	0.45	0.879	0.82	1.142	3.402	0.068
Ox	0.18	0.478	0.39	0.723	3.158	0.079
Donkey	0.08	0.392	0.14	0.347	0.643	0.425

Source: Own household survey, 2009

Table15. Participation in OFSP loan by *tabia* category

Participation in OFSP loan	*Name of tabia*		*Total*
	Michael abiy	Mizane brihan	
Yes	8 (15.7%)	14 (27.5%)	22(21.6%)
No	43 (84.3%)	37 (72.5%)	80(78.4%)
Chi-Square=2.086, P=0.149			

Source: Own household survey, 2009

Appendix2: Result about shocks

Table16. Distribution of Shock by *tabia* category

Shock	*Name of Tabia*		
	Michale abiy	Mizane birhan	Total
Yes	48	49	97
No	3	2	5
Total	51	51	102
Chi- square		0.210	
P- value		0.647	

Source: Own household survey, 2009

Table17. Frequency of livelihood related shocks by PSNP category

Livelihood related shocks	*PSNP Category*		
	Public work (n=34)	Direct support (n=34)	Never joined (n=34)
Crop loss due to shortage of rain fall	29	33	28
Death of key livestock (ox, cow, etc)	2	0	9
Loss of crop due to weed and pests	0	0	0
Unemployment	0	0	4
Chi-square		10.515	
p-value		0.062	

Source: Own household survey, 2009

Table18. Frequency of health related shocks by PSNP category

Health related shocks	*PSNP Category*		
	Public work (n=34)	Direct support (n=34)	Never joined (n=34)
Illness that affect one or more household members	0	1	0
Death of spouse/ a person who is responsible for the household	2	1	0
Chi-square		3.061	
p-value		0.548	

Source: Own household survey, 2009

Table19. Frequency of social shocks by PSNP category

Health related shocks	*PSNP Category*		
	Public work (n=34)	Direct support (n=34)	Never joined (n=34)
Divorce	0	0	1
Imprisonment of a household head or member	0	0	0
Chi-square		2.020	
p-value		0.364	

Source: Own household survey, 2009

Table.20 Summary of types of shocks by *tabia* category

Types of shocks	*Name of Tabia*	
	Michael abiy (n=51)	Mizane birhan (n=51)
Livelihood related shocks	45	48
Health related shocks	3	0
Social shocks	0	1
Total	48	49

Source: Own Household Survey, 2009
N.B: Frequencies are based on respondents

Appendix 3: Result about mitigation strategies

Table21. Frequency of on farm mitigation strategies by *tabia* Category

on farm mitigation	*Name of tabia*	
	Michael abiy (n=51)	Mizane birhan (n=51)
Crop diversification	32	37
Saving crop in kind	12	19
Use of fertilizer	13	12
Use of improved seeds	4	1
Irrigation	3	0
No on-farm mitigation strategies at all	15	11

Source: Own Household Survey, 2009
N.B: Frequencies are based on respondents

Table22. Frequency of off-farm mitigation strategies by *tabia* category

Off- farm mitigation Strategies	*Name of Tabia*	
	Michael abiy (n=51)	Mizane birhan (n=51)
Petty trade	7	6
Sale of 'siwa'	8	4
Wage labor	10	6
Hair dressing	2	1
No off-farm mitigation strategies at all	28	33

Source: Own Household Survey, 2009
N.B: Frequencies are based on respondents

Appendix 4: Result about coping strategies

Table23. Frequency of Consumption Related coping strategies by *tabia* category

Consumption Related	*Name of tabia*	
	Micahel abiy (n=51)	Mizane birhan (n=51)
Reduced frequency of meals	40	46
Reduced quantity of meals	42	47
Consumption of premature crops	8	9
Consumption of wild crops	0	0

Source: Own Household Survey, 2009
N.B: Frequencies are based on respondents

Table24. Frequency of Altering Sources of Food/Income for food by *tabia* category

Sources of Food/Income for food	*Name of tabia*	
	Michael abiy (n=51)	Mizane brihan (n=51)
Exchange of food with family or neighbors	25	23
Borrowing money	31	25
Sale of livestock	8	13
Relied on remittances	1	2
Begging	2	2

Source: Own Household Survey, 2009
N.B: Frequencies are based on respondents

Table25. Frequency of Livelihood Impacts coping Strategies by *tabia* category

Sources of Food/Income for food	*PSNP Category*	
	Michael abiy (n=51)	Mizane brihan (n=51)
Migration to urban areas	0	0
Children left school to help work	1	3
Adult wage labor	11	4
Sending children to relatives/neighbors	1	1

Source: Own Household Survey, 2009
N.B: Frequencies are based on respondents

Table26. Frequency of Formal External Food Aid by PSNP category

Formal external food aid	*PSNP Category*		
	Public work (n=34)	Direct support (n=34)	Never joined (n=34)
Food from DPPC	0	0	25
Food from NGOs	0	0	0
Food from feeding center	0	0	0

Source: Own Household Survey, 2009
N.B: Frequencies are based on respondents

Table.27 Frequency of Formal External Food Aid by *tabia* category

Formal external food aid	*Name of tabia*	
	Michael abiy (n=51)	Mizane brihan (n=51)
Food from DPPC	13	12
Food from NGOs	0	0
Food from feeding center	0	0

Source: Own Household Survey, 2009
N.B: Frequencies are based on respondents

Glossaries:

Woreda- District

Tabia- the lower administrative unit

Gesho- a tree in which its leaf is used to prepare local alcoholic drinks called ‘siwa’ or ‘mes’