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Master's Thesis

On

The Role of Rural Micro Credit in Reducing Households' Vulnerability to Food Insecurity in Bati Woreda, Oromo Administrative Zone, Amhara Region.

In Partial Fulfillment for the degree of Master of Arts (MA Degree)
In Rural Development.

By

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DECLARATION

I hereby declare that the Dissertation entitled **The Role of Rural Credit in Reducing Households' Vulnerability to Food Insecurity in Bati Woreda** (Write the title in Block letters) submitted by me for the partial fulfillment of the M.A. in Rural Development to Indra Gandhi National Open University, (IGNOU) New Delhi is my own original work and has not been submitted earlier either to IGNOU or to any other institution for the fulfillment of the requirement for any course of study. I also declare that no chapter of this manuscript in whole or in part is lifted and incorporated in this report from any earlier work done by me or others.

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CERTIFICATE

This is to certify that Mr. **ALIY SEID MOHAMMED** student of M.A. (RD) from Indra Gandhi National Open University; New Delhi was working under my supervision and guidance for his/her Project Work for the Course MRDP-001. His Project Work entitled **The Role of Rural Credit in Reducing Households' Vulnerability to Food Insecurity in Bati Woreda** Which he/she is submitting, is his/her genuine and original work.

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AUTO BIOGRAPHY

The author was born on August 29, 1979 in a town called Kobo, North Wollo Zone of Amhara National Regional State. He attended his elementary and junior secondary education at Kobo Catholic Elementary School and Kobo Junior Secondary School, respectively. He also attended his High-school education at Kobo Senior Secondary School and W/ro Sheen Comprehensive Secondary School. Then he joined Alemaya University in 2002. He graduated with Diploma in Animal Science in July 2005. Soon after, he was assigned to work in Organization for Rehabilitation and Development in Amhara/ORDA/.

After three years of service, he joined Indra Gandhi National Open University in January 2009 to pursue graduate studies for the advanced degree (M.A.) in Rural Development.

DEDICATION

Dedicated to my Grand Father Ato Assefa Fenta and my Grand Mother W/ro Ergo Meshesha who sacrificed much to bring me up to this level but not lucky to see the final fruits of his effort

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ACRONYMS AND ABBREVIATIONS

ACSI	Amhara Credit and Saving Institution
AEMFI	Association of Ethiopian Microfinance Institutions
CSA	Central Statistical Authority
DFID	Department For International Development
DBE	Direct Support
DS	Ethiopian Birr
EB	Hectare(s)
Ha	Household(s)
HH	Development Bank of Ethiopia
HHH	Household Head(s)
IFAD	International Fund for Agricultural Development
MCI	Microcredit Institution
MFI	Microfinance Institution
MoFED	Ministry of Finance and Economic Development
NBE	National Bank of Ethiopia
ORDA	Organization for Rehabilitation and Development in Amhara
PSNP	Productive Safety Net Program
PW	Public Work
SD	Standard Deviation
TLU	Tropical Livestock Unit
USAID	United States Agency for International Development
WOA	Woreda Office of Agriculture
WoFED	Woreda Office of Finance and Economic Development

The Role of Rural Credit in Reducing Households' Vulnerability to Food Insecurity in Bati Woreda, Oromo Administrative Zone, Amhara Region , Ethiopia

ABSTRACT

In Ethiopia microfinance institutions are becoming increasingly essential instruments in reducing poverty. Accordingly, Amhara Credit and Saving Institution (ACSI) have been providing formal financial services for rural households in Amhara region with one of its primary objectives being to reduce households' vulnerability to food insecurity. However, there is limited knowledge on the impact of financial services by ACSI in reducing households' vulnerability to food insecurity. This study was thus initiated to assess the role of the services in reducing rural households' vulnerability to food insecurity in Bati Woreda, Oromo Zone Amhara region. The approach used was quasi-experimental where clients of ACSI as one group were compared with other control group which are eligible but non-clients. Both quantitative and qualitative methods of selected client households were employed for the investigation. Based on the results obtained from the explanatory survey made before employing the formal survey, the nature of the study required a two-stage stratified random sampling technique. As a result, all rural Kebeles of the woreda were first stratified using chronic vulnerability composite index in to more vulnerable and less vulnerable Kebeles. Then one Kebeles from each stratum was selected using simple random sampling technique. Households residing in the two sample Kebeles were also stratified based on their participation on ACSI program credit as ex-clients, clients, eligible non-clients, and ineligible households. The sources of information for the stratification of the households were the respective ACSI sub-branch offices and kebele committee of the two sample Kebeles. A total of 170 sample households comprising 108 clients of ACSI and 62 non-clients of ACSI were finally selected from the two sample Kebeles using simple random sampling with probability proportional to size. The proxy indicators used to measure households' vulnerability to food insecurity were households' own food production, income, asset, crop diversification, and income diversification. The survey results indicated that the annual mean income obtained in the year 2009/10 by sample clients is 43% and 52% higher, respectively, than of their annual mean income obtained in the year just before they participate in ACSI program credit and non-clients' annual mean income for the year 2009/10. Moreover, as compared to non-clients larger

proportions of sample clients have participated in more remunerative income sources: high value crop production, sheep and goat production/ fattening, beekeeping and petty trade. Results of the statistical tests carried out to identify the determinants of income source diversification also revealed that among the variables examined family size, number of economically active members of the household, farm size, livestock holding, distance to Woreda market, and participation in ACSI program credit are positively related to households income source diversification. On the contrary, distance to all-weather road is negatively related to households' income source diversification with its implication that poor access to all-weather road has a negative influence in households' decision to participate in more remunerative activities. In regard to asset ownership, as compared to non-clients, clients own a better quality house with more number of rooms, large number of livestock, and non-productive assets with relatively large estimated value as well as more cash savings. Furthermore, clients found to be less vulnerable to food insecurity indicating that rural households' level of vulnerability to food insecurity is negatively associated with their participation in ACSI program credit. Moreover, clients' level of vulnerability to food insecurity is negatively associated with amount and frequency of borrowing. Hence, for better achievement in reduction of households' vulnerability to food insecurity, the implications for policy are raising outreach and depth of rural financial services, increasing households' access to market through increased access to road, reliable market information and improved communications; expanding opportunities of off-farm and non-farm activities through investments that generate employment that will help rural households to increase and diversify their income sources and thereby reduce their vulnerability.

1. Introductions and Background

As in the case of developing countries, Ethiopia belonging to this category its economy largely depends on rural economy, where agriculture has remained the major constituent of the economy. Agriculture account for 43.2 percent of the total GDP next to service and followed by industry sector each taking 45.1 percent and 13.0 percent share respectively in the year 2008/09 (NBE, 2008/09). In addition, agriculture is the major source of employment involving 84.14 percent of the active population and a major source of exchange earning accounting for 90 percent (Bananuaka et al., 2006).

In the face of agriculture's contribution to the national economy, production and productivity is very low, it is subsistence oriented, there is high variability in production, and it is also largely affected by recurrent drought. As a result, the proportion of people below poverty line in the country is estimated to be 29.60% in 2010/11 (MoFED, March, 2012). One of the reasons for low production and productivity in agriculture is lack of financial capital to invest on agricultural inputs by the poor rural households.

In Ethiopia, achieving food security is related to reducing poverty. Addressing poverty requires broader coordinated interventions. Improving the delivery of financial services to the poor helps them to increase their disposable income, asset ownership, and cushion consumption during food deficit periods (Wolday, 2003).

Accordingly, Microfinance institutions (MFIs) are becoming increasingly essential instruments in the government's strategy for reducing poverty. The microfinance industry has been able to serve more than 2.3 million clients through their 433 branch and 598 sub branch offices. Various studies show that this only covers 10-15% of the total microfinance demand in the country (NBE, 2010). They have mobilized deposits of Birr 1.7 Billion and an advanced loan amounts to Birr 4.9 billion at the end of 2008/09 (NBE, 2010).

Similarly, in Amhara, like other regions in the country, there is a formal credit service for farmers rendered by Amhara Credit and Saving Institute (ACSI). ACSI is the largest institution in the region that has been providing financial services to urban and rural areas since 1997. The

institution is operating in all Woreda of the region with 15 micro bank, 39 branches and 218 sub branches, and with a total of 1.9 million active borrowers of whom 80 percent of the clients are from rural areas (ACSI, September 2004 E.C No.16).

Therefore, to increase production, productivity, income, and build assets thereby reduce vulnerability to food insecurity; alleviating financial problem of rural households through intervention of rural finance service has vital importance. Hence, this study was focused on investigating the role of existing ACSI rural credit service in reducing vulnerability to food insecurity.

2. Statement of the Problem

Poor rural households are not poor in everything. There are able rural households who are constrained by lack of financial capital. Those rural households are unable to invest on agricultural inputs thereby increase their production and productivity, diversify agriculture, and employ themselves in nonfarm activities.

In order to solve the financial problem, formal rural financial service is growing from time to time. However, the impact of MFIs has not been well researched. The existing limited studies focused on the performance of the institutions with less coverage to the impact of the financial institution on the household well-being.

The limited studies indicated that there are successful borrowers who use the credit properly to increase their use of technology, diversify income; build assets there by improve their living standard. On the other hand, there are indebted borrowers for different reasons. One of the reasons is that instead of using the credit for productive purpose and generates additional income and or build asset, they use the credit for immediate consumption purpose like celebrating holidays, weddings and memory of the death which is totally different from the intended objective. This by far affects ensuring food security on sustainable basis. In addition, it results in depletion of their meager asset as they had to repay the loan, and make them ultimately vulnerable to food insecurity. They further depend on continuous borrowing without graduating to better standard.

Other empirical studies discuss that, there are limited impact studies indicating the delivery of microfinance services has increased income, and social services of households and improved conditions of women clients (Wolday, 2003). Moreover,(Rogaly, 1996) pointed out that there is a need for the study of impact because even in a similar geographical and historical context it is important to distinguish between the ways in which different groups of poor people can benefit from greater financial services. In addition, interventions in the provision of financial services should not be made without locally specific analysis of the function of existing saving and credit facilities.

The above statements indicate that there is a limited knowledge on the impact of microfinance service, with its clear implication to the need for additional studies. This study would be, therefore, tried to investigate the role of rural credit in reducing vulnerability to food insecurity. In which reducing vulnerability to food insecurity is one of the important dimensions of poverty reduction strategy in the region in general and in the study Woreda in particular.

Hence, the intention of this study was to add to the existing limited knowledge on the impact of rural finance service specifically on the role of rural credit on reducing vulnerability to food insecurity. Some of the research questions are listed below;

What are the determinants of diversification of income sources at household level? What is the role of ACSI rural credit in building household assets? What is the association between households' participation on ACSI rural credit service and level of vulnerability to food insecurity?

3. Basic Concepts in the Study

3.1. Vulnerability and Food Insecurity

It is important to recognize that vulnerability or livelihood insecurity is a constant reality for many poor people, and that insecurity is a core dimension of most poverty. Vulnerability is fundamentally about risk, uncertainty and lack of security (DFID, 1999).

Vulnerability is defined as an exposure to contingencies and stress, and difficulty in coping with them. In this context, vulnerability has two sides an external side of risk, shocks and stress and an internal side, which is defenselessness, mainly a lack of means to cope without damaging

losses (Chambers, 1989). Vulnerability refers to the ability of a household to manage damaging fluctuations (Ayalneh, 2002).

The prevalence of malnutrition continues to rise and large proportion of the population is facing chronic food insecurity and vulnerable livelihoods (Wolday, 2003). The poorest eats when he/she has the means, and goes to bed hungry when he/she doesn't. Having no means of livelihood, most are dependent on others; their living is pitiful (Ayalneh, 2002).

In the rural areas food insecurity and vulnerability to poverty are sustainably caused by marginal land holding, degraded natural and livestock resources, dependence upon rain fed agriculture, low levels of capital formation, weak local institutions, poor access to essential services and decline of the long term entitlements associated with worsening terms trade (Middle brook et al., 2001 as cited in Wolday, 2003).

In addition, the vulnerability context frames the eternal environment in which people exist. People's livelihoods and the wider availability of assets are fundamentally affected by critical trends as well as by shocks and seasonality – over, which they have limited or no control. Trends refer to population trends, resource trends (including conflict), national or international economic trends, and trends in governance (including politics) and technological trends. Shocks refer to human health shocks, natural shocks, economic shocks, conflict, and crop or livestock health shocks. Seasonality refers to seasonality of prices, seasonality of production, seasonality of health and seasonality of employment opportunities (DFID, 1999).

3.2. Assets

Assets may be described as stocks of capital that can be utilized directly, or indirectly, to generate the means of survival of the household or to sustain its material well being at differing levels above survival. Some writers refer to assets as resources, while the intention meaning the same thing**.** A fundamental nature of assets is as stock (e.g. land or trees) giving rise to a flow of output, or they are brought in to being when a surplus is generated between production and consumption, thus enabling an investment in future productive capacity to be made (Ellis, 2002).

Different researchers have identified different categories of assets as capturing for them strategically important distinctions between different types of capital. It becomes apparent that

most of the anomalies between lists of different researchers can be resolved through the classification which contains the five asset categories of natural capital, human capital, physical capital, financial capital, and social capital and are defined as follows (Ellis, 2002; DFID, 1999).

Natural capital comprises the land water and biological resources that are utilized by the people to generate means of survival.

Physical capital: Physical assets comprise capital that is created by economic production process.

Human capital: It is often said that the chief asset possessed by the poor is their own labor. Human capital refers to the labor available to the household: its education, skill, and health.

Financial and **Substitutes:** Financial capital refers to stocks of money to which the household has access. This is chiefly likely to be savings, and access to credit in the form of loans.

Social capital: The term social capital attempts to capture community and wider social claims on which individuals and households can draw by the virtue of their belonging to the social groups of varying degrees of effectiveness in society at large. Social capital is defined as 'reciprocity within communities and between households based on trust deriving from social ties' (Ellis, 2002; DFID, 1999).

3.3. Credit

3.3.1. Concept and Definition

According to Oxford dictionary of English (1998), credit is defined as the ability of a customer to obtain goods and services before payment, based on the trust that payment will be made in the future. Similarly, According to Encarta (2009), credit is a term used to denote transactions involving the transfer of money or other property on promise of repayment, usually at a fixed future date.

Micro credit refers to the process of lending small amount of money, without collateral to help poor people to become entrepreneurs (Gebrehiwot, 1998). Microfinance is the delivery of financial services (credit, saving, insurance, etc) to the large number of productive but resource

poor people in urban and rural areas, including micro, small and medium enterprises in cost effective and sustainable way (Wolday, 2001).

As Van Maanen (2004) indicated, in the field MFI practitioners make no sharp distinction between micro credit and microfinance. Originally, micro credit was used for very small loans to poor individuals, to finance income-generating investments on such as a cow, and street or market vendors. When MFI started to add other financial services such as savings (and later insurance), the concept of microfinance introduced to make it clear that the product range was broader than just credit. Microfinance is also used for larger loans for small business, such as tools and equipments for a repair shop, trading stock for small shops or second hand car. There is however, no sharp line dividing the two. MFIs are free to use the label they want. From a management point of view the distinction is relevant-because in the case of large loans and a wider range of financial services the staff of MFI need to have banking skills than in the case of micro credit only. The same source explained the concept of credit as follows:

i. Credit is not a new concept

Credit is not a new concept among the poor. For example, the millions who are not linked to credit unions or either microfinance institutions often borrow money from relatives or friends, and sometimes substantial amount, to pay for proper funerals or a proper wedding in accordance with local traditions.

ii. Credit is not the same as debt

Debt is a burden, sometimes even a millstone around the borrower's neck. Credit, provided it is well structured, is a stepping-stone to a sustainable higher income level. Worldwide credit is seen as essential oxygen for economic growth. There is no successful business without a credit line in a credit history.

In addition, debt is a credit that has turned sour. Making credit available to the poor full attention to present stepping stones from becoming milling stones that requires careful and prudent management, especially because one is dealing with people below the poverty line. For these people failure is a disaster that crushes both self- respect and hope.

iii. Credit is different from capital

There is a common misconception that if only sufficient agricultural credit were made available to farmers the lagging agricultural sector could be regenerated. This belief stems from the basic misunderstanding of the concept of "Credit" and "Capital" Many believe through additional supply of "credit" additional capital necessary for developing can be created.

3.3.2. Changing Paradigms on Rural Finance

For a long time, governments, international organizations, on governmental organizations (NGOs) and development banks have invested vast amount of resources to provide credit to peasants and commercial farmers in order to accelerate development. Mean while, the question of how to best develop effective and efficient rural financial policies has been debated as development perspectives were changing. Since 1950s, two perspectives have crystallized, from which two distinct financial policies have been developed (Ellis, 1996; Vogel and Adams, 1997 and Alvarado, 1996 as cited in Tapella, 2002).

Finally, rural credit merged as an 'instrument' (in order to access seeds, fertilizers, labor, technology, land irrigation systems aimed at reducing poverty by increasing productivity and incomes (Braverman & Guasch, 1986 as cited in Tapella, 2002).

3.3.3. Brief History of Microfinance Institutions

In the history of credit, according to Van Maanen (2004), the first name that comes to mind is that of Friederich Wilheim Raiffeisen the son of German church minister who became mayor of small German city of Weyerbush. He was triggered by the fate of small farmers during the famine of 1846/47. The badly needed credit to climb out of their poverty and had no access to normal banks, but only to moneylenders who charged usurious rates. He convinced these farmers' to take their future in to their own hands, to form small cooperatives, to pool their savings and to convert them to loans.

Similarly, as Gebrehiwot (1998) discussed, microfinance evolved in the 1980s as a development approach that intends to benefit the (active) poor largely as responses to the failure of targeted subsidized cheap credit programs. In such programs benefits mainly went to those with connections and influence rather than the target beneficiaries; large loan losses accumulated,

and frequent, re-capitalization were required to continue operating, suggesting the need for new approach. The new approach considers microfinance integral part of the financial system emphasizes sustainable institutions operating on market principles to serve the poor (as opposed to subsidized loon to target populations) and recognizes the importance of both credit and saving services.

On the other hand, a pilot project led by professor Yunus in the late 1970s had demonstrated that the poor can be bankable and that high recovery loan rate can be achieved under non-collateral lending leading to the establishment of the Grameen Bank (in 1973). Grameen Bank became a highly and use compulsory saving publicized success story. Governments, donors, NGOs, etc. found both the new approach to finance and MFIs appealing. This led to efforts establish Grameen Bank- type institutions, resulting in the proliferation of MFIs. Generally, MFIs focus on the active poor, give emphasis to women, provide group- based lending, and use compulsory savings, joint liability and social sanctions.

The same resource revealed that MFIs in Ethiopia are rather new. The early formal microfinance activity is the DBE pilot credit scheme, initiated in 1990 under the Market Towns Development Project., implemented in 1990. While many NGOs had credit schemes for many years, NGO programs that emphasize both credit and saving began in early 1990s. For example, ORDA Credit Scheme of Amhara (ORDA) (now Amhara Credit and Saving Institution, ACSI) was launched in 1997; REST Credit Scheme of Tigray (REST) (now Dedebit Credit and Saving Institution, DECSI) was launched in 1993; Sidama Credit and Saving Scheme (now Sidama Microfinance Institution) was established in 1994; Oromia Credit and Saving Scheme (now Oromia Credit and Saving Share Company) started in 1996. According to NBE (2010) currently, there are 30 MFIs in the country, registered and operating in accordance with proclamation No. 40/1996. And was latter on revised in the year 2009.

3.3.4. Characteristics of Rural credit

According to Padmanabhan (1996), the characteristics of rural credit can be described as the following:

Command over resources: Although farmers report a "need" for credit, it is clearly not a

need in the same sense as physical inputs like fertilizer, seeds, Pump sets etc. Credit is not an input into the production process as these ingredients are. Money obtained through credit provides a command over resources and thus removes the financial constraint, if it was present prior to receipt of it.

Credit is not income: Just as money is not wealth, credit is not income, although credit could lead to income. What is important in the borrower's "debt capacity", i.e. his ability to pay back a given some borrowed, after putting in to productive use. When lenders and borrowers credit in this light, it leads problems for both.

Credit is fungible: Fungibility implies that different units of a commodity are perfectly interchangeable. Since credit is received in the form of money, it has the same property as money. Fungibility renders it difficult to evaluate the impact of credit programs.

Credit gravitates to borrowers- preferred activities: Resources obtained through credit often tend to flow towards activities where the borrower has maximum preference. Priorities visualized by the borrowers are given precedence over the situations of the lending agency, irrespective of the type of control, the later exercises over its borrowers. This makes credit intervention by government in credit markets through administrative fiats often ineffective. For the same reason financial institutions which meet only the partial credit needs of farmers fail to make an impact.

Need for mutual confidence: Confidence is fundamental to finance. Absence of mutual confidence between borrowers and lenders increase transaction costs.

Reducing price pushes up demand: The price of credit is the interest payable. The issue of fixing the appropriate price for capital is very complex and is widely debated. As in the case of any other commodity, money is fungible and can be put to a number of uses. Consequently, the pricing of credit has a much wider impact across the economy.

3.3.5. The Need for Credit

According to Kebede (1982), the very poor in developing countries commonly lack funds to increase production and improve their living standards. As impact studies have demonstrated,

credit to the poor is more than simple credit. If it is well structured- leads not only to higher income level but also to improved nutrition, clothing and housing. Membership in a proper MFI program leads to the empowerment of women, horizontal solidarity, low child mortality, a lower birth rate, more emphasis on education and health care for children, greater participation in social and political activities. In short, credit is a door opener that brings a whole spectrum of development within reach, step by step (Van Maanen, 2004).

Other authors have also emphasized on the need for credit. As Glehounou and Galibia (1999), indicated agricultural development requires the existence of credit system capable of supporting production by farmers through the acquisition of inputs and other factor of production. Any attempt geared towards modernizing the agricultural sector should be associated with large infusion of credit to finance certain production of requisites like fertilizer, improved seeds, insecticides, better implements, additional labor and so on (Kebede, 1982).

3.3.6. Role of Credit

The most crucial aspect of financial markets for rural producers is their degree of access to credit (Meehan, 1999). Micro enterprise plays a dominant role in any developing country. Potentially it offers almost unlimited opportunities to produce goods and services, using local resources and generating self- employment opportunities. However, most small entrepreneurs live in remote rural or semi-urban areas and are relatively poor. As a result, they are trapped by a vicious circle of low productivity, low savings, low investment and low income. The only way this cycle can be broken is to increase their investment capacity, for example by introducing credit for making investment, thereby enhancing savings potential (Wijesundra, 1996).

Micro credit is not a panacea for poverty (Van Maanen, 2004; Wolday, 2003). Poverty as it manifests itself world wide it is more than having no money, no regular income, and no access to credit. It affects all aspects of life and is the result of many circumstances beyond the control of the poor. The manifold aspects of poverty lead to the obvious conclusion that the fight against it needs an "integrated approach that covers all dimensions." Furthermore, Micro credit focuses only on one aspect: access to credit. That focus is a vital importance but is not as such sufficient to solve all other deficiencies. Moreover, poverty cannot be captured in terms of

money and income alone. There are three factors together – poverty, exclusion and downloading–that define the context in which poor people must find the energy to take their economic future in to their own hands, against all odds. While micro credit offers them an entry in to the (informal) economy, it does not pave the way or remove other obstacles (Van Maanen, 2004).

3.3.7. Sources of Credit

Micro credit or microfinance is about banking the unbankables, bringing credit, saving and other essential financial services within the reach of hundreds of millions of people who are too poor to be served by regular banks, in most cases because they are unable to offer sufficient collateral for banks that is valid reason to refuse credit. Quite often, they do that also because the loan amounts are too small and therefore too expensive to handle. In general, banks are for people with money not for people with out. Banks are not for slum dwellers and for people who cannot read and write. They must look elsewhere for allies (Van Maanen, 2004).

According to Carney (1998), the supply of rural credit is divided in to "formal" and "informal" sectors. The former, includes banks, government agencies, cooperative credit unions, NGOs and, frequently in the past provide credit and deduct repayments at source from the following year's crop sales.

On the other hand, Bedard (1989) stated that there are three forms of banking: formal banking done in the public center by commercial banks; semi formal banking, done on the level of socio-economic by saving and credit cooperatives and the other forms of participatory banking; and informal banking, done in the non formal economy by the grass roots organization, self-managed credit unions, tontines and so on.

The informal sector is made up largely of individuals (traders, land lords or farmers themselves) who lend money as a business. They are traditionally as being usurious and in a position of considerable power due to lack of local competition, although would dispute that (Carney, 1998). In addition, because of the high transaction costs associated with serving a largely dispersed population and the high risk associated with agriculture, formal financial intermediaries have avoided rural areas (Paxton and Furman, 1999). Similarly, stated that the

formal systems are the least well adapted to poor populations because of their geographical, cultural economic and organizational remoteness; semi-formal and informal systems are more appropriated and more appreciated but bear higher costs than formal system because of the complexity involved in mobilizing savings (Bedard, 1989).

In credit area recent changes have been due both to the reform of marketing parastatals and increased criticism of public sector programs characterized by very high costs and poor recovery rates. In loosing their monopolistic position, parastatals have lost presumed competitive advantage in credit supply (if principal and interest recovery are de linked from output sales the risk to parastatals is as high as to any other body providing credit) and governments facing huge bills for subsidizing credit programs in turbulent economic times have withdrawn (Carney, 1998).

3.4. Conceptual Framework

The conceptual framework of the study, which focuses on the role of ACSI rural credit in reducing vulnerability to food insecurity emanates from the following theoretical and empirical backgrounds.

The term vulnerability context draws attention to the fact that the complexity of its influence is directly or indirectly responsible for many of the hardships faced by the poorest people in the world. It is common for them to be a vicious circle in action. The inherent fragility of poor people's livelihoods makes them unable to cope with stresses, whether predictable or not. It also makes them less able to manipulate or influence their environment to reduce those stresses. As a result, they become increasingly vulnerable and even when trends move in the right direction, the poorest are often unable to benefit because they lack assets and strong institutions working in favor of them (DFID, 1999).

The same source indicates that factors that make up the vulnerability context are important because they have a direct impact upon people's asset status and the option that are open to them in pursuit of beneficial livelihood outcomes. Assets are both destroyed and created as a result of the trends, shocks and seasonality of the vulnerability context.

Increasing assets may well lead to an initial reduction in poverty levels, but this improvement is not sustainable unless vulnerability levels are reduced proportionally (Meehan, 1999). Generally the greater people's endowment, the more influence they can exert. Hence, one way to achieve empowerment may be to support people to build assets (DFID, 1999).

Moreover, food security is core dimension of vulnerability (DFID, 1999). Improved access to financial services is one of the interventions to address the food security problem in Ethiopia (Wolday, 2003).

In general, vulnerability context is responsible for the change in the life of the rural people be it for upward or for downward changes. Similarly, past records and contemporary facts reveal that the people of Oromo administrative zone in general and the study Woreda in particular are vulnerable to chronic food insecurity. As a result, majority of the population is dependent on continuous food aid.

Since the problem of food insecurity is persistent and challenging, the poverty reduction strategy will not be achieved unless food security is not ensured. To change the negative trend, the regional state and other partners such as NGOs are exerting a multidimensional effort. One of the ongoing interventions is aimed at alleviating the financial shortage of the rural poor by provision of financial services to the same. As a result, the poor can use the credit to buy inputs, to diversify and intensify agriculture and thereby increase production and productivity as well as income.

In the process of increasing production and income using the credit, farmers can save money and build asset. Therefore, vulnerability of the rural households to food insecurity is expected to reduce with the contribution of the formal rural financial service. To confirm this conducting impact assessment of the credit provision is vital.

4. Objectives of the Study

The overall objective of the study is to assess the role of ACSI program credit in reducing rural household's vulnerability to food insecurity through investigating its impact on household's income source diversification and asset building and furthermore assess the association

between households' participation in the program credit and level of vulnerability to food insecurity.

The specific objectives of the study are to:

1. identify determinants of diversification of income sources at household level;
2. examine the role of ACSI rural credit in building household assets; and
3. Assess the association between households' participation on ACSI rural credit services and level of households' vulnerability to food insecurity, in the study area.

a. Research questions

- What are the determinants of diversification of income sources at household level?
- What is the role of ACSI rural credit in building household assets?
- What is the association between households' participation on ACSI rural credit service and level of vulnerability to food insecurity?

b. Scope and Limitation of the Study

Despite the availability of formal and informal sources of credit, the study focuses only on the formal rural credit (ACSI). ACSI is the largest institution engaged in provision of rural financial service in the region. In addition, the study will address a single dimension of poverty. That is, the role of rural credit in reducing households vulnerability to food insecurity. The reasons being, one of the five clusters of poverty is vulnerability (Chambers, 1989). And ensuring food security has great contribution in achieving poverty reduction. There is also mutual reinforcing relationship between vulnerability and food insecurity (Ayalneh, 2002).

In general, the limitations of the study are the delimitation of the study area to a single Woreda and 170 sample households, primary data collection based on recall of the respondents and the use of cross sectional data, for the obvious reason that there is a financial and time resource constraint. Hence, inter-temporal variations are not taken care-of in this study.

5. Study Methodology

5.1 Background of the Study Area

Bati Woreda is found in Oromo Administrative Zone of Amhara National Regional State. The Woreda is located on the geographical coordinates of 11° 11' and 11.183° N Latitude and 39°13' and 40° 1' E Longitude with elevation of 1,502 meter above sea level, about 420 km from Addis Ababa and 92 Km from Kemissie to the North east on the main road to Djibouti. It has a total area of 1,132.16 Km^2 comprising of 23 rural Kebele (the smallest administrative unit in the region). The total population of the Woreda projected for 2007 is 107,387 (CSA, 2007). Bati is bordered on the south by Dewe-harewa, on the west and north by the South Wollo Zone, and on the east by the Afar Region respectively (WoAD, 2010).

Based on the 2007 national census conducted by the Central Statistical Agency of Ethiopia (CSA), this woreda has a total population of 107,387, of whom 53,731 are men and 53,656 women; 16,710 or 15.56% are urban inhabitants. With an area of 1,132.16 square kilometers, Bati has a population density of 94.85, which is less than the Zone average of 131.78 persons per square kilometer. A total of 23,417 households were counted in this woreda, resulting in an average of 4.59 persons to a household, and 22,531 housing units

5.2. Design of the Study

To meet the objectives of the study, the researcher has employed combination of both quantitative and qualitative methods (including case studies of selected households). Cognizant of the fact that, they have complementary role in capturing relevant data from respondents and it had been helpful in analysis and interpretation of the data. In addition, the approach was quasi-experimental where clients of ACSI are to be compared with comparison group (i.e. eligible but non clients of ACSI).

5.2.1. Sampling Techniques and Procedures

Exploratory study was carried out before conducting the sampling technique and the formal survey. The exploratory study has helped to have better understanding of the Wereda in the context of the objective of the study.

During the exploratory study, the focus would be in identifying the vulnerable Kebele, their location, agro-ecological differences, socio-economic condition and access to infrastructures and services. This was done to address the highly vulnerable Kebele, to establish comparison groups of similar Kebele, and in order to minimize selection biases among the same and thereby differentiate the role of the credit in reducing vulnerability to food insecurity among households.

The nature of the study requires a five stage stratified random sampling technique. At stage one the Woreda was selected purposively for three main reasons. First, the Woreda was selected because, it is located on the vulnerable zone of the region: Oromo Administrative Zone, and it was known for its high population density, low average land holding, low production, frequent drought, high dependence on food aid. Second, for the fact that formal credit service (one sub branches of ACSI), with relatively long service record and higher number of clients of ACSI are found in the Wereda. Third, previous working experience and exposure of the researcher to the Woreda; this would obviously help in building confidence, facilitating the study, and identifying facts.

At stage two, stratifying the whole (23) Kebeles of the Woreda in to two strata was conducted based on the degree of vulnerability of the Kebele. Since the Woreda as a whole is vulnerable, the stratification of the Kebele is to be done on a relative basis. The basis for the stratification was the length of the period of food shortage in the Kebele. In this regard, Kebeles suffering from food shortage for more than six months of the Kiremt season (April to September) are to be stratified as highly vulnerable kebele. The rest of the Kebeles with food shortage for less than four months were stratified as less vulnerable Kebele. At stage three, selection of two Kebeles from the highly vulnerable Kebeles was employed using simple random sampling technique. At stage four, stratification of households in to clients and non-clients were conducted. At stage five, a total of 170 sample households (108 samples from ACSI clients and 62 from non- client HH too) comprising of clients of ACSI and eligible but non-client households was drawn using simple random sampling proportional to size. The eligible but non-client households were considered as comparison group.

5.2.2. Methods and Procedures of Data Gathering

Qualitative and quantitative data's were collected from secondary and primary sources. Secondary data were collected from education and research institutions, ACSI headquarter and its sub branches, Zonal office of agriculture development, Woreda office of agriculture development, Zonal office of disaster prevention and food security, Process of disaster prevention and food security, BoFED, WoFED, Wereda administration office, and other relevant secondary information sources. The data collection was conducted using unstructured checklist.

The primary data includes cross sectional data concerning household characteristics, resource endowments including land and livestock, asset ownership, amount and sources of income, type of technologies used, production and diversification of crop and livestock, and sales of products, level of vulnerability to food insecurity, perception on credit, alternative sources of credit, involvement in credit and saving activities: type and amount of loan received, loan period, collateral, repayment of loan, utilization of loan, and amount saved etc. using structured interview schedule by identifying, selecting and conducting relevant interview to the intended respondents i.e. clients and non-clients separately. Moreover, data with regard to clients' perception on credit was collected by developing appropriate scale for selected positive and negative attributes of credit to be rated by the respondents.

The interview schedule was translated into vernacular language to facilitate and ease of communication among enumerators, sample households, and the researcher. In addition, it was piloted by the researcher and if found necessary, would modified before conducting the formal survey.

Data collection using the interview schedule has been conducted by enumerators. The enumerators were recruited on the basis of their competence to collect data. Accordingly, those who had good command of the vernacular language and with experience in data collection in similar studies were given priority and the researcher had given theoretical and practical training related to data collection to the enumerators.

The practical training on the data collections were conducted in the class on households of the Kebeles selected for the study. During the practical training, the researcher had a close follow up and handled detail discussion with the enumerators to solve problems encountered in the process of the exercise. During the exercise, further testing of the interview schedule was conducted simultaneously, and modified as necessary.

The data collected includes general description of the sample Kebele, food sufficiency in the locality, how the community understand vulnerability and the causes and coping mechanisms of vulnerability, the overall asset ownership, the types of household assets created by credit and important in reducing vulnerability to food insecurity, the basis for wealth ranking, the performance of borrowers in repayment of loans, the utilization of the borrowers for intended purpose, the reasons for borrowing and not borrowing, the role of ACSI rural credit in reducing vulnerability to food insecurity, problems encountered with regard to ACSI services, possible solutions and other relevant data. Similar points were raised and discussed with key informants.

The key informants interviewing had also assisted in identifying the criteria for selection of the comparison group before conducting simple random sampling proportional to size.

5.2.3. Data Analysis and Interpretation Techniques

For the purpose of this study both the qualitative and quantitative data were collected from both primary and secondary sources using interview, focus group discussions and document review techniques. Primary data was collected from 170 sample households using structured questionnaire through interview methods so as to got in depth information about the household level changes and perceptions. In addition to the household interview, six focus group discussions (one at each sample Kebeles) were conducted to obtain additional information and more clarifications on selected issues that can substantiate the household interview questions. The focus group members constituted from the kebele task force, village level watershed committees, youth, female headed households, elders and development agents. Semi-structured questions were prepared and used during the discussions in order to triangulate the household level information. Moreover, key informants of knowledgeable

individuals both from the community and woreda level concerned office were also used to obtain further clarifications on selected important issues.

Furthermore, information from implementing agency staff members (15 experts from sample Woreda) who had a direct involvement with the Credit coordination was gathered through structured questionnaires in order to get supportive information regarding the program. The necessary secondary data was collected from various concerned offices by referring into various documents available at each implementing office. Moreover, field level observations were also been made and the necessary pictures taken by the researcher.

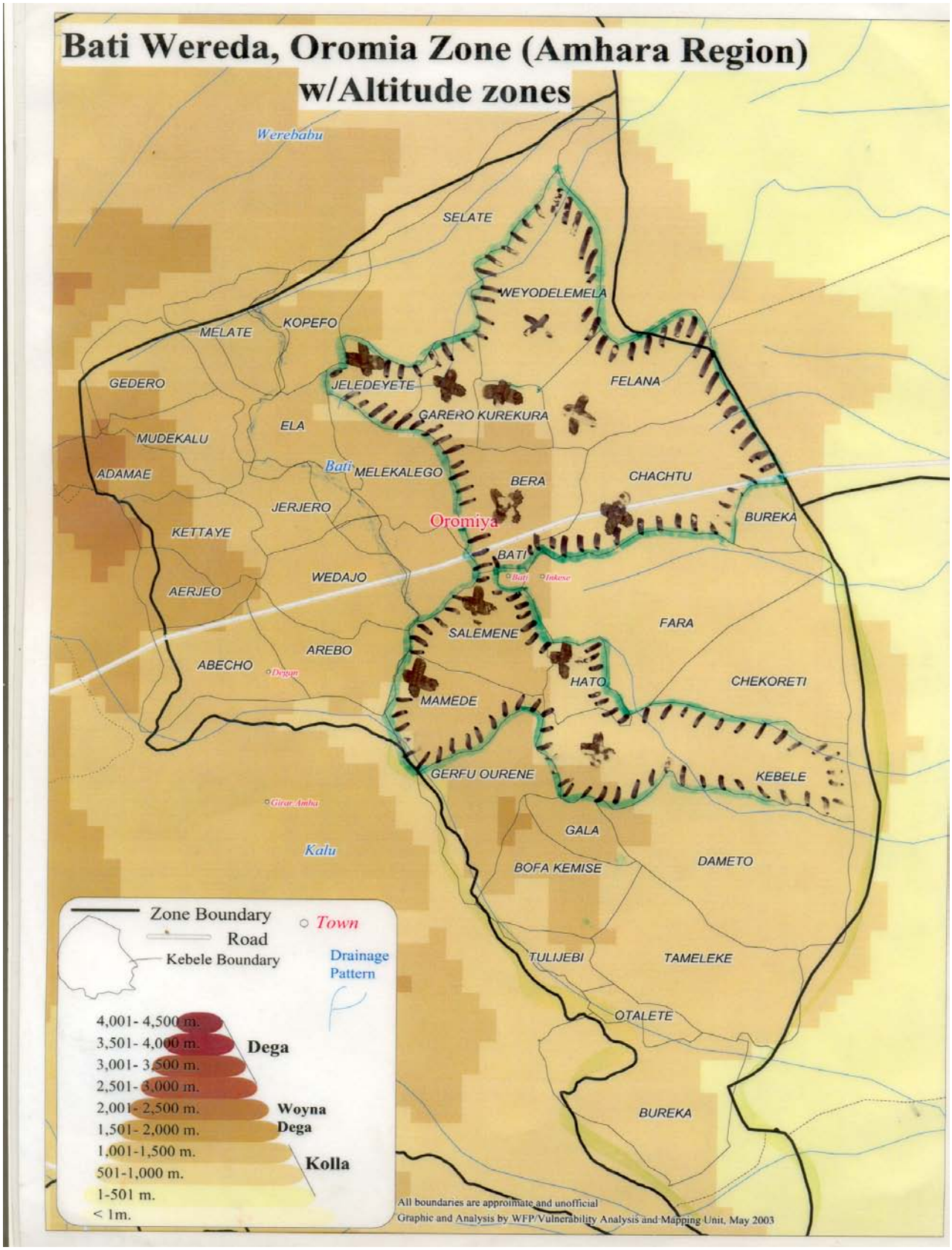
With regard to the data gathering procedure, the household interview were conducted using 6 data collectors/ enumerators who were trained for two days on data collection techniques and on the detail contents of the questionnaire before their field work. These enumerators were deployed at each kebele and each of them were expected to cover 5 households' interview per day. The focus group discussion and key informant data were collected by the researcher himself with the assistance of the enumerators.

For the purpose of curiosity, the prepared questionnaire for both the household interview and the implementing agencies were pretested before the actual data collection was being exercised. In this regard, the household interview questionnaires were tested on 8-10 households in Bati woreda/district at one nearby kebele to get feedback from the field work and take the necessary amendments accordingly. With regard to the sector office questionnaire, a sort of group discussions were carried out to review the questions by a team of experts in Bati ORDA office to shape according to the comments obtained.

The data collected using the above mentioned techniques was organized, classified, summarized and presented using various which include tabular, graphs, percentage, mean, standard deviation, frequency distribution, ratio system etc. The researcher had used SPSS techniques in order to analyze, correlate and describe the data using the above mentioned descriptive statistical parameters. The qualitative data were analyzed using narrative descriptions and categorizations.

For the targeting variables, descriptive statistics and mean comparison techniques were mainly employed. In addition to this, a logit regration statistical tool was used to test the linearity of the given variables' association with each other. The analysis of the program impacts concerning the household assets had created and/or protected during the project period were analyzed

using the mean difference comparison techniques so as to measure the degree of changes obtained during the "before and after" the program.



Pic 1. Map of the study area

6. RESULTS AND DISCUSSION

Under this chapter, case studies of selected client households are first discussed. Following the discussion pertinent to households' income diversification, assets, and level of vulnerability to food insecurity are presented.

a. Typology of Income Sources and Households' Annual Mean Income

In this study, the typology of income sources of sample households were broadly classified in to six categories: agriculture, self employment, formal employment, informal employment, relief, and remittance. In each income source category, a number of specific income sources have been considered. The result shows that agriculture income source consists of crop production, livestock production, tree farming and sales of grass and crop residues. Similarly, self employment consists of shop keeping, petty trade (grain, livestock, coffee, spices, salt, etc.) food processing, fuel wood and/or charcoal sale, handicraft (blacksmithing, embroidery, pottery, etc.), cactus and/or other wild fruits sales, services (hairdressing, traditional healing, etc.). Formal employment refers to employment in government or non-government organizations and local election position (paid). On the other hand, under informal employment, housemaid, manual labor, and labor migration were considered. Moreover, PSNP refers to PW and/or DS. Remittance refers to money transferred from relatives. Accordingly, the rate of participation of sample households and the total annual mean income of a household generated from each specific income source for the year 2009/10 are indicated in their respective income source categories (App. Table 5).

In respect to the broad income source categories, the result shows that different income sources have a varying contribution to number of earners and annual overall mean income of sample households. Accordingly, agriculture stands first in contributing to the large number of earners for both sample clients and non-clients and accounts for 99% and 94%, respectively. PSNP in the form of PW and/or DS follows agriculture and accounts for 88% and 92% of number of earners of sample clients and non-clients, respectively. Of the sample clients and non-clients 29% and 18%, respectively, have participated in self employment activities. Moreover, 23% and 15% of the sample clients and non-clients, respectively, have participated in informal employment. On the other hand, the lower percentages of participants earned income from remittance and formal employment. Remittance consists of almost 6% of the number of

earners of sample clients and non-clients. Cognizant of this fact, the sample households were merely rural households, households that had participated in formal employment were much less in number as compared with the number of household heads that have participated in other income source categories. It accounts for 2% and 3% of the number of sample clients and non-clients, respectively. Moreover, the result reveals that total annual mean income for clients and non-clients obtained from all income sources is 4199.89 EB and 2769.60 EB per household, respectively. This indicates that the annual mean income of sample clients was higher than of annual mean income of sample non-clients by 52%. The analysis indicates that except for formal employment there is significant difference in annual mean income obtained from each income source categories at ($p<0.01$). Moreover, there is significant difference in the overall annual mean income obtained from all sources between the two groups at ($p<0.01$), Table 2.

In terms contribution of each income source to the total annual mean income of sample households, the results reveal that the major contribution comes from agriculture accounting for almost 62% of the total annual mean income for both clients and non-clients. Next to agriculture important income source is PW and/or DS, it contributes to 14% and 16% of the total annual mean income of clients and non-clients, respectively. While self employment and informal employment fell in the middle, remittance and others contributed the lowest proportion to the annual mean income of both sample clients and non-clients (Fig.1-3)

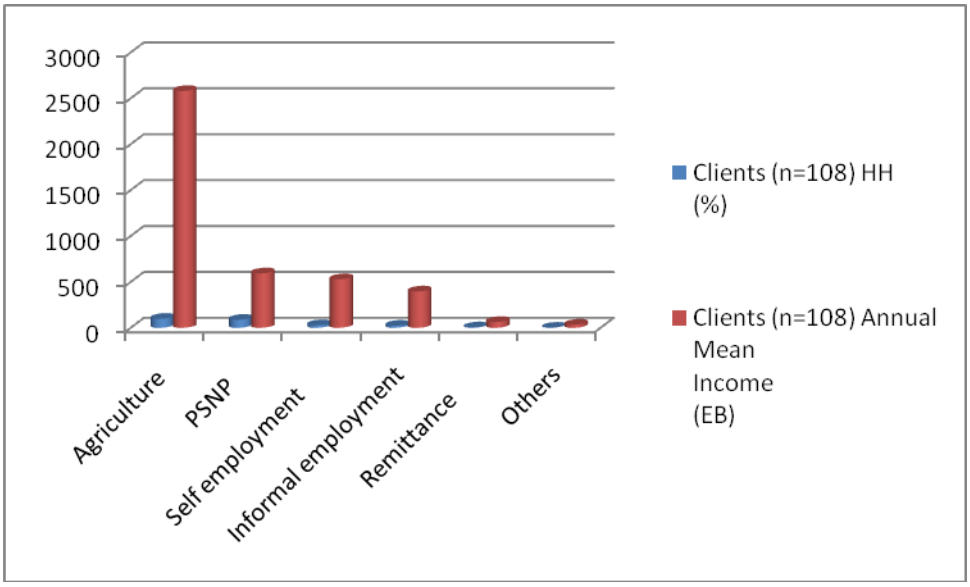
In summary, the results indicate that as compared to non-clients, except for remittance, clients generate larger annual mean income from all income sources resulting in higher overall annual mean income. Furthermore, the overall annual mean income has fairly strong positive correlation with households' participation in ACSI program credit ($p<0.01$, $r=0.648$)

Table 2. Percent distribution of households by income sources and total annual mean income per household

Income source category	Category				Total(N=170)		t value	p value
	Clients(n=108)		Non-clients(n=62)					
	HH (%)	Annual Mean Income (EB)	HH (%)	Annual Mean Income (EB)	HH (%)	Annual Mean Income (EB)		
Agriculture	99.07	2580.77	93.55	1710.11	97.06	2263.24	12.877***	0.000
PSNP	87.96	594.48	91.94	435.97	89.41	536.55	6.988***	0.000
Self employment	28.7	529.24	17.74	284.75	24.71	440.07	2.957***	0.004
Informal employment	23.15	396.56	14.52	153.61	20.00	307.96	4.061***	0.000
Remittance	5.56	63.89	6.45	167.74	5.88	101.76	1.795***	0.000
Others	1.85	34.95	3.22	17.42	2.35	28.56	0.408	0.684
Total	100	4199.89	100.00	2769.60	100.00	3678.24	14.589***	0.000

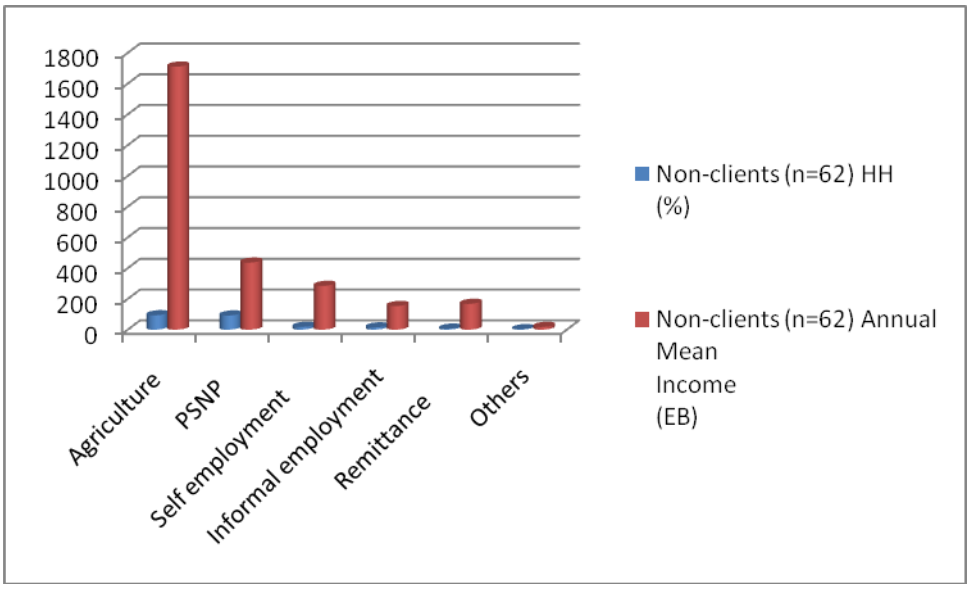
Note: *** Significant at 1% probability level, r=0.648

Source: own survey, 2011



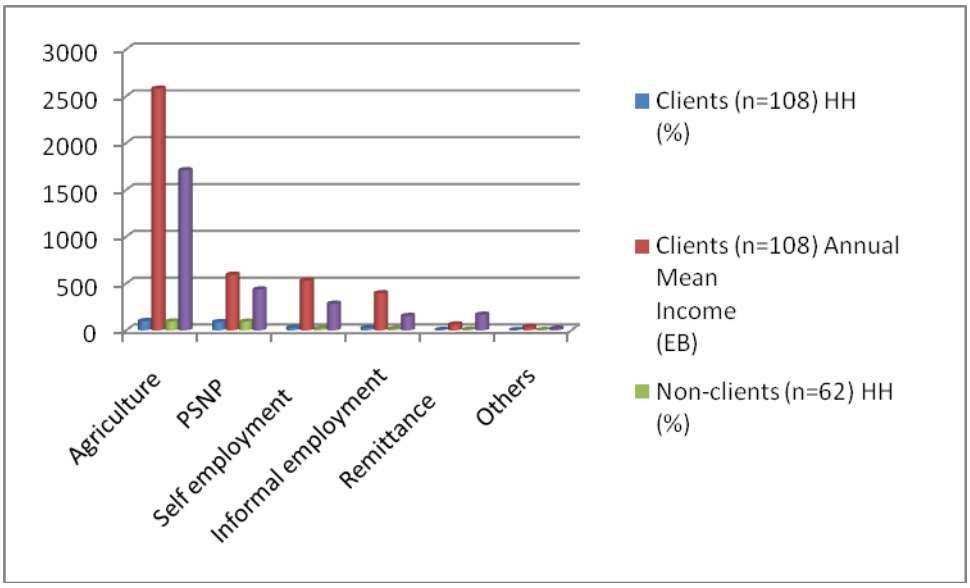
Source: own survey, 2011

Figure 1. Percent contribution of different income sources to annual mean income of sample



Source: own survey, 2011

Figure 2. Percent contribution of different income sources to annual mean income of sample non-clients



Source: own survey, 2011

Figure 3. Percent contribution of different income sources to annual mean income of the sample population

b. Clients' Annual Income Before and After Participation in ACSI Program Credit

For sample clients, analysis of variation in total annual mean income between the year 2009/10 and the immediate year just before participating in ACSI program credit was conducted. This was done first for all income sources regardless of the year when the clients have participated in the program credit. Alternatively, considering a two year maturity period of loans (one loan cycle), analysis of the overall annual mean income variation before and after participation in the program credit was made by excluding clients that have participated in the program credit after the year 2008. With regard to the first analysis made that considers all clients, there was no large difference between the percentage of sample clients that obtained their proportion of income from agriculture before and after participation in program i.e., 96% and 99%, respectively. The slight difference observed came only in addition of number of earners form agriculture after participation in the program (i.e., three clients). These three clients were and are landless before and after participation in the program, but after borrowing from ACSI they were able to participate in livestock rearing activities and generate some proportion of their income from same.

In terms the amount of income derived from agriculture before and after participation in the program, client households' annual mean income has raised from 1803.61 EB to 2580.03 EB (increased by 43%). This is found to be statistically significant increment at ($p<0.01$). And it has strong association with the household agricultural package introduced by the WoAD and implemented by the sample clients through credit obtained from ACSI (Table 9). Next to agriculture, income obtained from PSNP (PW and/or DS) contribute sizable proportion to the overall annual mean income of sample clients. It contributes 41% and 88% to the annual mean income of clients before and after program participation, respectively. The household annual mean income obtained from PSNP before participation in the program was 284.11 EB and raised to 594.30 EB (increased by 109%) after participation in the program which is statistically significant increment at ($p<0.01$).

The marked difference observed in income generated from PSNP and/or PW/DS was mainly attributed to the wide opportunity created by the Safety Net Program in the Woreda. Large proportions of residents of the Woreda as a whole and the sample Kebele in particular have participated in Safety Net Program on the basis of PW and DS. From the focus group discussion

made we learnt that though the Safety Net Program was open for both clients and non-clients, borrowing from ACSI is one of the push factors for clients to participate actively in the program in order to repay their loan.

Self employment and informal employment also have considerable contributions to the overall income of the households. However, in these income sources there was little increase in number of clients participating in same (2% increment for self employment and 1% increment for informal employment). On the other hand, after participating in ACSI program credit, households annual mean income obtained from self employment has shown large increment (i.e., 176.96 EB or 50% increment) and found to be statistically significant increment at ($p<0.05$).

The result also shows that after participating in the program credit households annual mean income from informal employment has increased only by 24.07 EB (i.e.,7% increment) and found to be statistically insignificant difference. Moreover, as compared to other income sources, income obtained from remittance and others was low and statistically insignificant in terms of the number of earners from same and the contribution to the overall client households' annual mean income before and after participating in ACSI program credit (Table3).

In summary, clients have gained much more income after participating in ACSI program credit (in the year 2009/10) as compared to the income they obtained during the immediate year just before participating in the program. The annual mean income the clients obtained in the year 2009/10 was 4198.99 EB which was 46% higher than their annual mean income before participating in the program. Moreover, the result revealed that there is statistically significant difference in annual mean income for all clients before and after participation in ACSI program credit at ($p<0.01$). Similarly, by excluding clients those who have participated in the program after the year 2008 (i.e., for 62% of the sample clients the annual mean income increment was 44%), there is statistically significant difference in annual mean income of clients before and after participation in ACSI program credit at ($p<0.01$).

Table 3. Distribution of clients and their annual mean income from each income source before and after participation in ACSI program credit, (N=108)

Income source category	Income Before Participation			Income After Participation				
	HH No.	%	Annual Mean Income (EB)	HH No.	%	Annual Mean Income (EB)	t value	p value
Agriculture	104	96.3	1803.61	107	99.07	2580.77	6.508***	0.000
PSNP	44	40.74	284.11	95	87.96	594.48	7.973***	0.000
Self employment	29	26.85	352.27	31	28.7	529.24	2.445**	0.016
Informal employment	24	22.22	372.49	25	23.15	396.56	1.000	0.320
Remittance	4	3.70	31.48	6	5.56	63.89	1.304	0.195
others	0	0.000	0.000	2	1.85	34.95	1.112	0.269
Total for all clients	108	100.00	2879.07	108	100.000	4199.89	8.554***	0.000
Total for clients who borrowed before the year 2008	67	62.03	2997.00	67	62.03	4322.15	6.071***	0.000

Note: ***, ** Significant at 1% and 5% probability level

Source: own survey, 2011

c. Household Annual Income variations

The results indicates that for sample clients and non-clients there is variation in annual mean income obtained in the year 2009/10 as compared with income obtained in the year 2009/10. Accordingly, 61% and 39% of the sample clients and non-clients, respectively, responded that there was an income variation between the two indicated years (Table 4). While the remaining sample households reported that their income stayed same. The result shows that there is significant difference between the percentages of clients and non-clients reported that there is variation in their annual mean income between the specified years at ($p<0.05$). Of the sample clients that reported there is variation in annual income obtained, 91% achieved annual mean income increment of 416.08 EB (11%) on the latter year. On the contrary, 9% of the sample clients reported that their annual mean income has decreased by 18.06 EB (0.4%) on the later

year. Similarly, of the sample non-clients, 71% reported annual mean income increment by 200.65 EB (8%). On the contrary, 29% of the sample non-clients had annual mean income decrement by 35.48 EB (1%), Table 4.

In general, the result reveals that as compared to the number of non-clients, more clients reported that there was an income variation between the year 2008/09 and 2009/10 and there is statistically significant difference between the two groups at ($p<0.05$). Moreover, clients have achieved more income increment on the latter year, that is, 52% higher than increment obtained by non-clients and found to be statistically significant difference at ($p<0.05$).

According to respondents, the reasons for income variation were additional income obtained from agriculture (crop and livestock) and PW and/or DS. Clients have reported that they were able to buy improved seeds and commercial fertilizers that enabled them to achieve better crop production. Furthermore, they have obtained additional income from sheep and goat sales through participating in household agricultural package supported by the program credit. Moreover, clients responded that they have obtained more income from PW and/or DS.

On the contrary, sample non-clients reported that there is more income variation in terms of decrement that is 97% higher than of sample clients but found to be statistically insignificant difference.

Table 4. Households' income variation between the year 2009/10 and 2008/09 Category

	Income variation		Income increased			Income decreased		
Category	Yes		HH		Annual mean increased (EB)	HH		Annual mean decreased (EB)
	No.	%	No.	%		No.	%	
Clients (n=108)	65	60.19	59	90.77	416.08 (11%)	6	9.23	18.06 (0.4%)
Non-clients(n=62)	24	38.71	17	70.83	200.65 (8%)	7	29.17	35.48 (1.3%)
Total (N=170)	89	52.35	76	85.39	337.51 (10%)	13	14.61	24.41(0.67%)
	$\chi 2=12.629$***				t=2.834**			t=-1.013

Note: ***, ** Significant at 1% and 5% probability level

Source: own survey, 2011

d. **Income Source Diversification**

Different methods are used in empirical literature to measure income diversification at household level. The number of income sources, the share of non-agriculture income in total household income, income diversity index as well as the nature of diversification (i.e., whether it entails a shift from less remunerative to more remunerative activities) have been used in the current analysis.

Households' income diversification based on number of income sources

The result indicates that the mean number of income sources for the sample population is 2.82 with SD of 0.804. Similarly, the mean number of income sources for clients and non-clients is 2.94 and 2.82, respectively (Table 5). Furthermore, there is statistically significant difference between clients and non-clients in terms of the mean number of income sources they have at ($p<0.05$). This implies that clients do have more number of income sources as compared with non-clients.

Table 5. Households' mean number of income sources

	Category		Total (N=170)	t value	p value	r value
	Clients (n=108)	Non-clients (n=62)				
Mean	2.94	2.61	2.82	2.55**	0.011	0.193
SD	0.8	0.776	0.804			

Note: ** Significant at 5% probability level; Source: own survey, 2011

The share of non-agriculture income in total household income

Households' income composition analysis for both client and non-client households had been carried out. The result reveals that there is no statistically significant difference between the two groups with respect to the mean share of non-agriculture income (i.e., 38% for both groups) see Appendix Table 6. However, the mean non-agricultural income share does indicate neither the number of sources nor the nature of diversification, for instance, the level of risk associated with different income diversification activities.

Income Diversity Indices

The diversity index is a measure of how fragmented a household's income portfolio is. This assesses how many different pieces the total income is broken into, and therefore how many different diverse sources a livelihood depends up on (Start et al., 2005). Herfindahl index of concentration measures the degree of concentration (scattered-ness) of household income into various sources; and it thus measures the level of income diversification. Accordingly, households with most diversified income will have the largest diversity index and the less diversified incomes are associated with smallest diversity index. For least diversified households (i.e., those depending on a single income source), diversity index takes on its minimum value of one. The upper limit for diversity index depends on the number of income sources available and their relative shares. The higher the number of income sources and/or the more evenly distributed the income shares, the higher the value of diversity index (Ersado, 2006).

Similarly, the diversity index that is proposed by Chang (1997) and used by Ellis (2001) describes best in terms of both the number of activities and the distribution of total income between the different wealth groups. This can be adapted to the two groups- sample clients and non-clients. The logic of the formula suits the application being addressed since the index is the inverse of the market concentration index known as the Herfindahl-Hirschman index.

The maximum index value possible is equal to the number of income sources, and this would be attained if total income is equally distributed between each sources; otherwise it falls away rapidly if any one income source begins to take a larger than equal proportion of income. In this study, a diversification index was used to calculate income source diversity for each household based on the identified income sources and the statistics was summarized for the two groups using the mean and the standard deviation. The mathematical specification for the market concentration index is expressed as follows:

$IMCI = \frac{1}{\sum_{i=1}^{n} X_i^2}$ Where, IMCI is the inverse of Herfindal-Hirschman index, and X_i^2 is the square of proportional to total income of each activity.

The results reveal that the overall mean income diversity index for sample households is 2.566 with SD of 2.412. Whereas, the mean income diversity indexes for sample clients and non clients was 3.345 and 1.117, respectively (Table 6). This implies that clients do have relatively better diversified income both in number of sources and distribution of the amount of income generated from the sources than non-clients.

Table 6. Annual mean income diversity index for sample households

	Category		
	Clients (n=108)	Non-clients (n=62)	Total (N=170)
Mean income diversity index	3.345	1.117	2.566
SD	4.961	3.909	2.412

Source: computation from own survey, 2011

Households' income diversification in terms of participation in more remunerative activities

From the focus group discussion and key informant interview made we learnt that rural households are advised, encouraged, and in most cases trained to participate in more remunerative activities identified in the Woreda. The major factors considered for the selection of these activities were: households' resources (labor, land, etc.), agro-ecology, available infrastructure (road, irrigation, etc.), and access to market.

Accordingly, production of high value crops (Ground nut, sesame, and vegetables), livestock production (sheep and goat production/fattening, dairy production using improved or selected local camel fattening, and beekeeping using modern beehives) and petty trade (livestock, grain, and commodity trading) activities were identified as more remunerative activities in the Woreda. As a result, household diversification into more remunerative activities was considered if a household has participated at least in one of these activities and generates some proportion of income for that particular activity.

The results indicate that there is statistically significant difference in percentage of households that have participated in high value crop production and sheep and goat production/fattening) between clients and non-clients at ($p<0.01$). Similarly, there is statistically significant difference in percentage of households who have participated in dairy production between clients and non-clients at ($p<0.05$) level. While in proportion of households' that have participated in beekeeping and petty trade activities, there is no statistically significant difference between the two groups (Table 7).

The result on the overall households' participation in more remunerative activities shows that as compared to non-clients (73%), more proportions of clients (91%) have participated in more remunerative activities and found to be statistically significant difference at ($p<0.01$). The implication is that as compared to non-clients, more proportions of clients have participated in more remunerative activities.

Table 7. Percentage of households participating in more remunerative activities

Activities	Number of households participated (%)				
	Clients (n=108)	Non-clients (n=62)	Total (n=170)	$\chi 2$ value	p value
High value crop production	71.3	43.5	61.18	12.769***	0.000
Sheep and goat production/fattening	72.2	50	64.1	8.454***	0.004
Dairy production	28.7	14.5	23.5	4.406**	0.036
Beekeeping	17.6	9.7	14.7	1.967	0.161
Petty trade	10.2	6.5	8.8	0.682	0.409
Total	90.74	72.58	84.12	9.723***	0.002

Note: ***, ** Significant at 1% and 5% probability level

Source: own survey, 2011

Similarly, analysis of data was conducted on the purpose of actual utilization of the loan obtained from ACSI. The result shows that by using the loan, the percentage of clients

participating in sheep and goat production/fattening, dairy production, beekeeping and petty trade activities were 57%, 33%, 13%, and 7%, respectively. In related analysis, using the loan, 23% of the sample clients have purchased farm oxen, 13% have purchased farm inputs (fertilizer, improved seed, herbicides, farm tools, etc.), and 4% have participated in poultry production.

Table 8. Percent distribution of sample clients by purpose of loan utilized, (N=108)

Purpose of loan utilized	Number of Households (%)
Sheep and goat production/fattening	57.41
Dairy production	33.33
Beekeeping	12.96
Petty trade (cereals, coffee, livestock, salt, spices, etc)	6.48
Purchase of farm oxen	23.15
Purchase of farm inputs (fertilizer, improved seed, herbicides, farm tools, etc.)	12.96
Poultry production	3.7

Source: own survey, 2011

e. Determinants of Households' Income Source Diversification

Prior to discussing the results with regard to determinants of households' income source diversification, for each variable by taking into account the hypothesized variables, the influence of each variable in households' decision to participate in ACSI program credit is discussed. In identifying the determinants income source diversification, comparison among sample households had been conducted using the hypothesized variables based on households' participation in the remunerative activities. As a result, the income source diversification categories considered were five: high value crops production (HVC), livestock production (LS), high value crops plus livestock production (HVCLS), and high value crops plus livestock production plus petty trade (HVCLSPT). In addition, households that did not participate in any of the remunerative activities were categorized as households with non diversified (ND) income sources.

i. Characteristics of Sample Households

Under characteristics of the sample households, variables such as age, sex and level of education of the household head, and family size of the household were taken into consideration. The results of the analysis made for each variable are presented in comparison between sample clients and non-clients as well as among households across the income sources.

Age of sample household heads

The survey result indicates that the mean age for the sample population is 47 years ranging from 21 to 80 years with SD of 14.501. Similarly, the mean age for sample clients and non clients is 50 years and 44 years, respectively (Table 13). The mean age squared for clients was also larger than of non-clients. These indicate that at average clients are relatively older than non-clients.

Moreover, the result reveals that age of the household head and age squared are statistically significant and positively correlated with households' participation in program credit at $p<0.01$ and $p<0.05$, respectively (Table 13). This implies that households' participation in the program credit increases with an increasing age of the household head within the maximum age observed in sample household heads (i.e., 80). This result has to be seen in connection with the eligibility criteria to participate in ACSI program credit. The criteria have not set an age limit for applicants. If the applicant is able and considered to be productive the opportunity to participate in the program is open. Accordingly, although there are household heads older than the maximum age considered as productive (i.e., 65 years) as far as they are judged as able and productive by the Kebele committee they can borrow from ACSI. On the other hand, the mean age of households for non-diversified, high value crops, livestock, high value crops plus livestock, and high value crops plus livestock plus petty trade income sources was 36, 49, 45, 50, and 44 years, respectively. The study also reveals that age of the household head and age squared are statistically insignificant (Table 10).

Sex composition of sample household heads

The result shows that the proportion of male headed and female headed households for the sample population is 67% and 33%, respectively. Accordingly, the composition of male headed households for sample clients and non-clients is 74% and 55%, respectively.

Furthermore, the result reveals that there is statistically significant difference between clients and non-clients in the percentage of sex composition at ($p<0.01$) see Table 13. This implies that being male headed household is positively associated with households' participation in the program credit. This result is consistent with findings reported by Fitsum (2003). He indicated that being female headed was negatively associated with participation in program credit. Moreover, proportion of male headed households for non-diversified, high value crops, livestock, high value crops plus livestock, and high value crops plus livestock plus petty trade income source diversification category is 56%, 67%, 65%, 73%, and 62%, respectively. This indicates that in all income sources the proportion of male headed households exceed than of female headed households but found to be statistically insignificant difference among households across the income sources (Table 10).

Education level of sample household heads

Results on analysis of achievement of household heads in education in terms of years of schooling completed for the sample population show that proportions of the sample household heads belonging to the category illiterate, read and write, grade 1-4, grade 5-8, and grade 9-12 were 54%, 1%, 23%, 17% and 5%, respectively. The years of schooling ranges from 0 to 10 with SD of 2.882 and mean year of schooling 2.1 (Table 13). Similarly, the result shows that the proportion of sample clients belonging to the category illiterate, read and write, grade 1-4, grade 5-8, and grade 9-12 was 51%, 2%, 22%, 18%, and 7%, respectively. The mean year of schooling for clients is 2.47 (Table 13).

The proportion of sample non-clients belonging to the category illiterate, grade 1-4, and grade 5-8 was 60%, 24% and 16% , respectively, and no household head belongs to the categories read and write and grade 9-12. The mean year of schooling for non-clients was 1.68 (Table 13).

Moreover, there is statistically significant difference in mean years of schooling completed between clients and non-clients at ($p<0.01$). This implies that clients have better education attainment compared to non-clients and level of education is positively correlated with households' participation in the program credit. On the other hand, the mean years of

schooling completed by household heads for non diversified, high value crops, livestock, high value crops plus livestock, and high value crops plus livestock plus petty trade income source diversification category was 1.71, 1.6, 2.7, 2.02, and 2.77, respectively. This indicates that household heads participating in income sources that consist of petty trade activities and livestock production achieved relatively better level of education compared with the remaining income sources but found to be statistically insignificant difference (Table 10).

Family size of sample households

The mean family size for the sample population is 5.16 persons per household ranging from 1 to 12 with SD of 2.178. The mean family size for sample clients and non-clients is 5.64 and 4.34 persons per household, respectively (Table 13). The result shows that there is statistically significant difference in mean family size between clients and non-clients at ($p<0.1$). The result also indicates that family size is positively correlated with households' participation in the program credit. Similarly, the mean family size for non-diversified, high value crops, livestock, high value crops plus livestock, and high value crops plus livestock plus petty trade income sources was 3.68, 5.6, 4.63, 5.52, and 5.92, respectively. The income source which consists of households with the highest mean family size was high value crops plus livestock plus petty trade while households with non-diversified income sources have the lowest mean family size (Table 10).

Furthermore, the result shows that there is statistically significant difference in mean family size among households across income sources at ($p<0.05$). The implication is that as clients have larger family size compared with non-clients, they have more financial demand to sustain the life of their family and using the labor available in the household they could participate in more diversified income sources. This result is in agreement with findings reported by Canagarajah et al. (2001); Rees (2002); and Minot et al. (2006).

As an extension of family size, marital status of sample household heads was analyzed. The results from the analysis made show that from the sample population 66%, 22%, 11%, and 1% are married, divorced, widowed, single, and separated, respectively. Similarly, 73% of sample clients were married, 15% were divorced and 12% were widowed. Moreover, 54.84% of the sample non-clients were married, 33.87% were divorced, and 8.07% widowed, 1.61% single, and 1.61% separated. This indicates that larger proportions of clients were married as compared to non clients Table 9.

There is also statistically significant difference in marital status of households between clients and non-clients at ($p<0.05$). The result also shows that being married is positively associated with households' participation in program credit.

Table 9. Marital status of sample household heads in percent

Category	Category		Total (N=170)	$\chi 2$ value	Cramer's V
	Clients (n=108)	Non-clients (n=62)			
Married	73.15	54.84	66.47		
Divorced	14.81	33.87	21.76		
Widowed	12.04	8.07	10.59		
Single or never married	0.00	1.61	0.59		
Separated	0.00	1.61	0.59		
Total	100.00	100.00	100.00	12.629**	0.273

Note: ** Significant at 5% probability level

Source: own survey, 2011

Number of economically active household members

The overall mean number of economically active household members for the sample population was 2.71 persons ranging from 0 to 8 and with SD of 1.568. Accordingly, the mean number of economically active members for the sample clients and non-clients were 3.03 and 2.15 persons, respectively (Table 13). The result reveals that there is statistically significant difference in mean number of economically active household members between clients and non-clients at ($p<0.01$). Moreover, the number of economically active members of the household is positively correlated with households' participation in program credit. This implies that households with more number of economically active members have participated in program credit as compared to households with less number of economically active members.

Similarly, the mean number of economically active household members for non-diversified, high value crops, livestock, high value crops plus livestock, and high value crops plus livestock plus petty trade income sources is 1.74, 2.73, 2.3, 3.14, and 3, respectively (Table10). The result reveals that there is statistically significant difference in mean number of economically active household members among households across income source diversification categories at ($p<0.01$).

Sample clients have relatively more economically active household members as compared to non-clients. And there is positive association between number of economically active members of the household and households' income source diversification. It can be said that due to the labor availability in client households they could have more diversified income sources. The result is consistent with findings reported by Canagarajah et al. (2001); Abdulai and Rees (2001); Schwarze (2004); and Minot et al. (2006)

Table 10. Characteristics of sample households

Variable	Total sample (N=170)	Income source diversification categories					F/ χ2 value	r value
		ND (n=27)	HVC (n=15)	LS (n=40)	HVCLS (n=75)	HVCLSPT (n=13)		
AGEHHH							1.280	0.069
Mean	47.38	36.12	49.13	44.7	49.85	44.23		
SD	13.332	13.757	13.809	14.472	14.193	10.879		
AGESQ							1.144	0.046
Mean	2454.14	1587.30	2592.07	2202.3	2684.12	2065.62		
SD	1435.7	1079.89	1325.27	1410.36	1467.11	952.223		
SEX							3.211	0.523a
Male (%)	67.1	55.56	66.67	65.00	73.33	61.54		
Female (%)	32.9	44.44	33.33	35.00	26.67	38.46		
EDUCHHH							0.731	0.48
Mean	2.10	1.71	1.60	2.7	2.02	2.77		
SD	2.882	1.894	2.414	3.252	2.847	2.803		
FAMSIZE							2.656**	0.187
Mean	5.16	3.68	5.60	4.63	5.52	5.92		
SD	2.178	1.572	2.995	2.096	2.171	1.498		
ECOACTM							4.242***	0.259
Mean	2.71	1.74	2.73	2.3	3.14	3.0		
SD	1.568	0.953	1.981	1.159	1.682	1.472		

Note: ***, **,* Significant at 1%, 5%, and 10% probability level; a Cramer's V

Source: own survey, 2011.

ii. Economic factors

In comparison of sample clients and non-clients, economic variables taken into consideration were farm size and livestock holding of the sample households.

Farm size of sample households

Results of analysis of farm size cultivated by the sample population in hectare (Ha) show that the highest proportions of sample households (41%) cultivated a farm size of 0.251-0.5 Ha and the lowest proportion of the sample households (1%) cultivated a farm size of greater than one hectare. The total farm land cultivated by the sample households ranges from 0-1.5 Ha and the mean farm size is 0.431 Ha with SD of 0.263 (Table 13).

Moreover, the highest proportion of sample clients (42%) cultivated a farm size of 0.251-0.5 Ha, and the lowest proportion of the sample clients (1%) cultivated a farm size of >1(=1.5 Ha). Moreover, the highest proportions of sample non-clients (45%) cultivated a farm size of 0.1-0.25 Ha, and the lowest proportions of the sample non-clients (7%) cultivated a farm size of 0.51-0.75 Ha. The mean farm size cultivated by clients and non-clients is 0.481 and 0.343 Ha, respectively. Furthermore, there is statistically significant difference in mean farm size cultivated by households between clients and non-clients at ($p<0.01$). The result also indicates that farm size is positively correlated with households' participation in program credit.

Similarly, as shown in Table 11, the mean farm size cultivated by household groups for non-diversified, high value crops, livestock, high value crops plus livestock, and high value crops plus livestock plus petty trade income sources is 0.231, 0.463, 0.353, 0.517, and 0.481, respectively. The result also indicates that there is statistically significant difference in mean farm size cultivated among households across income sources at ($p<0.01$). The implication is that due to the family labor and financial capabilities they have, clients are able to cultivate larger farm size and diversify their income sources.

Livestock holding of sample households

The result reveals that the mean number of total livestock holding in TLU for the sample population was 2.86 ranging from 0.0 to 12.75 with a SD of 1.876. Similarly, the mean number of total livestock holding in TLU for sample clients and non-clients was 3.25 and 2.19, respectively (Table 13). Furthermore, there is statistically significant difference in mean number of livestock holding between clients and non-clients at ($p<0.01$). This implies that total livestock holding is positively correlated with households' participation in program credit.

As depicted in Table 11, the mean number of total livestock holding for non-diversified, high value crops, livestock, high value crops plus livestock, and high value crops plus livestock plus a petty trade income source was 1.55, 1.82, 2.7, 3.36, and 3.86, respectively.

The result also indicates that there is statistically significant difference in mean number of total livestock holding in TLU among households across income source diversification categories at ($p<0.01$). Moreover, the result reveals that livestock holding is positively correlated with households' income source diversification. The implication is that as sample clients own relatively more number of livestock compared with non-clients, they have more diversified income sources. The potential reason is that participation of clients in household agricultural packages. Where, livestock package is one of the major interventions in the study area. Furthermore, ACSI is the major source of credit for households who participate in the package (APP. Table 3). Besides to the package loan available from ACSI, 32% of the clients have reported that the regular loan they obtained from ACSI was used for the purpose of purchasing livestock.

Table 11. Farm size and livestock holding of sample households

Variable	Total Sample (N=170)	Income source diversification categories					F value	r value
		ND (n=27)	HVC (n=15)	LS (n=40)	HVCLS (n=75)	HVCLSPT (n=13)		
FARMSIZE							6.411***	0.302
Mean	0.431	0.231	0.463	0.353	0.517	0.481		
SD	0.263	0.355	0.206	0.258	0.259	0.206		
TLSHOLD							6.325***	0.357
Mean	2.86	1.55	1.82	2.7	3.36	3.86		
SD	1.876	1.274	.335	11.778	1.713	2.902		

Note: *** Significant at 1% probability level

Source: own survey, 2011

iii. Institutional factors

In comparing sample households in terms of their participation in program credit and income source diversification, institutional variables taken in to consideration were distance to all weather road, distance to major or Woreda market, and participation in ACSI program credit.

Distance to all-weather road

Distance to the nearest all-weather road from sample household's village was examined in terms of walking time in hours. Accordingly, for the sample population distance to all-weather road ranges from 0.03 to 3 hours walking time with SD of 0.675 and mean walking time 0.84 hours. The mean walking time to reach the nearest all-weather road for sample clients and non-clients is 0.76 hours and 0.99 hours, respectively (Table 13). In addition, the result shows that there is statistically significant difference in mean walking time in hours to reach the nearest all weather road between clients and non-clients at ($p<0.01$). The result also indicates that distance to all-weather road is negatively correlated with households' participation in program credit. The implication is that households who have participated in program credit are those who reside at proxy distance to all-weather road than those who reside at distant places. The mean walking time to reach the nearest all-weather road for non-diversified, high value crops, livestock, high value crops plus livestock, and high value crops plus livestock plus petty trade income source diversification category is 0.84, 0.85, 1.02, 0.8, and 0.37 hours, respectively (Table 12). In addition, the result shows that there is statistically significant difference in mean walking time in hours to reach the nearest all-weather road among households across income source diversification categories at ($p<0.05$). The result also reveals that distance to all-weather road is negatively correlated with households' income source diversification. This implies that the distance from households' village to all-weather road affects negatively the participation households in diversified income sources. As a result, as sample clients are at closer distance to all-weather road they do have relatively more diversified income sources as compared to non-clients. This is due to the opportunity they have to minimize transaction cost, better mobility and communication. This result is consistent with result reported by Minot et al., (2006).

Distance to Woreda market

Distance to the major or Woreda market from household village was also examined in terms of walking time in hours. Distance to the nearest Woreda market for the sample population ranges from 1.25 hours to 7.5 hours walking time with SD of 1.057 and mean walking time 3.29 hours. The mean time to reach the nearest Woreda market for sample clients and non-clients is 3.13 hours and 3.56 hours, respectively (Table 13). The result shows that there is statistically significant difference in mean walking time in hours to reach the nearest Woreda market between clients and non-clients at ($p<0.1$). In addition, distance to Woreda market is negatively

correlated with households' participation in program credit. The mean walking time to reach the nearest Woreda market for non-diversified, high value crops, livestock, high value crops plus livestock, and high value crops plus livestock plus petty trade income source diversification category is 3.56, 2.64, 3.78, 3.35, and 2.92 hours, respectively (Table 12). In addition, the result shows that there is statistically significant difference in mean walking time in hours to reach the nearest Woreda market among households across income source diversification categories at ($p<0.05$). The result also indicates that distance to Woreda market is significant and positively correlated with households' income source diversification. This result is not in agreement with the hypothesis. The possible reason is that the location of households that participate in livestock production mainly sheep and goat production, and beekeeping reside in distant places from the Woreda market because of availability of forage and pasture. Moreover, households that participate in high value crops production are similarly located in the highlands of focal mountain areas which are located relatively at distance places from the Woreda market.

Households' participation in program credit

The proportion of households that have participated in ACSI program credit for non diversified, high value crops, livestock, high value crops plus livestock, and high value crops plus livestock plus petty trade income sources is 37%, 33%, 50%, 85%, and 69%, respectively (Table 12). In addition, the result shows that there is statistically significant difference in percentage of households that have participated in ACSI program credit among households across the income sources. Moreover, households' participation in ACSI program credit has positive association with households' income source diversification and found to be statistically significant at ($p<0.01$). This implies that households who have participated in program credit have more diversified income sources.

Table 12. Households' participation in program credit, distance to all-weather road and distance to Woreda market

Variable	Total Sample (N=170)	Income source diversification categories					F value	r value
		ND (n=27)	HVC (n=15)	LS (n=40)	HVCLS (n=75)	HVCLSPT (n=13)		
DALWROD							2.512**	-0.130
Mean	0.84	0.84	0.85	1.02	0.8	0.37		
SD	0.675	0.575	0.767	0.839	0.568	0.257		
DWRDMKT							2.461**	0.082
Mean	3.29	3.56	2.64	3.78	3.35	2.92		
SD	1.507	1.268	1.063	1.759	1.502	1.152		
PRTCRDT							32.813***	0.439[a]
Yes (%)	63.53	37.04	33.33	50.00	85.33	69.23		
No (%)	36.47	62.96	66.67	50.00	14.67	30.77		

Note: ***, ** Significant at 1% and 5% probability level; a Cramer's V

Source: own survey, 2011

Table 13. Results of test of hypothesized variables based on participation of sample households in ACSI program credit

Variables	Category		Total (N=170)	t/χ2 value	p value	r value
	Clients(n=108)	Non clients (n=62)				
AGEHHH						
Mean	49.560	43.580	47.380	2.635***	0.009	0.199
SD	13.953	14.764	14.501			
AGESQ						
Mean	2649.55	2113.74	2454.14	2.374**	0.019	0.180
SD	1441.063	1372.076	1435.70			
SEX						
Male (%)	74.07	54.84	67.06			
Female (%)	25.93	45.16	32.94			
Total (%)	100.00	100.00	100.00	6.597**	0.010	-0.197[a]
EDUCHHH						
Mean	2.47	1.68	2.18	1.907*	0.058	0.133
SD	3.167	2.882	2.238			
Illiterate	50.93%	59.68%	54.12%			
Read and write	1.85%	0.00%	1.17%			
Grade1-4	22.22%	24.19%	22.94%			
Grade 5-8	17.59%	16.13%	17.06%			
Grade 9-10	7.41%	0.00%	4.71%			
Total	100.00%	100.00%	100.00%			
FAMSIZE						
Mean	5.64	4.34	5.16	3.902***	0.000	0.288
SD	2.19	1.90	2.18			

Table13. (Continued)

Variables	Category		Total (N=170)	t/ χ2 value	p value	r value
	Clients (n=108)	Non-clients (n=62)				
ECOACTM						
Mean	3.03	2.15	2.71	4.007***	0.000	0.272
SD	1.671	1.185	1.568			
FARMSIZE						
Mean	0.481	0.343	0.431	3.413***	0.001	0.255
SD	0.277	0.212	0.263			
0.0 Ha	2.78%	9.68%	5.29%			
0.1- 0.25 Ha	30.55%	45.16%	35.88%			
0.251- 0.50 Ha	41.66%	38.70%	40.59%			
0.51- 0.75 Ha	12.04%	6.46%	10.00%			
0.751-1.0 Ha	12.04%	0.00%	7.65%			
>1(=1.5 Ha)	0.93%	0.00%	0.59%			
Total	100.00%	100.00%	100.00%			
TLSHOLD						
Mean	3.250	2.190	2.860	3.673***	0.000	0.273
SD	1.887	1.668	1.876			
DALWROD						
Mean	0.76	0.99	0.84	-2.056**	0.042	-0.165
SD	0.615	0.752	0.675			
DWRDMKT						
Mean	3.13	3.56	3.29	-1.772*	0.078	-0.135
SD	1.445	1.587	1.507			

Note: ***, **, * Significant at 1%, 5%, and 10% probability level, respectively; a phi value

Source: computation from own survey 2011

Summary of the results of analysis made on explanatory variables hypothesized to determine households' income source diversification

Among the ten variables hypothesized to determine households' income source diversification, seven variables found to have statistically significant relation to households' income source diversification in to more remunerative activities. Of the significant variables, six variables: family size, economically active members of the household, farm size, livestock holding, distance to Woreda market and households participation in ACSI program credit found to have positive relation to households income source diversification. While one variable: distance to all-weather road found to have negative relation to households' income diversification. On the other hand, there is no evidence that the age, sex, and level of education of the head of household have any significant relation to households' income source diversification.

Table 14. Summary of the results of analysis made on explanatory variables that determine households' income source diversification

Variable	Mean/Percent value across income source diversification categories					F/ χ2 Value	Expected sign	Observed sign
	ND (n=27)	HVC (n=15)	LS (n=40)	HVCLS (n=75)	HVCLSPT (n=13)			
AGEHHH	36.12	49.13	44.7	49.85	44.23	1.280	?	+ve
SEXHHH								
(male %)	55.56	66.67	65.00	73.33	61.54	3.211	+ve	+ve
EDUCHHH	1.71	1.60	2.7	2.02	2.77	0.736	+ve	+ve
FAMSIZE	3.68	5.60	4.63	5.52	5.92	2.656**	+ve	+ve
ECOACTM	1.74	2.73	2.3	3.14	3.0	4.242***	+ve	+ve
FARMSIZE	0.231	0.463	0.353	0.517	0.481	6.411***	?	+ve
TLSHOLD	1.55	1.82	2.7	3.36	3.86	6.325***	?	+ve
DALWROD	0.84	0.85	1.02	0.8	0.37	2.512**	-ve	-ve
DWRDMKT	3.56	2.64	3.78	3.35	2.92	2.461**	-ve	+ve
PRTCRDT								
(Yes %)	37.04	33.33	50.00	85.33	69.23	32.813***	+ve	+ve

Note: ***, ** Significant at 1% and 5% probability level

Source: own survey, 2011

f. Households' Asset Ownership

In this study, household asset ownership comparison between sample clients and non-clients was carried out based on DFID's classification of assets in livelihoods approach. According to DFID (1999), as discussed in the literature review, assets are classified into five: human capital,

natural capital, physical capital, financial capital, and social capital. However, in the context of this study, information obtained from group discussion and key informants interview indicated that assets that can be mainly attributed to borrowing from ACSI credit are physical capital, financial capital, and human capital. Natural capital was also seen in terms of ownership of land in different tenure systems by focusing sharecropping and renting.

In the case of social capital, the elements which would have been considered were participation of households in Iddir, kirie, and Ikub. Sample households' participation in Ikub is discussed as an important element and is considered in financial capital. Moreover, from the group discussion made, we learnt that participation in ACSI program credit will not result in marked difference in membership of households in Iddir and kirie.

The reason was since Iddir and kirie is basic for social interaction in the area, during their establishments the necessary arrangement is made to enable majority of the population to participate. In addition, except difference in degree of participation specially for Iddir, everyone tries his/her best to join these institutions. Furthermore, for social reasons support of the better-off to the worse-off relatives cannot also be undermined. Moreover, as the non-client sample households are eligible to be clients, the difference in participating in these social institutions could not be as such large. Hence, from the five asset categories the focus was on selected elements of the four asset categories excluding social capital.

i. Human capital

According to DFID (1999), human capital represents the skills, knowledge, ability to labor, and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives. In the prior discussion it is indicated that education level of clients was relatively better than non-clients and found to be statistically significant. To cover some other related attributes of human capital, training and health of sample households were taken into consideration.

Households training

In addition to the level of education, as a proxy indicator to skill of sample households, respondents were asked whether they have taken any type of training or not. The result shows that 80% and 47% of the sample clients and non-clients, respectively, have responded positively and the remaining responded otherwise. Furthermore, the result reveals that there is

statistically high significant difference ($\chi 2=19.428$, $p=0.000$) between the two categories on the percentage of the respondents that have taken training at 1% significance level (Table 15).

This implies that as compared to the proportion of non-clients, more proportions of the clients have got training which may enable them to acquire skill. In this regard the contribution of targeting clients for special support in most of the interventions being made including training cannot be undermined.

Table 15. Percent distribution of sample households by their response whether they have taken training or not

Households response	Category: Clients (n=108) No.	%	Category: Non-clients (n=62) No.	%	Total (N=170) No.	%	χ2 value	P value
Yes	59	78.6	35	70	94	62.70		
No	16	21.4	40	30	56	37.30		
Total	108	100	62	100	170	100	19.428***	0.000

Note: *** Significant at 1% probability level; Source: own survey, 2011

Moreover, for those who have responded that they have taken training they were also asked the type of training they have taken. In general, eight type of training were identified: crop production, horticultural production, livestock production, tree farming, finance and credit management, and primary health care. The result indicates that as there were respondents who never get any type of training, there were also respondents who have got more than one type of training. The highest percentages of sample households that have received training are those trained in livestock production, that is, 89% and 42% of the sample clients and non-clients, respectively (Table 16). Next to training in livestock production, the type of training which consists of higher number of households was crop production (clients 29% and non-clients 23%). This is mainly due to the household agricultural package intervention made in the study area where livestock package together with high value crop production are the major activities that have been given due attention which are supported by training.

Table 16. Percent distribution of sample households by type of training they received

Type of training	Category				Total (N=170)		χ2 value	P value
	Clients (n=108)		Non-clients (n=62)					
	No.	%	No.	%	No.	%		
Crop production	31	28.7	14	22.58	45	26.47		
Horticultural production	13	12.04	10	16.13	23	13.53		
Livestock production	86	79.6	26	41.94	112	65.88		
Tree farming	7	6.48	3	4.84	10	5.88		
Trading	2	1.85	0	0.00	2	1.18		
Finance and credit management	4	3.7	1	1.61	5	2.94		
Primary health care	7	6.48	7	11.29	14	8.24		
Nutrition	3	2.78	0	0.00	3	1.76		
Total	86	79.6	29	46.8	115	67.65	33.794***	0.000

Note: *** Significant at 1% probability level; Source: own survey, 2011

Health condition of sample households

In respect to health condition of sample households, respondents were asked whether there was an occasion that the head of the household or any other member of the household was sick over the last 12 months and sought medical attention. Accordingly, 29% of the sample population reported that at least one of the members of the household was sick and required medical attention over the specified time period. Likewise, 24% and 37% of the sample clients and non-clients, respectively, responded that at least one family member was sick and required medical attention. The result indicates that there is statistically significant difference ($\chi2=3.256$, $p=0.071$) between the two groups in percentage of households that reported their family member(s) was sick at 10% significance level (Table 17). Moreover, households' participation in program credit is negatively associated with health problem. This implies that higher proportions of non-clients have encountered health problem which has further implication on labor productivity and income of the households. Further analysis of household health condition was focused on respondents that reported at least one member the household was sick. These respondents were asked whether the sick member(s) of the household that required medical attention was taken to clinic or other modern health facilities. However, there is no statistically significant difference between clients and non-clients in terms of percentage of sick household members that has got treatment from modern health facilities.

Moreover, the result indicates that the proportion of households that reported the reason for not taking the sick member of the household to modern health facilities was due to lack of money are 13% and 43% for sample clients and non-clients, respectively. The remaining respondents 87% and 57% of the sample clients and non-clients, respectively, reported that the sick family members preferred to take cultural medicine like Wedajja and local herbal medicines. This has also a far reaching implication on overall status of health institutions in the area and the attitude of households towards modern health institution services.

Table 17. Health condition of sample households

Attribute	Category		Total (N=170)	χ2 value	P value
	Clients (n=108)	Non-clients (n=62)			
Household member was sick					
Yes (%)	24.1	37.1	28.82		
No (%)	75.9	62.9	71.18		
Total	100.0	100.0	100.0	3.256*	0.071

Note: * Significant at 10% probability level; Phi =-0.131; Source: own survey, 2011

ii. Natural capital

Results on analysis of farm land holding show that the sample households possess a number of plots ranging from zero to five. Furthermore, the result reveals that the plots of farm land possessed by sample households do have different tenure systems.

The major proportions of sample households (87% of clients and 89% of non-clients) possessed their farm land through government redistribution program. Others (10% of clients and 8% of non-clients) possessed their farm land by inheriting or sharing mainly from their parents (Table 18). There are also farmers that possessed land by renting in and sharecropping in. In this study the later two types of tenure system were considered in order to identify the role of ACSI credit on possession of farm land as the former two tenure statuses are normally occurring under the existing land tenure legislation without the intervention of ACSI.

Accordingly, the result shows that no sample household head has reported that s/he has rented out his/her farm land. Moreover, none of the sample non-clients has rented in, whereas, 4% of sample clients have responded that they have possessed land by renting in from non sample farmers.

On the other hand, no sample client has reported that s/he has sharecropped out her/his farm land. Of sample non-clients, 10% have reported that they have sharecropped out at least some proportion of their farm land. While 16% and 5% of the sample clients and non-clients, respectively, have responded that they have sharecropped in.

Moreover, the result reveals that there is statistically significant difference ($\chi 2=4.510$, $p=0.034$) between the two groups in percentage of households that reported they have share cropped in at 5% significance level. Similarly, there is statistically significant difference ($\chi 2=6.100$, $p=0.014$) between the two groups in percentage of households that reported they have sharecropped out part of their farm land at 5% significance level. These results imply that more proportion of clients have sharecropped in as compared to non clients, on the contrary more proportion of non-clients have sharecropped out while clients did not. This may be due to the financial capability of clients attained through participation in ACSI program credit which could be allocated for input purchase (seed, fertilizer, labor, etc.) and other related expenses required in order to cultivate more farm land.

Table 18. Percent distribution of sample households by tenure system of farm land they owned

Tenure system	Category				Total (N=170)		χ2 value	P value
	Clients (n=108)		Non-clients (n=62)					
	No	%	No	%	No	%		
Own (obtained by redistribution program)	91	84.3	52	83.87	133	78.2	6.311**	0.012
Inherited	15	13.9	6	9.7	21	12.4	0.645	0.442
Rented in	4	3.70	0	0.00	4	2.35	2.352	0.125
Sharecropped in	17	15.74	3	4.84	20	11.76	4.510**	0.034
Sharecropped out	0	0.00	10	16.13	10	5.88	6.100**	0.014

Note: ** Significant at 5% probability level; Source: own survey, 2011

iii. Physical capital

Based on DFID's definition, in this study elements considered under physical capital are housing condition (ownership of house, number of rooms and quality of materials from which the house is made), source of drinking water, type of fuel used for cooking, type of toilet facility used and estimated value of productive and non productive assets owned by the sample households.

Housing condition of sample households

The study indicates that the mean number of rooms owned by the sample population is 2.16 ranging from zero to two with SD of 1.44. The mean number of rooms owned by the sample clients and non-clients is 2.34 and 1.84, respectively. There is statistically significant difference (t=2.214, p=0.028) in mean number of rooms owned between the two groups at 5% significance level. This implies that clients did own a house with more number of rooms as compared to non-clients.

Table 19. Number of rooms owned by sample households

Number of rooms	Category		Total (N=170)	t value	p value	r value
	Clients (n=108)	Non clients (n=62)				
Mean	2.34	1.84	2.16	2.214**	0.028	0.168
SD	1.45	1.38	1.44			

Note: ** Significant at 5% probability level; Source: own survey, 2011

Moreover, clients were asked whether all or proportion of the credit was used directly for house construction and/or returns obtained from investments made through ACSI credit was used for similar purpose. The mean number of rooms owned by clients before and after participation in program credit is 2.12 and 2.34, respectively. The result also shows that there is significant difference in number of rooms owned by clients before and after participation in program credit at ($p<0.01$). This was confirmed using client households' records with regard to their asset ownership before they participate in the program credit obtained from respective ACSI sub-branch offices. Therefore, clients' ownership of a house of with more number of rooms is associated with households' participation in ACSI program credit. This result is also supported by information obtained from focus group discussion and key informants interview.

Table 20. Number of rooms owned by clients before and after participation in ACSI program credit, (N=108)

Mean number of rooms		SD	t value	p value
Before participation	2.12	1.41895	4.629***	0.000
After participation	2.34	1.45437		

Note: *** Significant at 1% probability level; Source: own survey, 2011

There is also difference in the quality of houses owned by sample households. This was examined based on the type of materials from which the houses are made. The percentage of sample clients that own a house with roof made of thatch, earth/mud, and galvanized iron sheet are 10%, 48%, and 42%, respectively. While percentage of sample non-clients that own a house with roof made of thatch, earth/mud, and galvanized iron are 9%, 59%, and 32%, respectively. There is highly statistically difference ($\chi 2=13.652$, $p=0.008$) in percentage of households between the two groups in the types of materials from which the roof of their houses are made at 1% significance level (Table 21).

The percentage of sample clients that own a house with wall made of wood and mud are 99%, and 1%, respectively. While percentage of sample non-clients that own a house with wall made of wood/branch, stone, and mud or branches are 90.5%, 2%, and 7.5%, respectively.

There is highly statistically difference ($\chi 2=18.605$, $p=0.000$) in percentage of households between the two groups on the types of materials from which the wall of their houses are made at 1% significance level (Table 21).

The result also indicates that quality of a house has positive association with clients' participation in program credit. The result is also supported by the information obtained from focus group discussion and interview conducted with key informants.

In general, the houses owned by sample clients are relatively with better quality (in terms of the materials from which the roof and wall of the houses are made) as compared with the houses owned by sample non-clients.

Table 21. Type of materials from which the houses of sample households are made

	Category				Total	(N=170)	χ2 value	p value
	Clients	(n=108)	Non-clients (n=62)					
	No.	%	No.	%	No.	%		
Type of roof								
Thatch	11	10.38	5	9.43	16	10.06		
Earth/mud	51	48.11	31	58.49	82	51.57		
Galvanized iron	44	41.51	17	32.08	61	38.37		
Total	106	100	53	100	159	100	13.652***	0.008
Type of wall								
wood/branches	105	99.06	48	90.57	153	96.22		
Stone/Concrete	1	0.94	1	1.89	2	1.26		
Mud	0	0.00	4	7.55	4	2.52		
Total	106	100	53	100	159	100	18.605***	0.000
Type of floor								
Earth	96	90.57	48	90.57	144	90.57		
Cement	9	8.49	5	9.43	14	8.80		
Stone	1	0.94	0	0.00	1	0.63		
Total	106	100	53	100	159	100	6.035	0.117

Note: *** Significant at 1% probability level; two clients and nine non-clients did not have their own house; Source: own survey, 2011

Households' livestock asset holding

Results of analysis of livestock asset holding of sample households show that the percentage of sample clients that own oxen, cattle, sheep and goats, donkey, chicken, and bee colony are 76%, 90%, 90%, 25%, 52%, and 25%, respectively. On the other hand, the percentage of sample non-clients that own oxen, cattle, sheep and goat, donkey, chicken, and bee colony are 57%, 69%, 74%, 8%, 63%, and 16%, respectively (Table22). This indicates that the percentage of sample clients that own all types of livestock except for chicken exceeds the percentage of sample non-clients.

In previous section it was indicated that there is significant difference in mean livestock holding for all type measured in TLU between the two groups at 10% level of significance. Similarly, there is statistically significant difference in proportion of households that own oxen, cattle, sheep and goats, and donkey between clients and non-clients at 1% level of significance. This implies that there is positive correlation between livestock holding and households' participation in program credit.

Table 22. Percent distribution of sample households by the type of livestock they owned

Livestock type	Category				Total (N=170)		χ2 value	p value
	Clients (n=108)		Non-clients (n=62)					
	No.	%	No.	%	No.	%		
Oxen only	82	75.93	35	56.45	117	68.82	9.666***	0.002
Cattle- all	97	89.81	43	69.35	140	82.35	11.346***	0.001
Sheep and goats	97	89.81	46	74.19	143	84.12	7.194***	0.007
Donkey	27	25.00	5	8.06	32	18.82	7.393***	0.007
Chicken	56	51.85	39	62.90	95	55.88	1.951	0.162
Bee colony	28	25.03	10	16.13	38	22.35	2.178	0.140

Note: *** Significant at 1% probability level,; Source: own survey, 2011

Moreover, to identify the role of ACSI credit clients were asked the number and type of livestock they bought using ACSI credit and the result shows that the mean total livestock holding in TLU before participation in the program credit was 2.04 while after participation raised to 3.25 (Table 23). The result also reveals that there is statistically significant difference in total livestock holding in TLU for clients before and after participating in ACSI program credit at 1% level of significance. This implies that livestock holding of client households has increased as a result of participation in program credit.

Table 23. Clients' total livestock holding in TLU before and after participation in ACSI program credit, (N=108)

	Mean number of livestock (TLU)	SD	t value	p value
Before participation	2.037	3.193	5.018***	0.000
After participation	3.246	1.887		

Note: *** Significant at 1% probability level; Source: own survey, 2011

Productive and Non-productive Assets

Non-livestock productive assets such as implements (plough set, hoe, axe, sickles, hammer, sprayer, water pump, etc.) as well as non-house non-productive assets (household durables - furniture, utensils, etc.) ownership were taken in to consideration. Accordingly, the value of the assets was estimated by asking respondents what will be the price of each asset if they take it to market for sale given its current status.

Results of the study indicate that the mean estimated value of implements owned by sample population is 408.59 EB, ranging from 90.00 EB to 21874.00 EB with SD of 1735.97. The mean estimated value of non-productive assets owned by clients and non-clients is 541.39 EB and 177.61 EB, respectively, but found to be statistically insignificant difference. On the other hand, the mean estimated value of non-productive assets owned by sample population is 857.32 EB, ranging from 40.00 EB to 16750.00 EB with SD of 1575.79. The mean estimated value of non-productive assets owned by clients and non-clients is 1066.12 EB and 493.60 EB, respectively (Table 24).

There is highly statistically significant difference (t=2.923, p=0.004) between the mean estimated value of non-productive assets owned by sample clients and non-clients at 1% significance level (Table 24). This implies that clients did own non-productive assets with relatively higher estimated value than non-clients did. This may be due to participation in ACSI program credit as they can use part of the loan directly to purchase the assets or from returns of investment made through ACSI loan. This was also supported by information obtained from focus group discussion and key informants interview.

Table 24. Estimated price for productive and non-productive assets owned by sample households

Type of assets	Category		Total (N=170)	t value	p value
	Clients(n=108)	Non-clients(n=62)			
Productive assets (implements) estimated price EB					
Mean	541.19	177.61	408.59	1.317	0.190
SD	2166.32	178.61	1735.97		
Non-productive assets estimated price EB					
Mean	1066.12	493.60	857.32	2.923***	0.004
SD	1906.17	540.90	1575.59		
Total					
Mean	1607.58	667.10	1264.58	2.996***	0.004
SD	3186.34	637.99	2604.06		

Note: *** Significant at 1% probability level; Source: own survey, 2011

Additional productive and non-productive assets acquired by client households through ACSI credit are depicted in Table below.

Table 25. Type and mean amount of assets acquired by client households through ACSI credit

Asset	Households (N=170)		Mean amount
	No.	%	
Livestock (TLU)	99	91.60	2.08
Bee colony	28	25.93	0.79
Rooms	20	18.52	0.22
Radio/tape	32	29.63	0.31
Tables	15	13.89	0.14
Chairs	19	17.59	0.20
Cupboard/Box	63	58.33	0.66
Modern beds	29	26.85	0.32
Blanket	79	73.15	1.19
Wrist watches	21	19.44	0.19
Jewelries (EB)	16	14.81	171.30
Bicycles	4	3.70	0.04
Gas lamps/ Lantern	20	18.52	0.19
Stove	20	18.52	0.19
Sickles	86	79.63	1.14
Hoe	65	60.19	0.81
Axe	35	32.41	0.39
Hammer	18	16.67	0.19
Spades	16	14.81	0.20
Shovel	54	50.00	0.68
Plough equipment-set	41	37.96	0.57
Gejera	23	21.30	0.25
Black smith equipment	7	6.48	0.06
Carpenter/ masonry equipment	31	28.70	0.29

Source: own survey, 2011

Household's source of drinking water, fuel type, and toilet facility

Household assets such as source of drinking water, type of fuel used for cooking, and type of toilet facilities used were analyzed and the result indicate that there was no statistically difference between sample clients and non-clients.

Table 26. Source of drinking water, type of fuel used for cooking and type of toilet facility used by sample households

	Category				Total (N=170)		χ2 value	p value
	Clients (n=108)		Non-clients (n=62)					
	No.	%	No.	%	No.	%		
Source of drinking water Public stand pipe/tube well	35	32.41	17	27.42	52	30.59		
Unprotected well/spring/ pond/river/stream	73	67.59	45	72.58	118	69.41		
Total	108	100	62	100	170	100	1.004	0.605
Type of fuel used for cooking Wood	49	45.37	28	45.16	77	45.29		
Kerosene/paraffin	1	0.93	2	3.23	3	1.76		
Charcoal	2	1.85	2	3.23	4	2.35		
Cow dung	6	5.55	2	3.23	8	4.71		
Wood and cow dung	35	32.41	20	32.26	55	32.35		
Wood and kerosene	15	13.89	8	12.90	23	13.53		
Total	108	100	62	100	170	100	1.980	0.852
Type of toilet facilities Private pit latrine	46	42.59	27	43.55	73	42.94		
Public pit latrine	1	0.93	1	1.61	2	1.18		
Open disposal	61	56.48	34	54.84	95	55.88		
Total	108	100	62	100	170	100	1.315	0.726

Source: own survey, 2011

iv. Financial capital

In regard to financial capital, in comparison of clients with non-clients, households' personal cash savings in different ways were taken in to consideration. Accordingly, households' personal cash savings in bank, cash savings in Ikub, cash savings with relatives/friends, cash savings at home, cash savings with ACSI, and cash savings in saving and credit groups were considered.

The result shows that 24% the sample clients have voluntary cash savings with ACSI while non-clients did not have savings with same. There is statistically significant difference ($\chi2=16.826$, $p=0.000$) on the percentage of households that have voluntary cash savings with ACSI between the two groups at 1% level of significance. Similarly, 29% and 3% of the sample clients and non-clients, respectively, have cash savings in saving and credit groups. There is also statistically significant difference ($\chi2=17.162$, $p=0.000$) in the percentage of households that have cash savings in saving and credit cooperatives between the two groups at 1% significance level. These

results reveal that compared with non-clients large proportions of the sample clients do have personal cash savings with ACSI and with saving and credit cooperatives (Table 27).

On the other hand, the result shows that the differences in households' personal cash savings in bank, cash savings in Ikub, cash savings with relatives/friends, and cash savings at home are statistically insignificant (Table 27).

Table 27. Percent distribution of sample households by personal cash savings Cash savings

Cash Savings	Category				Total (N=170)		χ2 value	p value
	Clients (n=108)		Non-clients (n=62)					
	No.	%	No.	%	No.	%		
Voluntary savings with ACSI	24	22.22	0	0.00	24	14.12	16.826***	0.000
Savings in VSLG	32	29.63	2	3.22	34	20.00	17.162***	0.000
Savings in Bank	6	5.55	1	1.61	7	4.12	1.551	0.213
Savings in Ikub	4	3.70	0	0.00	6	2.40	2.352	0.125
Savings with relatives /friends	2	1.85	0	0.00	2	1.18	1.162	0.281
Savings at home	2	1.85	0	0.00	2	1.18	1.162	0.281

Note: *** Significant at 1% significance level; Source: own survey, 2011

g. Households' Perceptions of Changes in Their Living Conditions

Before making comparison between sample clients and non-clients based on their level of vulnerability to food insecurity, a general assessment of the perceptions of the sample households on changes in their living condition over the past five years was carried out. The assessment was done using selected 13 indicators. Accordingly, 12 indicators were used to measure the perceptions of households on specific attributes of living condition while one indicator was used to measure the perception of households in their overall living condition.

All indicators considered are directly or indirectly related to food security status of the households. The respondents have rated their perception on each indicator from decreased greatly to increase greatly (Table 29). For brevity, scales for each indicator depicted in Table 29 are reduced from five levels (decreased greatly to increased greatly) into three levels (decreased to increased). This was done by aggregating the scales decreased greatly to decreased, increased greatly to increased, and maintaining the scale stayed the same as it is.

Accordingly, the aggregate results are presented in terms of percentage distributions of sample households by their response to each indicator across the three scales instead of the five scales. Results of the survey show that 73% and 39% of the sample clients and non-clients, respectively, have reported that their total income has increased. While 3% and 18% of the sample clients and non-clients, respectively, reported that their total income has decreased. On the other hand, the remaining sample households have also responded that their total income stayed the same.

Similarly, 55% and 19% of the sample clients and non-clients, respectively, have responded that their productive assets (farm implements) have increased. While 1.85% and 19.35% of the sample clients and non-clients, respectively, indicated that their productive assets has decreased. The remaining sample households have also responded that their productive assets remained the same. Likewise, 52% and 19% of the sample clients and non-clients, respectively, have reported that their durable assets (furniture, utensils, etc.) have increased. While 3% and 16% of the sample clients and non-clients, respectively, revealed that their durable assets have decreased. The remaining sample households have also responded that their durable assets remained the same. Majority of the sample households, 82% and 57% of the sample clients and non-clients, respectively, have reported that their consumption of quality food (nutritious food) has increased. While 2% and 16% of the sample clients and non-clients, respectively, indicated that their quality of food has decreased. The remaining sample households have also responded that the quality of food they consumed remained the same. Similarly, 76% and 42% of the sample clients and non-clients, respectively, have responded that the quantity of food that they consume has increased. While 3% and 16% of the sample clients and non-clients, respectively, reported that the quantity of food that they consume has decreased. The remaining sample households also revealed that their quantity of food remained the same.

Moreover, referring to the aim of the study, special focus was given to changes in quality and quantity of food. Accordingly, respondents were further asked how the quality and quantity of their food has changed. In respect to positive changes on food quality and quantity, of the sample clients 68% reported that they were able to consume more condiments like vegetables, legumes, etc., 38% were able to consume more cereal staples such as Sorghum, and maize, and 19% were able to consume more animal products like dairy products, meat, etc. On the other

hand, of the sample non-clients, 45% were able to consume more condiments, 16% were able to eat more meals a day and 7% were able to consume more cereal staples (Table 28).

With regard to negative changes in quality and quantity of food, of the total sample clients, 2% responded that they eat less cereal staples and during hungry season. While 1% responded that they eat less meal per day. Of the sample non-clients, 13% eat less during hungry season, 13% eat less cereal staples, and 10% eat less meal per day (Table 28). This will be further discussed in detail in the same chapter under the title households' strategies to ease the impact of food shortage.

Table 28. Percent distribution of households by response on how their quality and quantity of food has improved

Improvements	Category					
	Clients (n=108)		Non-clients (n=62)		Total (N=170)	
	No.	%	No.	%	No.	%
Able to consume more cereal staples such as sorghum, and maize	41	37.96	10	16.13	51	30.00
Able to consume more animal products: dairy products, meat, etc.	21	19.44	4	6.45	25	14.71
Able to consume more condiments like vegetables, legumes, etc.	73	67.59	28	45.16	101	59.41
Able to consume more convenience foods like pasta, Rice	2	1.85	1	1.61	3	1.76
Able to eat better during hungry season	7	6.48	4	6.45	11	6.47
Able to eat more meals a day	17	15.74	12	19.35	29	17.06

Source: own survey, 2011

Of the sample clients and non-clients 78% and 57%, respectively, have reported that their consumption of non-food items (kerosene, detergents, etc.) has increased. While 1% and 11% of the sample clients and non-clients, respectively, revealed that their consumption of non food items has decreased. The remaining sample households have also responded that their consumption of non food items remained the same. Majority of the households, 81% and 53% of the sample clients and non-clients, respectively, have reported that their clothing condition has increased. While 11% of the sample non-clients reported that their clothing condition has decreased. Moreover, no client has reported a decrease in clothing condition. The remaining sample households also have responded that their clothing remained the same. Similarly, 82% and 52% of the sample clients and non-clients, respectively, have responded that their health condition has increased. While 1% and 15% of the sample clients and non clients, respectively, revealed that their health has decreased. The remaining sample households also have indicated that their health condition stayed the same. Of the sample clients and non-clients 46% and 26%, respectively, have reported that their housing condition (major repair, corrugated iron roofing, additional room construction, etc.) has increased. While 11% of the sample non-clients reported that their housing condition has decreased. Moreover, clients have not indicated that there is deterioration in their housing condition. On the other hand, the remaining sample households have responded that their housing condition stayed same. Majority of sample households, 77% and 63% of the sample clients and non-clients, respectively, have reported their participation in development programs has increased. While 1% and 11% of the sample clients and non-clients, respectively, reported their participation in development programs has decreased. The remaining sample households have also responded that their participation in development programs stayed the same.

Similarly, 63% and 37% of the sample clients and non-clients, respectively, have reported their access to drinking water has increased. While 7% of the sample non-clients reported their access to drinking water has decreased. Moreover, none of the sample clients reported same. On the other hand, the remaining sample households responded that their access to drinking water stayed the same.

Of the sample clients and non-clients 58% have reported that the participation of female family members in income generating activities has increased. While 1% and 8% of the sample clients and non-clients, respectively, reported that the participation of female family members in income generating activities has decreased. The remaining sample households also responded that the involvement of female family members' in income generating activities stayed the same.

In summary, 75% and 34% of the sample clients and non-clients, respectively, have reported that their overall living condition has increased. While 4% and 19% of the sample clients and non-clients, respectively, reported that their living condition has decreased. The remaining sample households (i.e., 21% of clients and 47% of non-clients) responded that their living condition has stayed same.

Table 29. Percent distribution of households by their perceptions of changes in selected welfare indicators

Scale	Category	Indicators					
		Total income	Productive assets	Durable assets	Quality of food	Quantity of food	Non food items
Decreased greatly	Clients (n=108)	0.93	0.00	0.93	0.00	0.00	0.00
	Non-clients (n=62)	1.61	0.00	3.23	0.00	0.00	0.00
	Total (N=170)	1.18	0.00	1.76	0.00	0.00	0.00
Decreased	Clients (n=108)	1.85	1.85	1.85	1.85	2.78	0.93
	Non-clients (n=62)	16.13	19.35	12.90	16.13	16.13	11.29
	Total (N=170)	7.06	8.24	5.88	7.06	7.65	4.71
Stayed the same	Clients (n=108)	24.07	43.52	45.37	15.74	21.30	21.30
	Non-clients (n=62)	43.55	61.29	64.52	27.42	41.94	32.26
	Total (N=170)	31.18	50.00	52.35	20.00	28.82	25.29
Increased	Clients (n=108)	72.22	52.78	50.00	81.48	75.00	76.85
	Non-clients (n=62)	38.71	19.35	17.74	56.45	41.94	56.45
	Total (N=170)	60.00	40.59	38.24	72.35	62.94	69.41
Increased greatly	Clients (n=108)	0.93	1.85	1.85	0.93	0.93	0.93
	Non-clients (n=62)	0.00	0.00	1.61	0.00	0.00	0.00
	Total (N=170)	0.59	1.18	1.76	0.59	0.59	0.59

Table 29. (Continued)

Scale	Category	Indicators						
		Clothing	Health	Housing condition	Participation in Development programs	Access to Drinking water	Participation of Female members in generating income	Overall living condition
Decreased greatly	Clients (n=108)	0.00	0.00	0.00	0.00	0.00	0.00	0.93
	Non-clients (n=62)	1.61	3.23	0.00	1.61	0.00	0.00	1.61
	Total (N=170)	0.59	1.18	0.00	0.59	0.00	0.00	1.18
Decreased	Clients (n=108)	0.00	0.93	0.00	0.93	0.00	0.93	2.78
	Non-clients (n=62)	9.68	11.29	11.29	9.68	6.45	8.06	17.74
	Total (N=170)	3.53	4.71	4.12	4.12	2.35	3.53	8.24
Stayed the same	Clients (n=108)	19.44	17.59	53.70	22.22	37.04	40.74	21.30
	Non-clients (n=62)	35.48	33.87	62.90	25.81	56.45	33.87	46.77
	Total (N=170)	25.29	23.53	57.06	23.53	44.12	38.24	30.59
Increased	Clients (n=108)	78.70	80.56	42.59	75.93	62.04	57.41	73.15
	Non-clients (n=62)	53.23	48.39	25.81	61.29	35.48	58.06	33.87
	Total (N=170)	69.41	68.82	36.47	70.59	52.35	57.65	58.82
Increased greatly	Clients (n=108)	1.85	0.93	3.70	0.93	0.93	0.93	1.85
	Non-clients (n=62)	0.00	3.23	0.00	1.61	1.61	0.00	0.00
	Total (N=170)	1.18	1.76	2.35	1.18	1.18	0.59	1.18

Source: own survey, 2011

The result on households perceptions of changes in their overall living condition were checked whether it is consistent with the participatory wealth ranking made for the sample households. In the participatory wealth raking the indicators used are the number of oxen, cows, and sheep and goats that the household has, ability of the household to sharecrop in, the number of months in the year that the households is food self-sufficient, and the type of material from which the roof of the household's house is made (App. Table 7).

The result indicates that the difference in perception of changes in living condition between the two groups is reflected consistently with the participatory wealth ranking of the sample households. As the percentage of clients who perceived that their living condition is positively changed is almost twice than of non-clients, the proportion of the sample clients (18%) who are categorized as better-off in the wealth category are much greater than the proportion of sample non-clients (7%) categorized as same. The proportion of sample clients and non-clients categorized as poor are 32% and 58%, respectively. In addition, the proportions of sample clients and non-clients categorized as extremely poor are 2% and 18%, respectively. The remaining proportions of the sample households fall under medium category (Fig. 8). In general, from the above discussion we can conclude that clients do have better living condition than non-clients.

To identify the role of rural credit in changes in living condition, further examination of the reasons for positive and negative changes in living condition were conducted. According to the response obtained from sample households, the result indicates that the first reason for positive changes in living condition for large proportion of sample clients (58%) is because they have participated in ACSI program credit. The second reason which comprises 28% of sample clients is their participation in more livestock activities. The third reason for 17% of the sample clients is the use of improved agricultural practices (Table 30).

Similarly, reasons for positive changes in living condition for sample non-clients were engagement in new income generating activities for 13%, use of improved agricultural practices, and additional investment on agriculture (specially purchase of oxen) each consisting of same 8%. The results make clear that the contribution of ACSI credit for positive changes in their living condition is directly recognized by more than half of the sample clients. Client households' participation in more livestock activities is also related to the provision of credit by ACSI for livestock package. The use of improved agricultural practices is also related with agricultural packages supported by training and follow up of development agents and Woreda agricultural experts. In this regard,

special attention is given for those who adopt technologies introduced through credit obtained from ACSI.

Table 30. Reasons for positive changes in living condition for sample households

Reasons	Category				Total (N=170)	
	Clients (n=108)		Non-clients (n=62)			
	No.	%	No.	%	No.	%
Credit from ACSI	43	39.81	0	0.00	43	25.29
Credit other than ACSI (ORDA, Government, Relatives)	25	23.15	3	4.84	29	17.06
Engaged in new income generating activities (self-employment)	17	15.71	8	12.90	25	14.71
More involvement in livestock activities	30	27.78	4	6.45	34	20.00
More involvement in vegetable and fruit production	13	12.04	4	6.45	27	15.88
Additional investment in agriculture (oxen, farm implement, etc.)	4	3.70	5	8.06	5	2.94
Use of improved agricultural practices	18	16.67	5	8.06	23	13.53
PSNP-PW	6	5.56	2	3.23	8	4.71
Remittances	20	18.52	45	72.58	65	38.24
Sold in new markets	4	3.70	0	0.00	4	2.35

Source: own survey, 2011

Furthermore, the analysis of the contribution of ACSI credit was done by asking respondents to estimate the proportion of contribution of ACSI credit to overall changes in their living condition. The majority of clients (40%) responded that the contribution of ACSI credit for positive changes in living condition accounts for up to 20%.

Similarly, of the sample clients, 18%, 9% and 11% reported that the contribution of ACSI credit to overall changes in living condition accounts for 21-40%, 41-60%, and 61-80%, respectively. The extent of contribution of ACSI credit in improving living condition of clients is related to frequency and amount of money borrowed with proper utilization of the loan by the households which will be discussed in detail subsequently.

Table31. Percent contribution of ACSI credit to positive changes in living condition for clients

Contribution of ACSI credit (%)	Clients (N=108)	
	No.	%
0-20	66	61.11
21-40	19	17.59
41-60	10	9.26
61-80	12	11.11
Total	107	99.07

Source: own survey, 2011

On the other hand, since there were responses that indicate that some proportion of the sample households have faced negative changes in living condition, the reasons for negative changes in living condition have been outlined. As a result, for sample clients the major reason for negative changes in living condition is poor agricultural season. Not surprisingly, one client (1%) has reported that his living condition has deteriorated because of participation in ACSI program credit.

Similarly, 10% of non-clients responded that the main reason for negative changes in their living condition is because the household head was sick. Moreover, poor agricultural season and cultivating less land were also mentioned as reasons for negative changes in living condition by equal proportions of the sample non-clients, that is, 8% each.

Table 32. Percentage of households by reasons for decrease/negative changes in living condition

Reasons	Category				Total (N=170)	
	Clients (n=108)		Non-clients (n=62)			
	No.	%	No.	%	No.	%
I have been sick	10	0.93	6	9.68	7	4.12
Poor agricultural season	39	2.78	25	8.06	64	4.71
Could not get credit	0	0.00	15	1.61	15	0.59
Less land	12	0.93	5	8.06	6	3.53
I do not have land	0	0.00	1	1.61	1	0.59
Household member has been sick	0	0.00	4	6.45	4	2.35
Get older	0	0.00	3	4.84	3	1.76
Lack of oxen	0	0.00	1	1.61	1	0.59
Fire hazard	1	0.93	0	0.00	1	0.59
Borrowing from ACSI	1	0.93	0	0.00	1	0.93

Source: own survey, 2011

h. Households' Experience to Food Shortage

Respondents were asked whether they have experienced food shortage in amount and/or frequency of meals over the past 12 months. Of the sample clients 39%, and 58% of the sample non-clients responded that they have experienced food shortage over the specified period of time, the remaining households reported otherwise.

Moreover, respondents were asked for how many months they have experienced food shortage over the past 12 months. In general, for the sample population the number of months that the households faced food shortage ranges from zero to ten months with mean number of months 1.74 and SD of 2.236. The mean number of food shortage months for sample clients and non clients is 1.42 and 2.31, respectively.

The result shows that there is statistically significant difference (t=-2.538, p=0.012) in the mean number of months of food shortage experienced between the two groups at 5% significant level. This indicates that clients have faced food shortage at an average for less number of months as compared with non-clients.

Table 33. Mean number of months sample households experienced food shortage in the year 2009/10

Number of months	Category		Total (N=170)	t value	p value	r value
	Clients (n=108)	Non-clients (n=62)				
Mean	1.42	2.31	1.74	-2.538**	0.012	-0.192
SD	1.996	2.519	2.236			

Note: ** Significant at 5% level

Source: own survey, 2011

Furthermore, respondents were asked on which month of the year they have started facing food shortage. In this respect, although harvesting crops starts from mid September (especially Maize) in the study area, the months of the year were arranged by starting from the month when almost all crops are harvested, that is, November.

The result reveals that the number of non-clients that started to face food shortage exceeds the number of clients in all months of the year except for the months June and August. This indicates that as compared to non-clients the higher number of clients started to face food shortage for

two months that are known to be critical for most rural households, that is, June and August. Whereas, higher number of sample non-clients started to face food shortage over ten months. For both groups, the peak seasons for food shortage are March to May and June to August (Fig. 10). The reasons identified for the bi-modal type of food shortage were availability of own food produced which is related to the condition of past agricultural season and availability of PW and/or DS and daily labor (mostly construction activities) in nearby town- Bati and Afar region.

i. Households' Strategies to Ease the Impact of Food Shortage

At times of food shortage, households have different choices or strategies to ease the impact of the food shortage they faced. Accordingly, in this study 15 types of strategies were identified. From these strategies identification of the three major choices of the two groups was further conducted.

The first choice or strategy to ease the impact of food shortage is to cut down number of meals for 21% and 36% of the sample clients and non-clients, respectively. The second strategy is to cut down amount food for each meal for 19% and 26% of the sample clients and non-clients, respectively. The third strategy is selling of livestock for 18% and 24% of sample clients and non-clients, respectively (Table 34).

Table 34. Households' choices (strategies) to ease the impact of food shortage

Strategy	Category				Total (N=170)	
	Clients (n=108)		Non-clients (n=62)			
	No.	%	No.	%	No.	%
Cut down number of meals	23	21.30	22	35.48	45	26.47
Cut down amount food for each meal	21	19.44	16	25.81	37	21.76
Borrowed food or cash from relatives	6	5.56	6	9.68	12	7.06
Exchanged food with other relatives	4	3.70	5	8.06	5	2.94
Looked for paid work	13	12.04	8	12.90	21	12.35
Gathering wild plants	17	15.74	13	20.97	30	17.64
Food for work	10	9.26	7	11.29	17	10.00
Migration	12	0.93	21	1.61	33	1.18
Loan from moneylenders	6	5.56	8	12.90	14	8.24
Using ACSI loan for consumption	1	0.93	0	0.00	1	0.59
Selling of livestock	19	17.59	15	24.19	34	20.00
Sale of household durables	1	0.93	1	1.61	1	0.59
Eating inferior foods	7	6.48	12	19.35	19	11.18
Selling of wood, charcoal, and animal dung	1	0.93	1	1.61	2	1.18
Looking for other self employment	2	1.85	2	3.23	4	2.35
Looking for gift from other relatives	4	3.70	11	17.74	15	8.82
Credit from grain merchants	1	0.93	3	4.84	4	2.35
Look for food aid	1	0.93	5	8.06	1	0.59
Eat less during hungry season	2	1.85	8	12.90	10	5.88

Source: own survey, 2011

j. Households' Level of Vulnerability to Food insecurity

In measuring households' vulnerability to food insecurity different authors stated that still there is no agreement on how it should be measured. However, there are a number of attempts made to measure households' vulnerability to food insecurity. The attempts made were with their limitations and are followed by critics on the methodologies used. However, in this study, by taking the necessary precautions the method used by IFAD (2007) is adapted to measure households' vulnerability to food insecurity.

According to IFAD (2007), in order to construct the indicators to identify households that are vulnerable to food insecurity, the household must be characterized based on the following features: food production or food market dependency, income, asset ownership, income diversification, and crop diversification. The proxies used for each of these components are, respectively, the household's own food production, total household earned income, liquid asset stocks, the number of income sources and the number of crops grown. The first variable is

included in the indicator to reflect the source of household food supply. The second indicates the household's ability to access food through earned revenues. The third reflects the household's ability to cope with short-term food shortages, while the fourth and fifth variables are indicative of the household's strategy in reducing the risk of entitlement failure.

Accordingly, by grouping the data obtained from respondents for each of the five variables into quintiles or five scales (very low to high) the variables were examined to identify households' level of vulnerability to food insecurity. Moreover, the association of households' level vulnerability to food insecurity with participation in ACSI program credit was assessed.

Households' own food production

Households' own food production was estimated on the basis of the type of crop grown, farm size, quality of land, fertilizers used, and condition of the agricultural season. Using these indicators farmers were first asked to tell the amount of product they obtained and this was checked against the WoARD crop assessment report for the Kebele in 2009/10 production year.

If the responses of the farmers highly deviate from the prior assessment made by WoARD, the respondents were requested to justify the reasons for the deviations. If there were peculiarities attributed to the household and the reason found to be convincing the amount indicated by the household was taken into consideration. Otherwise, necessary amendment was made on the amount produced based on the reports on crop production assessment made for each crop on average basis.

Prior to employing the data, the crop production assessment done using sampling technique by WoARD was first confirmed for its accuracy and whether it was conducted on participatory basis and has got acceptance by Kebele administration. This was done on one side because in most cases there is disagreement between agronomy experts and Kebele administration because of expectation of more relief food by the Kebele administration though it seems decreasing from time to time. On the other side, there exists poor crop assessment by experts due to poor sampling techniques and biasness that arises from rain fall data for the season.

After getting the amount of production for each crop the total amount produced was compared to the annual food requirement of each household based on the family size that the household has. Each family member was considered to require 2.36 quintals of grain per year. According to Mulat (1999), the 2200 calories per person per day level set by the Ethiopian government was

used as a minimum required for an active and healthy life. This level of calorie intake was calculated to require about 2.36 quintals of grain (cereals or pulses) per person per year.

As a result, the percentage of households' producing their own food ranging from very low to very high account for 8%, 29%, 30%, 15%, and 18% of the clients, respectively. While for non clients, own food production from very low to very high consists of 14%, 31%, 21%, 11%, and 23% of the non-clients, respectively. In addition, the result reveals that the highest proportions of both clients and non-clients are concentrated in low and medium own production category. Moreover, there is no statistically significant difference in proportion of sample households between the two groups in own food production (Table 35).

Table 35. Percent distribution of sample households by percentage of own food production

Households' own food production	Category				Total (N=170)		χ2 value	p value
	Clients (n=108)		Non-clients (n=62)					
	No	%	No	%	No	%		
Very low (0-20%)	19	17.59	14	22.58	33	19.41		
Low (21-40%)	31	28.70	19	30.64	50	29.41		
Medium (41-60)	33	30.56	13	20.97	46	27.06		
High (61-80%)	16	14.82	7	11.29	23	13.53		
Very high (>=81%)	9	8.33	9	14.52	18	10.59		
Total	108	100.00	62	100.00	170	100.00	3.677	0.451

Source: own survey, 2011

Households' annual earned income

Households' annual earned income was calculated from agriculture, self employment, formal employment, informal employment, relief, and remittance income sources obtained by households. The earned income was put under the range of five categories from very low to very high income level.

The result shows that the percentage of clients with earned income very low to very high account for 13%, 19%, 20%, 21%, and 27%, respectively. While for non-clients earned income very low to very high consists of 32%, 23%, 21%, 16%, and 8% of the non-clients, respectively. Furthermore, there is significant difference in proportion of sample households between the two groups in earned income they obtained at 1% level of significance. Moreover, the result reveals

that the proportion of clients increases with an increasing level of income while proportion of non-clients increases with decreasing level of income (Table 36).

Table 36. Percent distribution of sample households by annual earned income

Annual earned income	Category				Total (N=170)		x2 value	p value
	Clients (n=108)		Non-clients (n=62)					
	No.	%	No.	%	No.	%		
Very low(0.00-662.00 EB)	14	12.96	20	32.26	34	20.00		
Low(663.00-1128.00 EB)	20	18.52	14	22.58	34	20.00		
Medium(1129.00-1821.00 EB)	22	20.37	13	20.97	35	20.59		
High(1822-2923.00 EB)	23	21.30	10	16.13	33	19.41		
Very high(>=2924.00 EB)	29	26.85	5	8.06	34	20.00		
Total	108	100.00	62	100.00	170	100.00	15. 157***	0.004

Note: *** significant at 1% probability level

Source: Computation from own survey, 2011

Liquid asset stock of households

In this study, among the various available household asset stocks recorded, those assets considered as liquids are identified on the basis of information obtained directly from respondents, group discussion, key informants, and review of literature. As a result, chicken, sheep and goats were identified as liquid livestock assets. In addition, jewelries like gold and silver are liquid assets that can be easily changed in to money. Therefore, selected livestock type (chicken, sheep and goats), and jewelries (gold and silver) owned by sample households were taken for comparison by putting the sum of the estimated values of these liquid asset stocks into five categories ranging from very low to very high.

The result shows that the percentage of clients with total estimated value of liquid asset stock very low to very high account for 17%, 18%, 22%, 19%, and 24%, respectively. While for non clients, total estimated value of liquid asset very low to very high consists of 34%, 16%, 16%, 21%, and 13% of the non-clients, respectively (Table 37).

The result also indicates that there is significant difference in proportion of sample households between the two groups in estimated value of liquid asset stock they own at 10% level of significance. Moreover, the result reveals that the proportion of clients increased with an increasing level of income while the vice versa holds true for non-clients.

Table 37. Percent distribution of sample households by estimated value of liquid asset stocks

Estimated value of liquid assets	Category				Total (N=170)		χ2 value	P value
	Clients(n=108)		Non-clients(n=62)					
	No.	%	No.	%	No.	%		
Very low(0.00-400.00EB)	18	16.68	21	33.87	39	22.94		
Low(401.00-894.00EB)	19	17.59	10	16.13	29	17.06		
Medium(895.00-1352.00EB)	24	22.22	10	16.13	34	20.00		
High(1353.00-2070.00EB)	21	19.44	13	20.97	34	20.00		
Very high(>=2071.00EB)	26	24.07	8	12.90	34	20.00		
Total	108	100.00	62	100.00	170	100.00	8.366*	0.079

Note: * significant at 10% probability level; Source: Computation from own survey, 2011

Income diversification of households

According to IFAD (2007), the proxy indicator for income diversification is the number of income sources. In this study, as discussed in previous section, income sources are broadly categorized to six: agriculture, self employment, informal employment, PSNP, and remittance. As a result, percentage distribution of sample households by number of these income sources categories was taken in to consideration. The number of income source categories from one to five was similarly rated from very low to very high.

The result indicates that the percentage of clients with number of income sources very low to very high account for 5%, 45%, 22%, 24%, and 4%, respectively. While for non-clients, number of income sources very low to very high consists of 5%, 58%, 18%, 14%, and 5% of the non-clients, respectively. Although the proportion of clients exceeds that of non-clients in low to high number of income sources, there is no statistically significant difference in proportion of sample households between the two groups.

Table 38. Percent distribution of sample households by number of income sources

Number of income sources	Category				Total (N=170)		χ2 value	P value
	Clients(n=108)		Non-clients(n=62)					
	No.	%	No.	%	No.	%		
Very low=1	7	6.48	5	8.06	12	7.06		
Low=2	49	45.37	36	58.06	85	50.00		
Medium=3	24	22.22	11	17.74	35	20.59		
High=4	26	24.07	9	14.52	35	20.59		
Very high=5	2	1.85	1	1.61	3	1.77		
Total	108	100.00	62	100.00	170	100.00	3.528	0.474

Source: own survey, 2011

Households' crop diversification

According to IFAD (2007), the proxy indicator for crop diversification is number of crops grown by the household. On the other hand, Maji and Rahim (1995) define crop diversification as the cultivation of number of different crops requiring different inputs at various points in time. In this study, instead of taking the number of crops grown directly as proxy indicator for crop diversification, categorizing the different crops grown using certain indicators established during focus group discussion with added expertise idea was conducted. As a result, the number of crops grown was considered as a proxy indicator to crop diversity based on the number of the crop categories established. The number of crop categories from one to five was again similarly rated from very low to very high crop diversification level (Table 39). The indicators identified and considered to categorize the crops were purpose of the crop or marketability of the crop, difference in exposure to pest risk, and difference in length of growing cycle (i.e., short or long growing cycle). Although drought is a covariant risk for all rain fed crops, difference in length of growing cycle for the crops was taken as proxy indicator to identify their relative difference in exposure to drought risk. Growing cycle refers to the time period required by a crop from germination to seed setting or time period they require to ripe to be harvested. Crops with shorter growing cycle are those that take a period of 3 to 4 months to be harvested while crops with longer growing cycle are those that require 5 to 7 months time period to be harvested. On the other hand, all vegetable crops grown through irrigation are placed in a different category. Accordingly, as depicted in Table 39, the first category of crops consists of the majority of cereals grown for the household food, with shorter growing cycle, and with similar pest risk.

These include staple cereals such as Maize, and Sorghum the second crop category comprises maize, sorghum, and millet. These are cereals mainly grown for household consumption with relatively longer growing cycle and have similar pest risk. As compared to other cereals teff (third crop category) and the fourth crop category- pulses (Ground nut, and chickpea) are high value crops grown mainly for market and they can be considered as cash crops of the area. These crops are with shorter growing cycle and with different pest risk.

The fifth category was vegetable crops (cabbage, potato, onion, tomato, etc.) that are perishables with relatively higher storage and transportation risk as compared to cereals and pulses. Vegetables are marketable and less prone to drought risks as they are grown in irrigable farm lands, of course, with different pest risk.

The result reveals that 96% of the clients cultivated cereal crops with shorter growing cycle in a total area of 31.457 Ha mainly for consumption, while 89% of the non-clients cultivated same in a total area of 14.054 Ha. Similarly, 30% of the clients grow cereal crops with longer growing cycle in a total area of 4.776 Ha for consumption, while 16.13% of the non-clients cultivated same in a total area of 1.87 Ha (Table 39).

Of the sample clients, 24% grow teff mainly for market in a total area of 2.765 Ha. Similarly, 16.3% of the non-clients grow same in a total area of 1.102 Ha. Furthermore, 49% of clients cultivate pulses mainly for market in a total area of 9.376 Ha, while 27% of the non-clients grow same in a total area of 2.489 Ha. Moreover, 12% of clients grow vegetables mainly for market in a total area of 3.5 Ha, while 6% of the non-clients grow same in a total area of 1.25 Ha (Table 39).

In general the result indicates that the proportion of clients exceed than of non-clients in all crop diversification categories specially in producing marketable crops (Table 39).

Table 39. Percent distribution of sample households by type of crops cultivated

Crop type	Category						Total (N=170)		
	Clients (n=108)			Non-clients (n=62)					
	No.	%	Ha	No.	%	Ha	No.	%	Ha
Sorghum	93	86.11	15.909	47	75.81	8.619	144	84.71	24.528
Maize	78	72.22	12.488	29	46.77	4.404	108	63.53	16.892
Teff	21	19.11	3.060	11	17.74	1.031	32	18.82	4.091
Sub total	104	96.30	31.457	55	88.71	14.054	159	93.53	45.511
Pepper	30	27.78	3.901	10	16.13	1.745	40	23.53	5.646
Sesame	4	3.70	0.50	1	1.61	0.125	5	2.94	0.625
Millet	2	1.85	0.375	0	0.00	0	2	1.18	0.375
Sub total	32	29.63	4.776	10	16.13	1.87	42	24.71	6.646
Lentil	26	24.07	3.498	12	19.35	1.826	38	22.35	5.324
Horse bean	22	20.37	3.222	5	8.06	0.585	27	15.88	3.807
Field pea	10	9.26	2.052	2	3.23	0.375	12	7.06	2.427
Chick pea	4	3.70	0.479	1	1.61	0.063	5	2.94	0.542
Pea	1	0.93	0.125	0	0.00	0.00	1	0.59	0.125
Sub total	53	49.07	9.376	17	27.42	2.849	70	41.18	12.225
Vegetables	26	24.07	2.765	10	16.13	1.102	36	21.18	3.867
Fruit	13	12.04	3.50	4	6.45	1.25	17	10.00	4.75
Total	105	97.22	51.874	56	90.32	21.125	161	94.71	72.999

Source: own survey, 2011

The result indicates also that the percentage of clients with number of crops grown very low to very high category account for 24.07%, 46.30%, 22.22%, 6.48%, and 0.93%, respectively. While for non-clients, number of income sources very low to high consists of 53%, 31%, 14%, and 2% of the non-clients, respectively (Table 40).

Furthermore, there is statistically significant difference in proportion households in terms number of crops grown by sample households between the two groups at 1% level of significance. This implies that as compared to non-clients, clients grow more diversified crops.

Table 40. Percent distribution of sample households by number of crops cultivated

Number of crop	Category				Total (N=170)		χ2 value	P value
	Clients (n=108)		Non-clients (n=62)					
	No.	%	No.	%	No.	%		
Very low=1	26	24.07	33	53.23	59	34.71		
Low=2	50	46.30	19	30.64	69	40.59		
Medium=3	24	22.22	9	14.52	33	19.41		
High=4	7	6.48	1	1.61	8	4.70		
Very high=5	1	0.93	0	0.00	1	0.59		
Total	108	100.00	62	100.00	170	100.00	16.313***	0.006

Note: *** significant at 1% probability level; Source: own survey, 2011

In the second step the rating made on households own food production, earned income, liquid assets stock, number of income sources and number of crops grown was reduced from quintiles to terciles. This is to mean that the very low categories were further aggregated to and categorized as low. The medium category was considered as it is, while the very high category was further categorized as high. After establishing a tercile, similar to the method used by IFAD (2007), it was assumed that belonging to the low tercile contributes nothing to the households' food security measure and takes a value of zero; the medium tercile, 1 point; and the high tercile, 2 points. The partial scores were added for each individual household. Total scores of up to 3 points were presumed to reflect extreme vulnerability, while 4 to 7 indicate medium vulnerability, and from 8 to 12 low vulnerability.

As a result, of the sample population, 30% fall in to the category of extreme vulnerability, 58% were categorized as medium vulnerability and the remaining 12% were characterized as low

vulnerability to food insecurity. In comparison of the two groups, the percentages of sample clients that fell under the categories extreme vulnerable, medium vulnerable and low vulnerable were 24%, 59%, and 17%, respectively. Whereas, of the sample non-clients 39%, 56%, and 5% belong to the category extreme vulnerability, medium vulnerability, and low vulnerability, respectively. Moreover, the result indicates that there statistically significant difference ($\chi 2=7.383$, $p=0.025$) in percentage of households between the two groups across the level of vulnerability to food insecurity at 5% level of significance (Table 41).

In general, the result indicates that non-clients are associated with relatively low income, low staple food production, low diversification and scarce assets which make them more vulnerable to food insecurity than clients. Moreover, the result revealed that households' level of vulnerability to food insecurity is negatively associated with their participation in ACSI credit program. Therefore, we can conclude that clients are less vulnerable to food insecurity than non-clients.

Table 41. Percent distribution of sample households by level of vulnerability to food insecurity

Level of vulnerability	Category		Total (N=170)	χ2 value	P value
	Clients(n=108)	Non-clients (n=62)			
Extreme vulnerability	24.07	38.71	29.41		
Medium vulnerability	59.26	56.45	58.24		
Low vulnerability	16.67	4.84	12.35		
Total	100	100	100	7.383**	0.025

Note: ** significant at 5% probability level; Cramer's V=0.208; Source: own survey, 2011

Results on further analysis reveal that clients' level of vulnerability to food insecurity is negatively associated with amount and frequency of borrowing. As the frequency of borrowing and amount borrowed increases, the level of vulnerability of clients to food insecurity has reduced. This indicates that the mere participation of households in ACSI program credit doesn't reduce the households' vulnerability of to food insecurity, rather in addition to the utilization of loan for the intended purpose, reducing households vulnerability to food insecurity largely depends on amount and frequency of borrowing. Taking in to account the heterogeneous capabilities of households, determining the threshold level for the amount and frequency of borrowing which is

expected to reduce households' vulnerability to food insecurity is beyond the objective of the study and requires further study.

Nevertheless, in this study, an attempt had been made to examine the association of size of loan, frequency of borrowing, and proportion of loan used for intended purpose with clients' level of vulnerability to food insecurity using correlation analysis. Moreover, F-test and Chi-square test, respectively, were conducted to test significance of the mean difference in amount and frequency of borrowing, and the percentage of loan utilized for intended purpose among the vulnerability groups.

In this study, the definition given for utilization of loan for unintended purpose does not equate to the concept of fungibility. In the case of fungibility, "it is believed to happen if the marginal profit obtained from the diversion is not at least equal to the marginal profit expected from the first intended purpose," otherwise, there is no fungibility. But in this study any diversion (partly or fully) from the intended purpose was considered as utilization of loan for unintended purpose regardless of its profitability.

Accordingly, the result indicates that for the sample clients the year when they first borrowed ranges from 1998 to 2006. The average frequency of borrowing is 1.76 ranging from 1 to 5 with SD of 0.735. In addition, the average size of loan borrowed is 2408.89 EB per household ranging from 360.00 EB to 17400.00 EB with SD of 2420.67. Moreover, the amount of loan utilized for the intended purpose is 91%.

Similarly, using same attributes clients were also seen based on their levels of vulnerability to food insecurity category. Clients belonging to the category of extreme vulnerability to food insecurity have borrowed at an average 1568.46 EB with an average frequency of borrowing 1.5 and 96% utilization of loan for intended purpose.

On the other hand, clients falling in the category of medium vulnerability to food insecurity have borrowed at an average a loan amount of 2123.91 EB with 1.80 frequency of borrowing and 94% utilization of loan for intended purpose. The low vulnerability category have borrowed at an average 4636.11 EB which is almost twice the overall average for sample clients and with highest frequency of borrowing (2.0) and the utilization of loan for intended purpose (76%). This is the lowest percentage as compared to the former two vulnerability categories (Table 42).

Furthermore, the result indicate that there is statistically significant difference among the vulnerability categories in mean frequency of borrowing at ($p<0.1$), mean amount borrowed at

(p<0.01), and percentage of mean loan amount used for intended purpose at (p<0.05). Moreover, the result reveals that frequency of borrowing and size of loan borrowed are negatively associated with clients' level of vulnerability to food insecurity. While percentage of loan used for intended purpose is positively associated with the clients' level of vulnerability to food insecurity. The lowest percentage of utilization loan for intended purpose observed in low vulnerability category of clients may be due to the reason that the large size of loan they borrowed enables them to use it flexibly. These clients other than using the proportion of the loan for immediate consumption, they can use the loan for other productive purpose or asset accumulation. This was consistent with the information obtained during focus group discussion and key informants interview. On the other hand, though the medium and extreme vulnerability categories reported relatively better proportion of loan utilization for the intended purpose, the remaining proportion of loan is mostly used for immediate consumption. This has a far reaching implication on repayment of loan and the sustenance of food security of the households.

In conclusion, within the limit of loan size, clients who have borrowed larger size of loan and who used the loan for intended purpose are more likely to become less vulnerable to food insecurity.

Table 42. Clients' level of vulnerability to food insecurity, frequency of borrowing and amount borrowed

	Level of vulnerability			Total (N=108)	F /χ2 value	P value	r value
	Extreme (n=26)	Medium (n=64)	Low (n=18)				
Mean frequency of borrowing	1.5	1.80	2.0	1.76	2.757*	0.068	-0.221
Mean amount borrowed (EB)	1568. 46	2123.91	4636.11	2408.89	11.524***	0.000	-0.375
Loan amount used for intended purpose (%)	95.62	93.97	75.67	91.31	85.971**	0.035	0.272

Note: ***, **, * significant at 1%, 5%, and 10% probability level; Source: own survey, 2011

k. Clients Experience towards ACSI Credit and Savings Program

Although it seems beyond the objectives of the study, assessment of some of the issues related to services rendered by the institution in terms of clients experience towards the services had been

carried out. The result indicates that clients have different practical experience towards ACSI's credit and savings program. Majority of the clients 73%, 73%, and 65% have responded that their experience towards the size of loan, eligibility criteria, and repayment schedule, respectively, is positive (Table 43). Whereas, 64%, 32% and 28% of the clients have negative experience to group responsibility for repayment, compulsory savings, and level of interest rate, respectively.

Of the clients, 7% and 21%, respectively, have negative experience towards efficiency on processing the loan application as well as supervision and technical assistance of ACSI staff. The implication is that the ACSI staff members are required by clients to increase their efficiency on processing loan application as well as supervision and technical assistance in order to satisfy clients on the service delivery and enable clients to use the loan effectively and efficiently.

Table 43. Percent distribution of clients by their experience to ACSI credit and saving program, (N=108)

Attribute	Negative	Fair	Positive	Very positive	Total
Eligible criteria	1.85	24.07	73.15	0.93	100
Group responsibility for repayment	63.89	8.33	27.78	0.00	100
Loan application processing Efficiency	7.41	33.33	56.48	2.78	100
Size of loan	3.70	20.37	73.15	2.78	100
Loan utilization flexibility	4.63	34.26	54.63	6.48	100
Repayment schedule	12.04	23.15	64.81	0.00	100
Level of interest rate	27.78	25.93	45.37	0.93	100
Compulsory saving	32.41	19.44	43.52	4.63	100
Supervision and technical assistance	21.30	26.85	50.00	1.85	100

Source: own survey, 2011

I. Non-clients Reasons for Not Participating in ACSI Credit and Saving Program

Non-clients were also asked whether they have tried to become a member of loan group in ACSI. The majority (73%) responded that they haven't tried to become a member of loan group while the remaining (27%) responded otherwise (Table 44).

The respondents have different reasons for not trying to become a member of loan group. Among others, the three major reasons and the proportion of respondents are fear of indebtedness 58%, taking group responsibility is unacceptable 30%, and no need of credit 24%.

Table 44. Percent distribution of non-clients by reasons for not trying to become a member of loan group in ACSI, (N=62)

Reasons	Number of households (%)
No need of credit/Due to religious reasons	24.19
Unable to form group	3.23
Unable to meet compulsory saving requirement	1.61
Taking group responsibility is unacceptable to me	29.67
Group require members to pledge asset as collateral	1.61
Group meeting requirement is time consuming	1.61
Unhappy with the repayment time and length of ACSI loan	1.61
High interest rate	3.23
Fear of indebtedness	58.06
Conflict with credit and saving committee	1.61
Lack of knowledge of ACSI's activities	1.61
Feel that I do not fulfill the criteria	1.61
Disagreement with spouse over taking the loan	3.23

Source: own survey, 2011

Those non-clients who have tried but failed to become a member of ACSI loan group were also asked to identify the reasons for their failure to participate in program credit. According to their response the reasons that impeded them from becoming a member of loan group and the percentage respondents are conflict with credit and saving committee 55%, unable to form a group 28%, family problem or domestic conflict 10%, and absence during delivery time 7% (Table 45).

Table 45. Percent distribution of non-clients by reasons for failure to become loan group members in ACSI, (N=62)

Reasons	Number of households (%)
Unable to form group	27.59
Conflict with credit and saving committee	55.17
Family problem or domestic conflict	10.34
Absence at the time of delivery	6.90

Source: own survey, 2011

In summary, it is obvious that ACSI has been playing a considerable role in alleviating the financial constraint of rural households and it has traveled long journey in terms of outreach and depth. However, for better attainment of the institutions' objective still there is a need to maximize

efforts and make necessary arrangements specially in addressing the able but poor rural households.

To further increase outreach and depth of the institution's services raising the awareness level of the population about the services through print and electronic media, public meeting etc. is required. This will help to minimize fear of households for indebtedness and/or to improve risk orientation of the households as it has affected significant number of eligible households to refrain from participating in the program. The awareness raising should be supported with added information about the available niches for rural households in on-farm and non-farm self employment that can be exploited through increasing their financial capabilities. This should take into consideration that the heterogeneous capabilities of households and spatial differences. To this end, increasing the effort in identifying more remunerative activities is also required. This includes along with own food production focusing on the type of livestock such as sheep and goats fattening, poultry production, high value crops production and petty trade, which are considered as more remunerative activities in the study area.

The approach in the implementation of the program should focus on households rather than only the heads of the household. This will reduce domestic conflict in the households and increase the number of clients and improve the utilization of loan for intended purpose. Moreover, clients should be trained and consulted for effective utilization of the credit. The ACSI staff has to be trained as how to provide efficient services in processing loan applications, how to provide technical support and training in credit, finance, and business management, and how to undertake supervision. Similarly, to avoid complaints and conflicts among clients and Kebele credit committee and deliver efficient service training for Kebele credit committee is also required. Although the availability of alternative financial services or institutions for the rural households are important, in some cases overlapping of the services are resulting in inefficient utilization of the resources. As a result, there is a need for institutions that deliver financial services to revisit their approaches in terms of dimensions of their services and selection of target groups.

7. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1. Summary and Conclusions

In Ethiopia microfinance institutions are becoming increasingly essential instruments in reducing poverty. Accordingly, ACSI has been providing formal financial service for rural households in Amhara region with one of its primary objectives being to reduce households' vulnerability to food insecurity. However, there is limited knowledge on the impact of financial service by ACSI in reducing households' vulnerability to food insecurity. This study was thus initiated to assess the role of the service in reducing rural households' vulnerability to food insecurity in Bati Woreda, Oromo Zone.

To meet the objectives of the study, both quantitative and qualitative methods had been employed. The approach used was quasi-experimental where clients of ACSI as one group were compared with other control group- eligible but non clients of ACSI. A total of 170 sample households of whom 108 and 62 clients and non clients of ACSI, respectively, were selected using simple random sampling with probability proportional to size from two randomly selected sample Kebele. After collecting primary and secondary data, analysis was made using descriptive statistics and test statistics. The results found and conclusions made are briefly summarized below.

Agriculture is the primary source of income for the large proportion of both sample clients and non-clients followed by PSNP (PW and/or Ds), and self employment. The survey results indicated also that the annual mean income obtained in the year 2009/10 by sample clients is 43% and 52% higher, respectively, than of their annual mean income obtained in the year just before they participate in ACSI program credit and non-clients' annual mean income for the year 2009/10.

In terms of income diversity, as compared to non-clients, sample clients take larger mean number of income sources and larger value of mean income diversity index. Larger proportions of clients have also participated in more remunerative activities: high value crop production (mainly ground Nut), livestock production (mainly sheep and goat production/fattening) and petty trade. These imply that clients have more diversified income sources than non-clients. However, in respect to the share of non-agricultural income in the annual income of households, there is no significant difference between the two groups.

Results of the analysis of hypothesized variables using test statistics indicate that age, sex, education level of household head, family size, number of economically active members of the household, farm size and households' livestock holding found to be significant and positively related to households' participation in ACSI program credit. On the contrary, distance to all weather roads and distance to Woreda market are statistically significant but negatively related to households' participation in the program credit.

Similarly, results of the statistical tests carried out to identify determinants of household income source diversification also revealed that among the ten variables examined seven variables found to be significant of which six variables: family size, number of economically active members of the household, farm size, livestock holding, distance to Woreda market, and participation in ACSI program credit are positively related to households income source diversification. On the contrary, distance to all-weather road is negatively related to households' income source diversification. In regard to asset ownership of households, clients own quality house (type of materials from which it is made) with more number of rooms as compared with non-clients. This is mainly attributed to participation in ACSI program credit as the clients have used proportion of the loan directly to improve their house or from returns of investment made through ACSI loan was used for the same purpose. The study also indicates that clients did own more number of livestock and non-productive assets as well as liquid asset stocks with larger estimated value. This has also strong association with households' participation in ACSI program credit. Moreover, larger proportions of clients have cash savings in saving and credit cooperatives.

Besides, of the sample clients 24% have also voluntary cash savings with ACSI, but non clients did not. In respect to changes in households' living condition over the past five years, as compared to non-clients large proportion of clients have perceived that their overall living condition has increased. This result was checked whether it is consistent with the participatory wealth ranking made for the sample households. As a result, the difference in perception of changes in living condition between the two groups was consistently reflected with the participatory wealth ranking of the sample households. Large proportion of sample clients (58%) responded that the positive changes in their living condition was as a result of their participation in ACSI Program credit. This makes clear that the contribution of ACSI credit for positive changes in their living condition is directly recognized by more than half of the sample clients. On the other hand, non-clients (13%) response was engagement in new income generating activities. On the other hand,

for sample clients the major reason for negative changes in living condition was poor agricultural season.

While for non-clients the main reasons for negative changes in their living condition were because the household head was sick and poor agricultural season. In respect to households' experience to food shortage over the past 12 months, compared with clients, large proportion of non-clients have experienced food shortage in amount or frequency of meals for larger mean number of months.

In regard to households' level of vulnerability to food insecurity, there was significant difference between the two groups. As compared with clients, more proportion of non-clients fall under extreme vulnerability category. On the other hand, relatively more proportions of clients fall under medium vulnerable and less vulnerable categories. Moreover, the result revealed that rural households' level of vulnerability is negatively associated with their participation in ACSI credit program. In general, the result indicates that non-clients are associated with relatively low income, low staple food production, low diversification of income sources and scarce assets which make them relatively more vulnerable to food insecurity than clients.

On the other hand, clients' level of vulnerability to food insecurity is negatively associated with amount and frequency of borrowing. This indicates that the mere participation of households in ACSI program credit doesn't reduce the vulnerability of households to food insecurity, rather in addition to the utilization of loan for the intended purpose, reducing households vulnerability to food insecurity largely depends on amount and frequency of borrowing.

In conclusion, the study reveals that households' level vulnerability to food insecurity is negatively related to households' participation in ACSI program credit. Hence, as compared to non-clients, larger proportions of clients found to be less vulnerable to food insecurity. Clients have different practical experience towards ACSI's credit and savings program. Majority of the clients have responded that their experience towards the size of loan, eligibility criteria, and repayment schedule is positive. On the other hand, larger proportions of the clients have negative experience to group responsibility for repayment, compulsory savings, and level of interest rate. Some proportions of clients also have negative experience towards the loan application processing efficiency as well as supervision and technical assistance of ACSI staff.

The majority of non-clients haven't tried to become a member of ACSI loan group for different reasons. The major reasons are fear of indebtedness, taking group responsibility is unacceptable,

and no need of credit (due to religious reasons). On the other hand, for those who have tried but failed to become a member of ACSI loan group, the reasons for failure are conflict with credit and saving committee, unable to form a group, family problem or domestic conflict, and absence during delivery time.

7.2. Recommendations

The recommendations or implications for policy are the following: Raising outreach and depth of rural financial services. As they are confirmed to have positive impact on households' income diversification, build assets, and reduce vulnerability to food insecurity. Improving rural households' access to market is crucial. This includes not only the usual rural physical infrastructure, particularly the road net-work needs special attention by government and others for a healthy microfinance operation. Given that the poor are largely involved in few enterprises, the risk is indeed high if similar products cater only for the small market nearby, which easily saturates, diminishing potential profitability. Relevant market information and networks are also vital. And improving communications are also required. These are expected to enable rural households to participate in more remunerative activities, increase income, and diversify their income sources.

Expanding the opportunity of off-farm and non-farm activities through investments that generate employment and increase the wages to attract rural households in order to diversify their income sources thereby reduce their vulnerability to food insecurity.

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9. APPENDICES

9.1. Tables in Appendix

Appendix Table 1. Conversion factors used to estimate Tropical Livestock Unit (TLU)

Livestock Type	TLU (Tropical Livestock Unit)
Calf	0.20
Weaned Calf	0.34
Heifer	0.75
Cows/Oxen	1.00
Horse/Mule	1.10
Donkey	0.70
Donkey (Young)	0.35
Sheep/Goat	0.13
Sheep/Goat (Young)	0.06
Camel	1.25
Chicken	0.013

Source: Storck et al., 1991

Appendix Table 2. Amhara Credit and Saving Institute (ACSI) 16 years Credit Outreach Performance (starting from its establishment).

Year	Number of Area Covered					No. of served credit clients		No. of active credit clients		Amount of loans disbursed		Average loan size in Birr	Loan Repayment in %
	Woreda	Kebele	Branch	Sub-Branch	Micro Bank	Total	% of female credit clients	Total	Females' share (%)	Total	No of loans disbursed		
1995	6	-	6	6	-	672	32	672	33	271590	266599	366	100
1996	10	-	10	10	-	7799	34	7799	35	4972706	3402223	581	99
1997	46	-	15	67	-	46647	49	38190	43	28625211	20786065	614	99
1998	78	765	21	134	-	86652	51	68580	50	41890292	29311397	677	97
1999	100	1259	15	161	-	146398	49	107143	49	65809534	40389533	804	97
2000	104	1456	15	163	-	206061	46	131330	45	94686525	94686526	724	98
2001	104	1559	13	163	-	262880	43	152565	38	352296754	116040000	751	99
2002	112	1767	10	168	-	363681	38	215970	33	516420982	164120000	795	99
2003	113	1999	10	173	-	482083	35	390734	37	711706487	166600000	961	98
2004	114	2185	10	173	3	623209	34	406163	34	1.08 Billion	329320000	872.42	99
2005	114	2358	10	174	3	791323	36	434814	38	1.51Billion	464520000	935.69	99
2006	140	2627	10	182	3	939020	41	536804	45	2.01 Billion	687360000	1055	99
2007	140	2783	10	185	3	1,150,000	45	597723	51	3.19 Billion	1.016 Billion	1235	99
2008	151	2862	10	195	3	1,400,000	50	710576	60	4.7 Billion	1.5 Billion	1461	99
2009	151	2902	10	197	15	1,490,000	51	647834	64	5.9 Billion	1.6 Billion	1626	98
2002 E.C	151	2936	10	199	15	1,690,000	60	677331	65	7.7 Billion	1.765 Billion	1818	98
2003 E.C	151	3018	10	218	15	1,900,000	68	694993	68	9.7 Billion	1.9 Billion	1995	98

Appendix Table 3. Amhara Credit and Saving Institute (ACSI) 16 years Mobilized Saving Outreach Performance (starting from its establishment).

Years	Total saving mobilized	Total no of savers	Total net saving mobilized	Total no of active savers	Saving -Credit Ratio in %
1995	13254	-	-	672	-
1996	537352	-	536653	7799	16
1997	4915136	72052	4915137	46647	24
1998	53951126	101616	17721796	64020	61
1999	77917374	145000	33729344	137928	73
2000	137890000	231061	55479819	221061	78
2001	183550000	315879	31800085	261789	88
2002	297500000	614594	98856347	416841	70
2003	414600000	598916	128,640000	443365	61
2004	569100000	750222	172790000	541416	55
2005	786290000	962197	239410000	696021	53
2006	1.08 Billion	1216389	365820000	846650	54
2007	1.12 Billion	1476475	565500000	1017000	56
2008	1.61 Billion	1857857	829000000	1270000	54
2009	2.45 Billion	2235882	9888000000	1250000	60
2002 E.C	3.55 Billion	2590043	1.052 Billion	1480000	60
2003 E.C	5.66 Billion	2888923	1.36 Billion	1690000	70

Source: ACSI (September 2004 E.C No, 16).

Appendix Table 4. Percent distribution of households by specific income sources and total annual mean income generated from each income source

Income sources	Category								
	Clients (n=108)			Non-clients (n=62)			Total (N=170)		
	HH		Annual Mean Income (EB)	HH		Annual Mean Income (EB)	HH		Annual Mean Income (EB)
	No.	%		No.	%		No.	%	
Agriculture									
Crop production	105	97.22	1799.40	56	90.32	1121.13	161	94.71	1552.03
Horticultural production	14	12.96	78.70	6	9.68	51.77	20	11.76	68.89
Animal sale	65	60.19	498.01	31	50.00	403.10	96	56.47	463.39
Animal products sale	13	12.04	84.20	9	14.52	52.38	22	12.94	72.59
Tree farm	15	13.89	30.37	2	3.23	8.87	17	10.00	22.53
Grass and crop residues sales	6	5.56	18.89	4	6.45	9.52	10	5.88	15.47
Sharecropping	9	8.33	71.20	4	6.45	63.34	13	7.65	68.34
Self employment									
Shop keeping	2	1.85	4.63	0	0.00	0.00	2	1.18	2.94
Petty trade	7	6.48	255.51	4	6.45	252.58	11	6.47	254.44
Fuel wood and/ or charcoal sale	17	15.74	55.65	4	6.45	10.56	21	12.35	39.19
Handicraft	3	2.78	88.41	3	4.84	13.87	6	3.53	61.22
other wild fruits sale	1	0.93	0.93	0	0.00	0.00	1	0.59	0.59

Appendix Table 4. (Continued)

Income sources	Category						Total		
	Clients (n=108)			Non-clients (n=62)			(N=170)		
	HH		Annual Mean Income (EB)	HH		Annual Mean Income (EB)	HH		Annual Mean Income (EB)
	No.	%		No.	%		No.	%	
Informal employment									
House maid	1	0.93	7.41	0	0.00	0.00	1	0.59	4.71
Manual labor	23	21.3	385.45	9	14.52	153.61	32	18.82	300.90
Labor migration	1	0.93	3.70	0	0.00	0.00	1	0.59	2.35
PSNP									
PW and/ or DS	95	87.96	594.48	57	91.94	435.97	152	89.41	536.67
Remittance									
Remittance from Relatives	6	5.56	63.89	4	6.45	167.74	10	5.88	101.76

Source: own survey, 2011

Appendix Table 5. Percent contribution of different income source categories to overall mean income of sample households

Income sources category	Category		Total (N=170)
	Clients (n=108)	Non-clients (n=62)	
Agriculture	61.45	61.74	61.53
PSNP	14.16	15.74	14.59
Self employment	12.60	10.28	11.96
Informal employment	9.43	5.55	8.37
Remittance	2.36	6.69	3.55
Total	100.00	100.00	100.00

Source: own survey, 2011

Appendix Table 6. Percent contribution of agricultural and non-agricultural income to the total annual mean income of sample households

Income sources category	Category		Total (N=170)
	Clients (n=108)	Non-clients (n=62)	
Agriculture	61.45	61.75	61.53
Non- agriculture	38.55	38.25	38.47
Total	100.00	100.00	100.00

Source: own survey, 2011

Appendix Table 7. Indicators used in participatory wealth ranking of sample households in the study area

Wealth category	Indicators					
	Number of Oxen	Number of Cows	Number Sheep and/ or Goats	Able to sharecrop in	Food self sufficiency (Months)	Material from which Roof of the house is made
Extremely poor	0	0	0	No	Up to 3	Thatch/Earth
Poor	0	0	5-10	No	Up to 6	Earth
Medium	1	1	11-15	Yes/No	Up to 9	Earth
Better-off	At least 2	At least 2	At least 15	Yes/No	At least 12	Corrugated Iron sheet

Source: own survey, 2011

Appendix Table 8. Percentage distribution of households by wealth categories

Wealth category	Category		Total (N=170)
	Clients (n=108)	Non-clients (n=62)	
Extremely poor	1.85	17.74	7.65
Poor	32.41	58.07	41.76
Medium	48.15	17.74	37.07
Better-off	17.59	6.45	13.53
Total	100.00	100.00	100.00

Source: own survey, 2011

Appendix Table 9. Percent distribution of sample households by number of food shortage months

Number of months	Category				Total (N=170)	
	Clients (n=108)		Non-clients (n=62)			
	No.	%	No.	%	No.	%
0	76	70.37	26	41.94	102	60.00
1	2	1.85	1	1.61	3	1.76
2	3	2.78	6	9.68	9	5.29
3	9	8.33	12	19.35	21	12.36
4	8	7.41	7	11.29	15	8.82
5	4	3.70	5	8.06	9	5.29
6	3	2.78	1	1.61	4	2.35
7	1	0.93	1	1.61	2	1.18
8	2	1.85	0	0.00	2	1.18
9	0	0.00	2	3.23	2	1.18
10	0	0.00	1	1.61	1	0.59
Total	108	100	62	100	170	100

Source: own survey, 2011

10. Questioners

School of Continuing Education

Indira Gandhi National Open University

The Role of Rural Credit in Reducing Households' Vulnerability to Food Insecurity in Bati Woreda, Oromo Administrative Zone, Amhara Region

Identification number_____

Date of interview_____

Time started _____ Time finished _____

Interviewer's name _____Signature _____

Section 1. General Information

Q1. Name of the Kebele_____

Q2. Name of the Village/Got _____

Q3. Name of the respondent_____

Q4. Have you ever borrowed from ACSI? (If Yes=1; No= 0) _____

Q5. Wealth category of the household based on participatory wealth ranking is? ____

(Extremely poor = 0; Poor =1; Medium =2; Better-off =3)

Section 2. Household Composition and Characteristics

Register all the members of the household. Household member are those that live under the same roof or compound including temporary migrants for not more than six months. Students and resettle are considered as members of a household even if they are away for one or more years.

A. Household roster

S/N	Name of member	Q6 Sex Male=1 Female=2	Q7 Relation to household head (see code)	Q8 Age in years	Q9 Marital status (See code)	Q10 Literacy Yes=1 No=0	Q11 Years of schooling completed

Relation to household head (Q7):

0 = Head; 1 = Father; 2 = Mother; 3 = Wife; 4 = Sister; 5 = Son; 6 = Daughter; 7 = Husband

8 = Brother; 9 = Grand son; 10 = Grand daughter; 11 = other relatives

12 = Maid servant/Hired cattle herder or Hired Farm Worker13 = others (specify) _____

Marital status (Q9):

1= Married; 2= Divorced/ Separated; 3= Widowed; 4= Single/ Never married

Section 3. Resource Endowment of the Household

Q12 – Q14. Please register farm land cultivated by the household in 2009/10

Plot number	Q12 Size of land Timad= 0.25Ha	Q13 Tenure status (See codes)	Q14 Slope of land (See codes)	Q15 Fertility of land (See codes)	Q16 Irrigable Yes=1 No=0
1					
2					
3					
4					
5					
Total					

Code for Q13.

1 = Own; 2 = Inherited; 3 = Rent in; 4 = Share cropped in

Code for Q14.

0= None/ plain; 1= Low; 2= Medium; 3= High

Code for Q15.

1 = Infertile; 2 = Medium; 3 = Fertile

Q17 – Q28. Please register livestock holding of the household?

Q. No.	Animal type	Total number of animals 2009/2010	For clients only	
			From the total number of animals bought directly through ACSI credit	From the total number of animals produced/bought from returns of investments made using ACSI credit
Q17	Oxen			
Q18	Bulls			
Q19	Cows			
Q20	Heifers			
Q21	Calves			
Q22	Donkey			
Q23	Camel			
Q24	Goats			
Q25	Sheep			
Q26	Chickens			
Q27	Honey bees (Colonies)			
Q28	Others -------			
	Total			

Q29 – Q60. Please register the number of possession on household items?

Q. No.	Name of items owned	Number of total items owned	Unit price it will fetch if sold (EB)	Total price it will fetch if sold (EB)	**For clients only**			
					Number of items owned directly through ACSI credit	Total price it will fetch if sold (EB)	Number of items owned through investments made using ACSI credit	Total price it will fetch if sold (EB)
Q.29	Rooms/ huts							
Q.30	Working radios/tape							
Q.31	Tables							
Q.32	Chairs							
Q.33	Cupboards							
Q.34	Modern beds							
Q.35	Blanket							
Q.36	Wrist watches							
Q.37	Value of jewelries (EB)							
Q.38	Bicycles							
Q.39	Saddle							
Q.40	Sickles							
Q.41	Hoe							
Q.42	Axe							
Q.43	Hammer							
Q.44	Spades							
Q.45	Shovel							
Q.46	Sets plough equipment							

Q.47	Gezemo							
Q.48	Sprayer							
Q.49	Wheel barrow							
Q.50	Water pump for irrigation							
Q.51	Sewing Machine							
Q.52	Gas lamps (Fanos, Masho)							
Q.53	Electric bulb							
Q.54	Stove							
Q.55	El ectric Injera/bread baker (Mitad)							
Q.56	Metal kitchen equipment							
Q.57	Iron (for ironing cloths)							
Q.58	Black smith equipments							
Q.59	Carpenter/ masonry/ pottery making equipments (specify							
Q.60	Others							
	T0tal							

Q61 – Q66. Materials from which the houses are made, sources of water, energy, and toilet facility

Q. No.	Item	2009/10	Before borrowing from ACSI (For clients only)
Q61	Materials from which Wall of the house is made 1= Concrete/Stone 2= Adobe/ mud 3= Wood/branches 4= Galvanized iron 5= Other, specify_____		
Q62	Materials from which Roof of the house is made 1= Straw/thatch 2= Earth/ mud 3= Galvanized iron 4= Concrete/ cement 5= Other, specify_____		
Q63	Materials from which Floor of the house is made 1= Earth 2= Wood 3= Stone/ Brick 4= Cement/tile 5= Other, specify_____		
Q64	What is the main Source of Drinking Water for members of your household 1= Piped in to dwelling /yard/ plot 2= Public stand pipe/tube well 3= Unprotected well/ spring/ pond/rivers/ stream 4= Other, specify_____		
Q 65	What is the type of fuel you usually use for cooking? 1= Wood 2= Kerosene/Paraffin 3= Charcoal 4= Cow dung 5= Others (specify) _____		
Q66	What type of Toilet Facility does your household use? 1= Pit latrine (Private) 2= Public pit (communal) 3= Open disposal 4= Other, specify_____		

Section 4. Household Income, Expenditure and Investment

Q. 67 how was 2009/10 agricultural season? _____

1= Bad; 2= Normal; 3= Good

Q68 - Q 77. Agricultural production table of the past production year (2009/10)

Plot number	Q68 Type of crop cultivated	Q69 Size of land	Q70 Quality of Land	Q71 Indicate if own cultivated, rented in/out, or share cropped in/out	Q72 Yield obtained Qts	Q73 Amount consumed Qts	Q74 Amount given out as gift Qts	Q75 Amount saved Qts	Q76 Amount marketed Qts	Q77 price in (EB)
	(codes)	Timad = 0.25Ha	(codes)	(See codes)						
1										
2										
3										
4										
5										
	Total									

Code for Q68

1= Barely
2= Wheat
3= Sesame
4= Maize
5= Sorghum
6= Millet
7= Finger millet
8= Teff
9= Field pea
10= Horse bean
11= Vetch
12= Lentil
13= Perishable annual crops/Vegetables
14= Chick pea
15= Others (specify) _____

Code for Q70.

1 = Infertile
2 = Medium
3 = Fertile

Code for Q71.

1 = Own cultivated
2 = Rent in
3 = Rent out
4 = Share cropped in
5 = Share cropped out
-77 = Not applicable

Q78 – Q109. Household's sources of income (Both in cash in kind)

Q. No.	Household's source of income (by all members of the household)	Codes	(2009/10) Yes= 1 No= 0	No. of working days per week	No. of working days per months	No. of working months	Working months(If September = 1, October =2,., August= 12)	Daily income(EB)	Total annual income (2009/10) (EB)	What proportion (percent) of income comes from the source	For clients only		
											The year just before borrowing Yes= 1 No= 0	Total annual income (EB)	What proportion (percent) of income comes from the source
A	**Agriculture**												
Q 78	Crop production												
Q 79	Horticultural production												
Q 80	Animal sale												
Q 81	Animal products												
Q 82	Tree farming												
Q 83	Grass production and crop residue												
Q 84	Rent/share from land cultivated by others												
Q 85	Rent out animals (oxen, donkey, horse)												
B	**Self employment**												
Q 86	Store keeping/Shops												
Q 87	Petty trading												
Q 88	Selling of fuel wood or charcoal												
Q 89	Handicraft/blacksmithing/Weaving/embroidery												
Q 90	Selling of Chat												
Q 91	Services (hair dressing, barberry ,traditional healer)												

Household's sources of income (Both in cash in kind) ... (Continued)

Q. No.	Household's source of income (by all members of the household)	Codes	(2009/10) Yes= 1 No= 0	No. of working days per week	No. of working days per months	No. of working months	Working months(If September = 1, October =2,August= 12)	Daily Income (EB)	Total annual income (2095/10) (EB)	What proportion (percent) of income comes from the source	For clients only		
											The year just before borrowing Yes= 1 No= 0	Total Annual income (EB)	What proportion(percent) of income comes from the source
C	**Informal Employment**												
Q 92	House maid												
Q 93	Cattle herder												
Q 94	Sale of labor for agricultural/non-agricultural work (manual work)												
Q 95	Labor migration												
D	**Relief**												
Q96	Relief food aid												
Q97	Food for work program												
Q98	Cash for work program												
E	**Remittance**												
Q99	Remittance from relatives												
Q100	Other remittance (specify)												
Q101	Gifts from others												
F	**Others**												
Q102	Others (Specify)_____												
	Total												

Q103. Is there variability in total income between the year 2009/10 and 2008and09? (Yes = 1; No = 0) _____ (If no, go to Q451)

Q104. If yes to Q103, is there an increase in income? (Yes = 1; No = 0) _____

Q105. If yes to Q104, the amount of income increased in (EB) _____

Q106. If no to Q105, the amount of income decreased in (EB) _____

Q107-Q153 F. Major Consumption/ Expenditure of the Household

Q107 - Q133. How much your household does usually spent/consume on average per month in the year 2009/10 on the following items (including purchased, own produce, food aid and borrowed)? Ask primarily for women. If they tell you in local units convert them to standard units and then put the amount spent and its price in (EB) using Kiremt Prices.

Q. No	Item	Unit	After harvest		During Kiremt		Contribution of ACSI credit (for clients only)			
							After harvest		During Kiremt	
			Amount consumed	Amount spent using Kiremt Price(EB)	Amount consumed	Amount spent using Kiremt Price(EB)	Amount consumed	Amount spent using Kiremt Price(EB)	Amount consumed	Amount spent using Kiremt Price(EB)
Q107	Wheat	Kg								
Q108	Teff									
Q109	Maize									
Q110	Barely									
Q111	Finger millet									
Q112	Pulses									
Q113	Other grains or flour									
Q114	Butter/oil/oil crops									
Q115	Spices									
Q116	vegetables and fruits									
Q117	Milk, Cheese									
Q118	Bread									
Q119	Sugar									
Q120	Meat									
Q121	Coffee and tea									
Q122	Paper and salt									
Q123	Other foods									
Q124	Chat									
Q125	Non-alcoholic beverages									
Q126	Public transport									
Q127	Personal c are (soap, hair dressing, etc.)									
Q128	Water expense									
Q129	Lighting (Electricity, Kerosene, candles, etc.)									
Q130	Cooking fuels (gas, wood, charcoal, etc.)									
Q131	Medical Expenses									
Q132	School expenses									
Q133	Other expenses, specify									
	Total									

NB: For items with no unit, put the price in (EB) under the price column in respective of each item consumed.

Q134. Is there variability in total consumption between the year 2009/10and 2008/09? (Yes = 1; No= 0) _____ (If no, go to Q136)

Q135. If yes to Q134, is there an increase in total consumption? (Yes = 1; No = 0) _____

Q136- Q143. In the past year, how much did your household spend on the following items?

Q. No	Item	Amount spent in 2009/10 (EB)
Q136	Footwear	
Q137	Clothing	
Q138	Cooking and eating utensils	
Q139	House furnishings/ durables	
Q140	House maintenance and repair	
Q141	Taxes and contributions	
Q142	Ceremonial expenses (wedding, dowry, funeral, etc)	
Q143	Others, specify_____	
	Total	

Q144. Does your household regularly send money or goods to relatives or friends? (Yes =1; No=0)_____

Q145. If yes to Q144, how much in average each month in (EB)? (Include the value of goods sent):_____

Q146 – Q155D. During the last 12 months, did you make the following changes compared to the previous season?

Q. No.	Type of change or investment	If Yes=1; No= 0	(For clients only) Is there Contribution of ACSI credit? (If Yes=1; No= 0)
Q146	Cultivated additional subsistence crops		
Q145	Hired more workers		
Q146	Sold in new markets		
Q147	Improved crop quality		
Q148	Reduced costs with cheaper sources of credit		
Q149	Bought inputs in greater quantity		
Q150	Purchased equipment and machinery		
Q151	Purchased transport facility		
Q152	Invested in farm sites (farm building, storage room, etc.)		
Q153A	Invested in farm sites, tools, etc.		

Q153B	Planted in cash crops		
Q153C	Purchase of animals (oxen, sheep, goat, cow, horse donkey, etc.)		
Q153D	Others (specify)_____		

Q153E. If any major repairs, improvements or additions made to your house, amount spent approximately (EB) _____

Q153F. What is the source of fund for these improvements or additions made to your house? (One or more answers possible) _____

1= Credit from ACSI; 2= From own income; 3= From relatives

4= Gift from government/ NGOs (ORDA); 5= Credit from moneylenders

6= From other credit programs; 7= Cooperation from the community

8= From labor sharing; 9= From other (specify) _____ -77= Not applicable

Section 5. Household Change in Living Condition, Food Security Indicators and Coping with Difficulties/Shocks

Q154. Over the past five years: please answer `A' to `M' using the following codes. (1= decreased greatly; 2= decreased; 3= stayed the same; 4= increased, 5= increased greatly)

A. Has living standard /livelihood of the household changed? _____

B. Has the total income of the household changed? _____

C. Have productive assets (farm implement) of the household changed? _____

D. Have the household durable assets (capital goods, bed, etc.) of the household changed? __

E. Has quality of food (nutritious food) consumption of the household changed? _____

F. Has quantity of food consumption of the household changed? _____

G. Has consumption of basic non-food item (fuel, detergents, etc.) of the household changed? __

H. Has the clothing of the household changed? _____

I. Has the health of the household members changed? _____

J. Has housing condition (major repair, corrugated iron roof, additional room construction) changed? ___

K. Has household's participation in community development programs changed? _____

L. Has the household's access to drinking water changed? _____

M. Has the involvement of female members in income generating activities changed? _____

Q155. What are the reasons for positive changes in the living conditions; if the answer for Q154 - A is 4 or 5? (One or more answers are possible, do not read answers, probe)

1= Credit from ACSI; 2= Credit other than ACSI (NGO (ORDA), government, relatives)

3= Credit from private moneylenders

4= Additional employment in wage work and increase in wage rate

5= Engaged in new income generating self-employment

6= More involvement in livestock activities such as dairy, shoats, poultry and apiculture

7= More involvement in vegetable and fruit production

8= Additional investment in agriculture (purchase of oxen, farm implement)

9= Use of improved agricultural practices (fertilizer, improved seeds, pesticides, irrigation, extension advice, etc.)

10= Access to more land (renting, share cropping, inheritance)

11= More labor power in the household; 12= Food for work and other relief aid

13= Remittances; 14= Inheritance other than land

15= Credit from merchants either in kind or cash 16= Good agriculture season;

17= Sold in new markets

18= Increase in demand/ sales; 19= others (specify) _____ -77= Not applicable

Q156. If the answer to Q155 is 1, what proportion of the positive change in living condition is due to ACSI credit? _____%

Q157. What are the reasons for decrease/negative change in living condition; if the answer to Q154 - A is1or 2? (One or more answers are possible do not read answers, probe) _____

1= Indebted because of ACSI credit; 2= I have been sick

3= Natural disaster (drought, flood, hailstorm); 4= Poor agricultural season 5= Poor sales;

6= Could not get credit; 7= Less land; 8= I do not have land; 9= House members being sick;

10= others (specify) _____; -77= Not applicable

Q158. If the answer to Q157is 1, what proportion of the negative change in living condition is due to ACSI credit? _____%

Q159. If the quality of food consumed has increased, how has it improved? (One or more answers are possible; do not read answers, probe) _____

1= Able to consume more cereal staples such as

2= Able to consume more animals: dairy products-milk, cheese; meat, eggs

3= Able to consume more condiments, vegetables, legumes to eat with staples

4= Able to consume more convenience foods like pasta

5= Able to consume more cooked foods; 6= Able to eat better during hungry season

7= Able to eat more meals a day; 8= Others (specify) _____ -77= Not applicable

Q160. If the quality of food consumed has decreased, how did you cope with? (One or more answers are possible; do not read answers, probe) _____

1= Consume less cereal staples such as Sorghum, Maize, Teff

2= Consume less animals/ dairy products-meat, milk, cheese, eggs

3= Consume less condiments, vegetables, legumes to eat with staples

4= Consume less convenience foods like pasta; 5= Consume less cooked foods

6= Eat less during hungry season 7= Eat less meals a day

8= Other (specify) _____ -77= Not applicable

Q161. Did the household experienced food shortage (in amount or frequency of meals) over the last 12 months (Yes=1; No= 0) _____ (If no, go to Q162)

Q162. If yes to Q161, how many months did the household face food shortage(s) of food during the last 12 months? _____

Q163. In which months of the year does the household exercised food shortage? (One or more answers are possible; do not read answers, probe)_____

1= September 4=December 7=March 10= June

2= October 5= January 8=April 11= July

3= November 6=February 9= May 12= August

Q164. What strategies do the household use to ease the impact of food shortage? (One or more answers are possible, do not read answers, probe)_____

1= Cut down number of meals; 2= Cut down on amount of food for each meal

3= Borrowed food/cash from relatives; 4= Exchanged food with other households

5= Looked for paid work; 6= Gathering wild plants , 7= Look for food aid

8= Begging 9= Migration, 10= Loan from moneylenders

11= Using ACSI loan for consumption, 12= Selling of livestock

13= Sale of household durable, 14= Eating inferior foods

15= Sending children to the labor market, 16= Selling of wood, charcoal and animal dung

17= Looking for other self employment , 18= Looking for gift from other relatives

19= Credit from grain merchants , 20= Help from ACSI credit group

21= Others (specify) _____ , -77= Not applicable

Q165. Rank the selected choices (strategies) in Q164 in the order of their importance. Write the codes in the space provided below.

a) The first most important strategy_____

b) The second most important strategy _____

c) The third most important strategy _____

d) The fourth most important strategy _____

Q166. During the last 12 months, was there an occasion in which you or members of your family are ill or injured and needed medical attention? (Yes= 1; No = 0) _____

Q167. If yes to Q166, did you take them to clinic or other modern health facilities? (Yes=1; No = 0) ____

Q168. If no for what was the reason/s for not taking to modern health facilities? _____

1= Lack of money to pay for it; 2= Preferred to take cultural medicine

3= Others, Specify _____

Section 6. Access to Institutional Support

Q169. Did you get extension services on Credit and Saving Services in the last year? (Yes=1; No= 0)_____

Q170. Have you received any training? (Yes=1; No= 0)_____

Q171. If yes, what type of training did you get? (One or more answers are possible) ____

1= Cereal production, 2= Pulses, 3= Horticultural crops, 4= Livestock production

5= Bee keeping, 6= Tree farming, 7= Trading, 8= Handicraft

9= Finance and credit management, 10= Adult education

11= Primary health care, 12= Others (Specify) _____

Q172. If yes to Q171, from whom did you get the training? _____

1= Development agent, 2= Wereda agriculture experts, 3= ACSI staff;4= Health experts , 5= NGO/ORDA staff, 6= Others (Specify) _____

Q173. How regularly does ACSI staff monitor your credit utilization (for clients only) __

1= Weekly, 2= Bi-weekly, 3= Monthly, 4= Bi-monthly, 5= Quarterly, 6= Semi-annually

7= Annually, 8= Sometimes (that cannot be justified), 9= Other (Specify) _____

Q174 - Q626. Credit and Savings

NB: Q174 - Q617 only for ACSI clients

Q174. When did you first borrow from ACSI? Year_____

Q175. Number of loans you have personally taken so far from ACSI? _____

Q176. Size of loan borrowed, for what purpose utilized, the amount of loan utilized for the particular purpose?

First: Size of loan Birr_____Purpose_____Utilized Birr_____

Second: Size of loan Birr_____Purpose_____Utilized Birr_____

Third: Size of loan Birr_____Purpose_____Utilized Birr_____

Fourth: Size of loan Birr_____Purpose_____Utilized Birr_____

Fifth: Size of loan Birr_____Purpose_____Utilized Birr_____

Q177. Cumulative value of all loans you have personally taken from ACSI. (EB)_____

Q178. Do you have voluntary savings in ACSI? (Yes= 1; No= 0) _____

Q179. If yes to Q178, what are the attractive features of ACSI saving facilities? (One or more answers are possible; do not read answers, probe)_____

1= Interest rate is good, 2= Offers a safe way of holding savings

3= Convenient to make deposit and withdrawal since it is nearby; 4= others (specify) ___

Q180. If you have no voluntary savings with ACSI what is/ are the reason/s? _____

1= Unable to save, 2= Interest rate too low; 3= Prefer to save in Ikub/ saving and credit cooperatives etc; 4= Prefer to save in bank, 5= Prefer to save in kind (livestock, etc.)

6= Difficult to withdraw savings with ACSI; 7= My savings with ACSI may be used for settling the group's loan; 8= ACSI does not give enough encouragement to save

9= Don't trust ACSI with my savings (not sure about the safety of deposits with ACSI)

10= Other, (please specify) _____

Q181. Do you have any personal cash savings other than with ACSI? (Yes =1; No= 0)___

Q182. If yes, please tell us the following

No.	Method of saving	Yes =1; No= 0
1	With relatives/ friends	
2	In a bank	
3	Other development programs e.g. cooperatives	

4	At home	
5	Other(Specify)_____	

Q183. If you (and/ or a member of your household) are currently participating in Ikubs, tell us the following if no, skip to Q184.

Ikub No.	Ikub period 1= Weekly 2= Bi-weekly 3= Monthly 4= Other (specify)_____	Total number of lots of the Ikub	Value of one lot (EB)	Number of full lots you and your HH member have	Total value of lots you and your HH member have (EB)
Ikub 1					
Ikub 2					
Ikub 3					
Ikub 3					

Q184. Are you a member of saving and credit association? (Yes=1; No=0)_____

Q185. Generally the experience with ACSI service has been:

Ref. No.	**Description**	**Negative =1**	**Fair =2**	**Positive =3**	**Very positive =4**
1	Eligibility criteria				
2	Group responsibility for repayment				
3	Loan application processing efficiency				
4	Loan amount				
5	Flexibility of loan utilization				
6	Repayment schedule				
7	Interest rate level				
8	Forced saving				
9	Supervision and technical assistance				
10	Other (specify)_____				

NB. Q186 – Q194 only for non-clients of ACSI

Q186. Have you tried to become a member of a loan group in ACSI? (Yes=1; No=0)___

Q187. If yes to Q186, why didn't you become a member? _____

1= Unable to form a group; 2= Non- approval because did not fulfill the criteria of ACSI

3= Non- approval because of conflict with credit and saving committee

4= Personal conflict with ACSI personnel, 5= Family problem or domestic conflict

6= Others (Specify) _____ , -77= Not applicable

Q188. If no, why haven't you applied? (One or more answers possible)_____

1= No need for credit, 2= Unable to form group

3= Unable to meet compulsory saving requirement

4= Taking group responsibility is unacceptable to me (Unhappy with group collateral)

5= Group requires members to pledge personal assets/land as collateral

6= Group meeting requirement is time consuming

7= ACSI loan is too small to meet my credit needs

8= Unhappy with the repayment time and length of ACSI loan

9= Unhappy with the size of ACSI loan, 10= High interest rate

11= Fear of indebtedness, 12= I excluded myself because I am not a good business operator

13= Easier / better to take loans from private lenders

14= Easier / better to take loans from relative, 15= Credit from merchant in kind or in cash

16= Easier to get loans from other sources (NGOs, government, relatives)

17= Conflict with ACSI personnel and credit and saving committee

18= Conflict among other members, 19= Unable to identify profitable activities

20= Lack of knowledge of ACSI's activities, 21= Feel that I do not fulfill the criteria

22= Disagreement with spouse over taking the loan,

23= Others (specify) _____, -77= Not applicable

Q189. Do you have voluntary savings with ACSI? (Yes=1; No= 0) _____

Q190. If yes to Q189, what is/are the reasons? _____

1= Interest rate is good; 2= Offers a safe way of holding savings

3= Convenient to make deposit and withdrawal since it is near by

4= Others (specify) _____

Q191. If no to Q189, what is/are the reason/s? _____

1= Unable to save, 2= Interest rate too low

3= Prefer to save in Ikub/ credit cooperatives, etc., 4= Prefer to save in Bank

5= Prefer to save in kind (livestock, etc.), 6= Difficult to withdraw savings with ACSI

7= My savings with ACSI may be used for settling the group's loan

8= ACSI does not give enough encouragement to save

9= Don't trust ACSI with my savings (not sure about the safety of deposits with ACSI)

10= Not aware of ACSI's saving facilities, 11= Others (specify) _____

Q192. Do you have any personal cash savings other than with ACSI? (Yes=1; No= 0)___

Q193. If yes to Q192, please tell us the following:

No.	Method of saving	Yes =1; No= 0
1	With relatives/ friends	
2	In a bank	
3	Other Development programs	
4	At home	
5	Other (Specify)_____	

Q194. If you (and/ or a member of your household) are currently participating in Ikubs, tell us the following.

Ikub No.	Ikub period 1= Weekly 2= Bi-weekly 3= Monthly 4= Other (specify)_____	Total number of lots of the Ikub	Value of one lot (EB)	Number of full lots you and your HH member have	Total value of lots you and your HH member have (EB)
Ikub 1					
Ikub 2					
Ikub 3					
Ikub 3					

Section 7. Access to Socio-economic Services

Q195. How long do you walk to reach the nearest dry-weather road (in hours) _____

Q196. How long do you walk to reach the nearest all-weather road (in hours) _____

Q197. How long do you walk to reach the local market place (in hours) _____

Q198. How long do you walk to reach the major (woreda) market place (in hours) ____