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IMPACT OF GASHA MICRO FINANCE INSTITUTION
S.CO IN THE REDUCTION OF POVERTY

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List of Acronym

AEMFI	Association of Ethiopian Microfinance Institutions
AIMS	Assessing Impacts of Microenterprise Services
ATT	Average treatment effect on treated
CGAP	Consultative Group to Assist the Poor
CSA	Central Statistics Agency
FGD	Focus Group Discussion
GMFI	Gasha Micro finance institution
GDP	Gross Domestic Product
IGA	Income Generating Activities
MFI	Microfinance Institution
MoFED	Ministry of Finance and Economic Development
NBE	National Bank of Ethiopia
NGO	Non-Governmental Organization
OCSSCO	Oromia Credit and Saving Share Company
PASDEP	Plan for Accelerated & Sustainable Development to End Poverty
PSM	Propensity score matching
UNDP	United Nations Development Participant
WB	World Bank

Abstract

Microfinance can be a critical element of an effective poverty reduction strategy especially for developing countries. More than ever after the success of the Grameen Bank, the system has been duplicated in the different parts of developing world. Ethiopia is also one of the countries where microfinance has been given due consideration as a safety net for the poor to help them overcome the adversities of poverty. The services provided by microfinance institutions is desired to enable the poor to smoothen their consumption, manage their risks better, build their assets gradually, develop their micro enterprises, enhance their income earning capacity, and enjoy an improved quality of life. This study evaluates the impact of Gasha microfinance institution S.Co in the reduction of poverty. For quantitative analysis both treatment and control respondents were drawn with 220 clients (100 treatments and 120 controls) clients using simple random sampling techniques in Gasha. Descriptive statistics and econometric model were applied for analyzing quantitative data. PSM method was employed to analyze the impact of the microfinance services on poverty reeducation. Consequently the objective of this study is to find out the impact of microfinance towards poverty with a particular reference of Gasha micro finance Institution S.Co. With the above objectives in mind, the research work employed questionnaires, key informants, and focus group discussions to obtain primary data. In addition, secondary sources of data have also been collected from different literature and Gasha annual progress report. The contribution of Microfinance is analyzed based on income, saving, expenditure for health, expenditure for children school, asset accumulation, decision making power, business management skills along with the strength and weakness of the institution among others. The finding indicates that Gasha has made positive contributions to the wellbeing of its client. However, all of Gasha clients are already been involved in a business activity that can generate income for the repayment of the loan. The study revealed that the aim of MFIs to reach out the poorest section of the population has not been achieved due to targeting problems. It was, again, uncovered that, microfinance try as much as possible to reduce the risk involved in giving out unsecured loans. One of their ways of trying to achieve this is by group lending which automatically sideline the poorest since the groups are formed based on the income level of the individual.

Keywords: Microfinance, poverty, impact, income, saving, health and education expenditure, Gasha microfinance, and Ethiopia.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Poverty is a condition in which low-income people are unable to meet the basic needs of life. This situation leads to many fold difficulties like decreased health status, high illiteracy rate, decreased quality of life etc., and the difficulties force poor people to commit heinous crimes and sometimes commit suicide. Poverty is defined as a situation of having no enough money to meet the basic need of human beings. Zaman (2000) defined poverty in terms of land and he described the ultra-poor as people having less than ten decimals of land and the moderate-poor households as having greater than ten decimals of land. Hulme and Paul (1997) categorized poor into two groups the core poor who have not crossed a minimum economic threshold and whose needs are essential for financial services that are protection, and those above this threshold who have a demand for promotional credit. Moreover, they have discussed that a minimum economic threshold is defined by characteristics such as the existence of reliable income, freedom from pressing debt, sufficient health to avoid incapacitating illness, freedom from imminent contingencies and sufficient resources (such as savings, non-essential convertible assets and social entitlements) to cope with problems when they arise. Weiss et al (2003) defined poverty as an income (or more broadly welfare) level below a socially acceptable minimum and microfinance as one of a range of innovative financial arrangements designed to attract the poor as either borrowers or savers.

Accordingly, the Ethiopian government has made poverty reduction in rural and urban areas as one of its primary concerns among various development plans. In Ethiopia, urban centers which are characterized by lack of adequate employment opportunities, inadequate income, social and political instability etc., are the government's priority intervention areas in the poverty reduction. As a result, different urban based development program are taking place throughout the nation; one among these is microfinance service in urban areas (Wolday, 2006). The largest proportions of the population do not have access to financial services. Petty trading business operation is severely constrained by lack of finance. As part of this initiation, the National Bank of Ethiopia issued the proclamation number 40\1996 (Gebrehiwot and Mulat, 2005) and revised the

proclamation on 626/2009 aiming to provide licensing and supervision of microfinance business (AEMFI, 2010)

Microfinance is created in response to the missing credit market for the poor. In the developing countries, most recently for instance, governments are also incorporating microfinance in their strategies towards achieving the Millennium Development Goals that involves halving extreme poverty by the target date, which is 2015(Wolday, 2008). Given the complex nature of poverty together with the current microfinance intermediation approach, it is however, becoming increasingly difficult to judge whether such microfinance services should be advocated as a means of poverty alleviation.

Gasha Microfinance institution Share Company was licensed in 1998 with ETB 200,000 paid up and ETB 800,000 subscribed capital, and having 756 shareholders with the primary objective of to help poor, particularly women, help themselves by creating access to financial services. As of June 2015 it has over 14,000 clients and its services are provided through 6 branch and sub branch offices located in Addis Ababa, Bishoftu and Adama and their environs. However, no major assessment has been made on the impact of the microfinance services in its operational area particularly on the poverty reduction.

Hence, the overall aim of the study is to explore the impact of Gasha microfinance in the reduction of poverty. That is, how microfinance has affected the income of clients, ability to save, asset accumulation, decision making power and expenditure on children education and expenditure on health for participating clients.

1.2 Statement of the Problem

Despite the fact that Gasha microfinance have been providing financial services to the poor in a bid to reduce poverty in the target intervention areas, its impact on poverty has not yet been studied. The literature on the study of impact of microfinance services on poverty reduction provides mixed results. Some literature argues that microfinance services has brought positive impact to the life of clients, boost the ability of poor individuals to improve their conditions and have taken advantage of increased earnings to improve their consumption level, health and build assets (see for example, Murdoch and Haley, 2001; D'Souza, et al 2007). Other studies such as Hulme and Mosley (1996) and Chowdhury (2009) have shown that microfinance services played insignificant impact towards poverty reduction. The authors argued that poor households do not benefit from

microfinance; it is only non-poor borrowers (with incomes above poverty lines) who can do well with microfinance and enjoy sizable positive impacts. They go on arguing that the vast majority of those with starting incomes below the poverty line actually ended up with less incremental income after getting micro-loans. Most poor people do not have the basic education or experience to understand and manage even low level business activities. Karnani (2007 as cited in Chowdhury, 2009: 37) stated that “most people do not have the skills, vision, creativity, and persistence to be entrepreneurial”. Pollin (2007 as cited in Chowdhury, 2009: 2) has also a similar view, and puts it in the following words: “micro enterprises run by poor people cannot be broadly successful simply because they have increased opportunities to borrow money along interest rates charged by microfinance institutions, which are undermining the benefits of borrowers”. The credit policy for the poor involves many practical difficulties arising from operation followed by financial institutions and the economic characteristics and financing needs of low-income households (Shastri 2009). Access to credit can contribute to a long-lasting income and an improvement of the social and economic situation of women (Sarumathi and Mohan, 2011). Even though there are ample literatures on microfinance as an antipoverty tool in Ethiopia, no studies have been endeavored so far to identify the impact of Gasha microfinance institution in reducing poverty. Thus, there are gaps in literatures and knowledge regarding to the issue under discussion

1.3 Research Objective

1.3.1 General Objective of the Study

The general objective of the study is to analyze the impacts of Gasha Micro Finance Institution on poverty reduction in Ethiopia. It explores the benefits gained from using micro-financing as a mechanism to reduce poverty and pave ways to meet MDGs poverty in the country.

1.3.2 Specific Objectives

The specific objectives of the study are:

- ❖ Investigate the impact of microfinance products of Gasha on the economic status of the clients in terms of income, saving and asset accumulation,

- ❖ To examine the impact and impact of Gasha micro-financial service on the psycho-social empowerment of clients in terms of participation in decision making power, and business management skill.
- ❖ To assess the views of clients regarding the strengths and limitations of Gasha micro financial Institution.

1.3.3 Research Questions

The study are attempts to answer the following key research questions:

- I. To what extent financial service of Gasha improve economic status of the clients in terms of income, saving and asset accumulation?
- II. How does financial services of Gasha Microfinance Institution improve clients' empowerment in terms of participation in decision making power, self-esteem, and business management skill?
- III. Which groups among the poor does Gasha Microfinance Institution reach? Are the poorest left out?

1.4 Scope of the Study

The United Nations (UN) defined absolute poverty as “a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to services” (UN, 1995, p 57).

Overall poverty was considered to take various forms, including “lack of income and productive resources to ensure sustainable livelihoods; hunger and malnutrition; ill health; limited or lack of access to education and other basic services; increased morbidity and mortality from illness; homelessness and inadequate housing; unsafe environments and social discrimination and exclusion. It is also characterized by lack of participation in decision-making and in civil, social and cultural life. It occurs in all countries: as mass poverty in many developing countries, pockets of poverty amid wealth in developed countries, loss of livelihoods as a result of economic recession, sudden poverty as a result of disaster or conflict, the poverty of low-wage workers, and the utter destitution of people who fall outside family support systems, social institutions and safety nets.” (UN, 1995, p 57)The results of different empirical evidence indicates that the poorest can benefits from microfinance from both an economic and socio well-being point-of-view, and that this can be

done without threatening the financial sustainability of the Micro-financial institutions (Zaman, 2000; Robinson, 2001; Dahiru and Zubair,2008).

Based on the above definition the scope of study focuses on economic states and psycho-social empowerment of clients. Economic states has measured principally through expenditure levels, the accumulation of household assets, saving, income and the development of income generating activities. To estimate psycho-social impact, the study relies on a variety of indicators, including educational expenses, access to health services, decision making power, and self-stem. The use of anthropometric measures would be ideal, but these are more difficult and time-consuming to collect. The study has addresses empowerment through questions relating to involvement in household decision-making power, self-esteem and business management skill. The responses to these questions are further supplemented through the focus group discussions.

1.5 Significance of the Study

The study will provide basic information on the impact and impact of micro finance program in improving the life of poor peoples. The results of the study will important in providing insight for policy makers and microfinance institutions found at different levels. The most beneficiary from the output of the study are among the others, policy makers due to the fact that findings of the study will confirm how microfinance services can be played a great impact in addressing the needs of the poor section of the people. Finally, it will be used as central and initial point for further research.

1.6 Organization of the Paper

The study is divided into five (5) main chapters or components. The first Chapter deals with the introductory aspect of the study whilst the second chapter is devote to the reviewing of relevant literature. The third chapter is attempts on a presentation of the methods used in the study. The two remaining chapters-four and five highlight data presentation and analysis, and discussion of finding and recommendations respectively.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Impact of microfinance examines two sets of indicators– economic and social indicators at different levels. Economic indicators are normally measurements for microfinance impact as income level and patterns of expenditure, consumption and assets. Social indicators are used to measure the impact of microfinance which became popular in the early 1980s as educational status, access to expenditure on health services, nutritional levels, anthropometric measures and contraceptive use (Hulme, 2000). Despite the variation in the methods used and the results of studies conducted in various countries, the main impact of microfinance are on change in income, expenditure, assets, educational status, and expenditure on health as well as gender empowerment

2.1 Definition and concept of Microfinance

Microfinance is a form of financial development that has primarily focused on alleviating poverty through providing financial services to the poor. Most people think of microfinance as being about micro-credit i.e. lending small amounts of money to the poor. Microfinance is not only this, but it has also a broader perspective which also includes insurance, transactional services, and importantly, savings (Barr, 2005).

According to Otero (1999), microfinance is “the provision of financial services to low income poor and very poor self-employed people”. These financial services according to Ledgerwood (1999) generally include savings and credit but can also include other financial services such as insurance and payment services. Schreiner and Colombet (2001) define microfinance as “the attempt to improve access to small deposits and small loans for poor households neglected by banks.” Therefore, microfinance involves the provision of financial services such as savings, loans and insurance to poor people living in both urban and rural settings who are unable to obtain such services from the formal financial sector.

Microfinance is the provision of financial services such as loans, savings, micro leasing, micro-insurance and payment transfers to economically active poor and low income households to enable them engage in income generating activities or expand their small businesses. Again, MF is defined as a financial intervention that focuses on the low-

income group of a given society. The intervention primarily involves credit services and may also include savings, insurance on credits and savings (Khawari, 2004).

Dejene (2003) defined microfinance based on its main characteristics: it is targeting of the poor, promoting small business, building capacity of the poor, extending small loans without collaterals, combining credit with savings, and charging commercial interest rates. Generally microfinance helps low income people reduce risk, improve management, raise productivity, obtain higher return on investment, increase their income, and improve the quality of their lives and those of their dependents (Robinson, 2001).

The term microfinance means providing very small loans to help the poor's engaged in productive activities or develop their tiny business (the microfinance gate way, 2008). According to CGAP (2008), microfinance is a supply of loans, savings, and other basic financial services to the poor, including working capital loans, consumer credit, pension, insurance, and money transfer services. Similarly, Hossain (2002) defines microfinance as, practices of offering small, collateral free loans to members of cooperatives who otherwise would not have access to capital necessary to begin small business or other income generating activities. Microfinance implies providing the poor with savings, credit and insurance facilities to set up or expand income generating activities relating to petty trade, agriculture allied activities and thereby to increase household income security. Microfinance are established based on social collateral rather than physical collateral to increase the general well-being of the poor in the urban areas (Schreiner, 2001).

Ledgerwood (2002) defined microfinance as a term that refers to the provision of financial services to low income clients, including the self-employed. Some Microfinance Institution (MFI) also provides insurance and payment services. Moreover, MFI's also provide social intermediation and social services. Thus, according to Ledgerwood, microfinance often includes both financial and social intermediation.

2.1.1 Major Characteristics of Microfinances

Microfinance gives access to financial and non-financial services to low-income people, who wish to access money for starting or developing an income generation activity. The individual loans and savings of the poor clients are small. Microfinance came into being from the appreciation that micro-entrepreneurs and some poorer clients can be

“bankable”, that is, they can repay, both the principal and interest, on time and also make savings, provided financial services are tailored to suit their needs (Yaron *et al.*, 1998). Microfinance has created financial products and services that together have enabled low-income people to become clients of a banking intermediary. Microfinance services are expected to address the poor because they deal with small loans and savings, short term loans, frequent loans, installments and deposits, simple loan procedures, collateral free loan activities (Yaron *et al.*, 1998).

2.1.2 Products and Services of Micro-financial institutes

Since the 1970’s, microfinance has much expanded and now includes a wide range of financial products and services. Similar speaking, (Ledgerwood, 1999) have stated that there are four broad categories of products/ services that may be provided to microfinance clients namely,

(i) *Financial intermediation* or the provision of financial products and services such as savings, credit, insurance, credit cards and payment services,

(ii) *Social intermediation* or the process of building the human and social capital required by sustainable financial intermediation for the poor,

(iii) *Enterprise development services*, non-financial services that assist micro entrepreneurs include business training, marketing and technology services, skills development and subsector analysis.

(iv) *Social services or non-financial services* that focus on improving the wellbeing of micro entrepreneurs include health, nutrition, education and literacy training. However, the degree to which MFI provides each of these services depends on whether it takes a minimalist or integrated approach. Many MFIs provide savings and credit services without getting involved in related development activities. However, many scholars argues that integrating financial with non-financial services is usually seen as essential in addressing the causes of poverty identified in a particular area or by a particular group of people; it is rarely the case that savings and credit activities alone will reduce poverty (Harper 2003; Johnson and Rogally 1997; Ledgerwood 1999).

2.1.3 Measurement of Micro-Financial Institutes Performance

The tools to measure the performance of microfinance institutions such as outreach in breadth, financial performance and financial sustainability are found to be effective measurements in order to investigate the structure of institutions and their use for the community (Lafourcade, 2005).

2.1.3.1 Outreach

Efforts to extend microfinance services to the people who are underserved by financial institutions are classified as outreach. It is therefore linked to the mission of MFIs and defines the targets and objectives to be achieved (Nirmar, 2010). Outreach is central in microfinance activities because it defines the visions of microfinances in eradicating poverty. According to (Anne-Lucie, 2006) Microfinance developed to serve the poor people who are excluded from the financial institutions. The performance of the institutions can be measured in terms of breadth (number of clients served). The performance of microfinance institutions in breadth has its own sub measurements in terms of types of the financial service offered, number of branches established, and the amount of loans disbursement to clients, number of female clients, targeted population served and the range of financial and non-financial services. Therefore, this research adopts the approaches of Anne-Lucie to analyze the outreach performance of Specialized Financial Promotion Institutes micro financial provision program.

2.1.3.2 Financial Performance

MFIs earn financial revenue from loans and other financial services in the form of interest fees, penalties, and commissions etc. Financial revenue also includes income from other financial assets, such as investment income. MFI's financial activities also generate various expenses, from general operating expenses and the cost of borrowing to provisioning for the potential loss from defaulted loans. Profitable institutions earn a positive net income (operating income exceeds total expenses). To measure the overall financial performance, financial revenue and expense indicators as well as returns can be compared against the institution's equity and assets (Lafourcade et al., 2005). Efficient institutions reach large number of poor people with minimum costs of delivering services (Dunford 2006, Cull et al., 2007).

2.1.3.3 Financial Sustainability

The other indicator for the performance of MFI is its financial sustainability. (Meyer, 2002) noted that the poor needed to have access to financial service on long-term basis rather than just a onetime financial support. Most literature in microfinance industry refers to two levels of financial sustainability: operational self-sufficiency and financial self-sufficiency (Meyer, 2002, Ledgerwood, 1999). Operational self-sufficiency is generating enough revenue to cover operating expenses (administrative costs, interest on deposit among other), financing costs (cost of borrowing money) and loan losses (cost of bad debts). Operational self-sufficiency therefore, indicates whether or not enough revenue has been earned to cover the MFIs' operating expenses. Financial self-sufficiency indicates whether or not enough revenue has been generated to cover operating expenses, including financing costs, provision for loan loss, and indirect costs including the adjusted cost of capital (Ledgerwood, 1999). There are some disputes on the link between financial sustainability and outreach to the poor. According to some (Christen et al., 1995; Otero and Rhyne, 1994; Meyer, 2002), outreach and financial sustainability are complimentary; this is because as the number of clients increases MFIs enjoys economies of scale and hence reduce costs which help them to financially be sustainable. On the other hand, (Hulme and Mosely, 1996) argued that there is inverse relationship between outreach and financial sustainability.

2.2 Poverty and Microfinance

Poverty remains a matter of growing concern in many developing countries of the world. Today, as other continents continue to register sustainable economic growth and development, Africa is not only lagging behind but is trapped in a vicious circle of borrowing and donor dependency syndrome which some critics point out as one of the causes practically sabotaging real development. Africa has perpetually failed to focus its development efforts on the optimum utilization of the immense natural resources that many countries are endowed with to turn it into wealth to propel their economies and people towards a high level of economic and social development and as a consequence eliminate pervasive poverty. Although Africa is not the only poorest continent, it is the only region where poverty is constantly on the increase. As a result millions of people live each day in abject poverty. Children go without food, their bodies stunted by malnutrition which is wide spread. As a result of this condition the lives of the majority

of Africans to be deplorable and an insult to their dignity. Therefore, there is need to change these conditions in order to make poverty history in Africa (WB, 2000).

2.3 The Need for Microfinance on Improving Clients Income

Lack of access to credit is generally seen as one of the main reasons why many people in developing economies remain poor. The inability of conventional banks to address the financial demand of the poor put the consensus that reached to design new strategies for delivering financial services to the poor. The microfinance institutions mainly designed to provide banking services and mobilizing small savings. Currently, there are 33 MFIs licensed and engaged in providing microfinance services to the poor in different parts of the Ethiopia.

Properly channeled microfinance services provide the poor households with an opportunity to increase income, increased employment, increase smooth consumption, own resources such as livestock, get self-employed in the informal sector, empower women, improve nutrition and expenditure on health, improve the potential for educating children, use new technologies and inputs of agriculture (Zaid, et al 2001).

According to Parker (2000), poverty has always been a concern of microfinance; and some microfinance institutions use methodologies that target the very poor as a separate client groups, while others are based on non-targeted financial services for all those who lack access to formal credit institutions. Sound practice in microfinance institutions is based on the ability to provide appropriate financial services to individuals and households that are otherwise excluded from the financial system.

According to Chekol (2002), the changes of indicators show the movements at different levels toward or away from greater economic security are believed to suggest the impact of microfinance interventions in expanding options for poor women and men in relation to the broader development goals of poverty alleviation and economic growth. According to AIMS (2000), domains of household security include income, assets and expenditures. The same study identified that microfinance impact at household level leads to increased income, increased assets and increased welfare.

2.4 Impact Studies of Microfinance

Many studies in different disciplines used different approaches to assess impact.

Khandker (1999) studied the impact of three micro credit institutions in Bangladesh on selected households. The study found that the most important effect of borrowing from a micro-credit provider is its impact on per capita expenditure. The study pointed out that the participation in group-based microfinance shows positive and significant impacts for school enrollment, asset holdings, consumption, nutritional status and household net worth of participants in all three participants. Ledgerwood (1999) pointed that successful microfinance institutions contributing to poverty reduction are particularly effective in improving the living status of the middle and upper segments of the poor.

The effect on income has been analyzed at the individual, household and enterprise levels. Studies conducted in various countries by Hulme and Mosley (1996) found strong evidence of the positive relationship between access to a credit and the borrower's level of income. The authors indicated that the middle and upper poor received more benefits from income-generating credit initiatives than the poorest. They also discovered that the profit for self-employed activities of households can be increased by participant participation.

Expenditure is another indicator to measure the impact of microfinance. Studies by Pitt and Khandker (1998) showed that the clients of the participants could gain from participating microfinance participants in many ways. Income per capita consumption could be increased by accessing a loan from a microfinance participant. Khandker (2003) also conducted research on the long-run impacts of microfinance on household consumption and poverty in Bangladesh by identifying types of impact in six household's outcomes as Per capita total expenditure; per capita food expenditure; per capita non-food expenditure; the incidence of moderate and extreme poverty; household non-land assets.

Mosley (2001) pointed out that there was positive impact of microfinance on asset levels. He further stated that accumulation of asset and income status was generally highly correlated, which led to extreme correlation between income poverty and asset poverty. Coleman (2006) investigated the impact of microfinance borrower welfare in Northeast Thailand. He found that there was a slight impact of participant loans on clients' income level. However, he discovered that the village bank had a positive and significant impact on the accumulation of women's wealth, particularly landed wealth but this result included bias from measured impact.

Holvoet (2004) investigated the effects of microfinance on childhood education by

examining microfinance participants in India and showed that loans to women had a significant positive impact on schooling and literacy for girls, whereas it remained mainly unchangeable in the case of boys. Pitt and Khandker (2003) found that a credit to the participants provided by a microfinance institution like the GB could grow school enrolment for children. They found that credit lending to women had a significantly positive impact on schooling of children. Chowdhury and Bhuiya (2004), studied the impact of a microfinance participant, in Bangladesh, and found that both member and nonmember had improved in educational performance. However, the member households benefited much more than poor non-member households. Indicators related expenditure on health issues are also applied as proxies to examine the impact of microfinance. Chowdhury and Bhuiya (2004) found that microfinance participant, led to a good improvement in child survival and nutritional status.

Microfinance also leads to the empowerment of women. Hashemi et al. (1996) studied two main microfinance participants in Bangladesh. They noted that the participation of the participants had important positive impacts on economic security, ability to make small and large purchases, involvement in major household decisions, and relative freedom from domination by the family and awareness on current issues different dimensions of women's empowerment.

In another study, Pitt and Khandker (1998) found that the behavior of poor households was significantly changed in case of women's participation in microfinance participant in Bangladesh. It, for example, could be seen that every 100 additional unit credit provided to women by the microfinance participants increased yearly expenditure for household consumption by 18 unit, whereas that provided to men from the same participants grew yearly household consumption expenditure by 11 unit. Assessing microfinance impact has been the main concern of development specialists in order to know whether or not providing financial services to the poor has reduced poverty then improve household income. Khandker (1999) argued that the immediate impact of having access to credit from a micro finance participant is on employment and income in turn which may have impact on other outcomes such as consumption, nutrition, and education.

Hulme (2000) identified three elements of the framework for the study of impacts. The first is the specification of levels at which impacts are assessed. The second is the specification of the types of impact that are to be assessed. The third is models to be used

for the study. Impacts can be assessed at different levels. The common units of assessment are the household, the enterprise or the institutional environment within which agents operate.

According to AIMS (2000), impact occurs at the levels of household, enterprise, individual and community. At the household level, microfinance contributes to net increase in household income, asset accumulation and labor productivity. Income invested in assets such as saving and education increases household economic security by making it possible to meet basic needs. This relationship clarifies paths of impact by which microfinance interventions can contribute to the goals of poverty alleviation and economic growth, and thus, households improve their economic well-being.

The framework by Ledgerwood (1999) defines domains of impact indicators to measure impact at the household, enterprise, individual and community levels. At the household level, income, assets, consumption expenditure and basic services are indicators of impact assessment. At the enterprise level, five domains of development include the resource base, production process, management, markets and financial performance. At the individual level, three domains of well-being include independent control of resources, leverage in households' decision-making units and community participation. At the community level, four domains of development include net changes in employment and income, forward and backward linkages, social networks and civil participation. Robinson (2001) in a study of 16 different MFIs from all over the world shows that having access to microfinance services has led to an enhancement in the quality of life of clients, an increase in their self-confidence, and has helped them to diversify their livelihood security strategies and thereby increase their income.

Remenyi and Quinones (2000) household income of families with access to credit is significantly higher than for comparable households without access to credit. They further found that in Indonesia a 12.9 per cent annual average rise in income from borrowers was observed while only 3 per cent rise was reported from non-borrowers (control group). Remenyi notes that, in Bangladesh, a 29.3 per cent annual average rise in income was recorded and 22 percent annual average rise in income from no-borrowers. Sri-Lanka indicated a 15.6 rise in income from borrowers and 9 per cent rise from non-borrowers. In the case of India, 46 per cent annual average rise in income was reported among borrowers with 24 per cent increase reported from non-borrowers. The effects were higher

for those just below the poverty line while income improvement was lowest among the very poor.

2.5 Quantitative Methods for Evaluating Participant Impact

Establishing impact essentially is making a case that the participant led to the observed or stated changes. This means that the changes are more likely to occur with participation than without participation in microfinance services. It does not imply that the changes always occur from participation in microfinance rather, it increases the probability that the changes will occur (Barnes and Sebstad, 2000).

A variety of multivariate statistical techniques can be used to predict a binary dependent variable from a set of independent variables. When one or more of the explanatory variables in regression model are binary, it can be represented as dummy variable and appropriate models are expected to be applied. However, the application of the linear regression model when the dependent variable is binary is more complex and /or even not efficient (Pindyck and Rubinfeld, 1981). The dependent variable, which is dichotomous taking on two values, zero and one, requires the use of qualitative response models. In this regard, descriptive analysis, multiple regression models, matching method or constructed control, propensity score matching, double difference or difference in difference, instrumental variables or statistical control methods and reflexive comparison are the possible alternatives. The main methods for impact evaluation are discussed below. Because no method is perfect, it is always desirable to triangulate.

2.5.1 Experimental or randomized control designs

Randomization, in which the selection into the treatment and control group, is random within some well-defined set of people. In this case there should be no difference (in expectation) between the two groups besides the fact that the treatment group had access to the participant. There can still be differences due to sampling error; the larger the size of the treatment and control samples the less the error.

2.5.2 Non experimental or quasi-experimental designs

According to baker, 2001 there are different non experimental methods that can be used for evaluating impacts of any interventions. These are: First, matching methods or

constructed controls in which one tries to pick an ideal comparison that matches the treatment group from a larger survey. The most widely used type of matching is propensity score matching in which the comparison group is matched to the treatment group on the basis of a set of observed characteristics or by using the “propensity score” (predicted probability of participation given observed characteristics); the closer the propensity score, the better the match. A good comparison group comes from the same economic environment and was administered the same questionnaire by similarly trained interviewers as the treatment group.

Secondly, double difference or difference-in-differences methods in which one compares a treatment and comparison group (first difference) before and after a participant (second difference). Comparators should be dropped when propensity scores are used and if they have scores outside the range observed for the treatment group.

Thirdly, instrumental variables or statistical control methods, in which one uses one or more variables that matter to participation but not to outcome given participation. This identifies the exogenous variation in outcomes attributable to the participant, recognizing that its placement is not random but purposive. The “instrumental variables” are first used to predict participant participation; then one sees how the outcome indicator varies with the predicted values. Lastly, reflexive comparisons, in which a baseline survey of participants is done before the intervention and a follow-up survey is done after. The baseline provides the comparison group, and impact is measured by the change in outcome indicators before and after the intervention (Baker, 2001).

2.6 Common Impact Assessment Methods

According to Hulme, 1997 impact assessment methods are categorized in the following groups. First, sample surveys in this method quantifiable data are collect through questionnaires. Usually a random sample and a matched control group are used to measure predetermined indicators before and after intervention. The sample survey method is most common method use in impact assessment. In using this method, we collect quantifiable data through questionnaires. Usually a random sample and a matched control group are used to measure predetermined indicators before and after intervention. Sample surveys are appropriate when the project affect a large number of beneficiaries. Again it is helpful when policymakers require accurate estimates of the project impacts. Statistical comparison can be made between groups over a period of time. When sample surveys are

used for impact assessment project delivery and implementation mechanisms operate well. The sample survey may not be appropriate if the project affects a small number of beneficiaries. Policymakers who are mainly concerned with project outcome may not find the method appropriate. If the purpose of the assessment is to study and evaluate complex activities or processes (e.g. the development & operation of community based organization) sample survey is not appropriate.

Second, rapid appraisal, a range of tools and techniques developed originally as rapid rural appraisal (RRA). It involves the use of focus groups, semi-structured interviews with key informants, case studies, participant observation and secondary sources. Third, participation observation extended residence in a participant community by field researchers using qualitative techniques and mini-scale sample surveys. Fourth, Case Studies detailed studies of a specific unit (a group, locality, organization) involving open-ended questioning and the preparation of 'histories'. Fifth, participatory learning and action the preparation by the intended beneficiaries of a participant of timelines, impact flow charts, village and resource maps, well-being and wealth ranking, seasonal diagrams, problem ranking and institutional assessments through group processes assisted by a facilitator Hulme (1997).

Concerning impact assessment Hulme (2000) indicated that there are two schools of thought. These are the intended beneficiary school and the intermediary school. According to Hulme the first school of thought focuses on the impact of a participant basically on the clients (households or individuals), whereas, the second school of thought focuses on institutional outreach and sustainability. According to this school of thought, if outreach and sustainability are achieved the intervention is said to have brought beneficial impact, as financial markets are expected to have been widened. However, this assumption is found to be a failure since it does not reveal participants cross financing of loans (Hulme, 2000). Thus, what clearly indicates 'who benefits' and 'how' the intended beneficiary school, which is the focus of this study. Many microfinance participants have attained the objective of reaching a large number of clients with small amounts of resources. Studies indicate that women are believed to be the main participants and participants of microfinance participants in many countries.

Hulme (2000) indicated that the scientific method attributes the effects of a participant to its causes with the help of experimental designs. On the other hand, quasi-experimental

designs are used in combination with multivariate analysis (Mosley, 2001) as well as both qualitative and quantitative data (Ledgerwood, 1999). Some other studies use the control group design where a 'before and after' the participant data are used for both the treatment and control groups. On the other hand, the humanistic approach focuses on key informants. Attempt is made here to identify and use main impact indicators of well-being as income, living condition, expenditure, capital accumulation and empowerment.

2.7 Literature on Ethiopian Microfinance

There are studies in Ethiopia that were designed to indicate the impact of microfinance on the life of the clients. Bourchgrevink *et al.* (2003) clearly indicated that credit has brought positive impacts at household level in Tigray.

Kejela (2004) conducted a research work using proportionate pilling exercise and financial return to labor and capital with the purpose of identifying opportunities for economic diversification in Central Tigray. He indicated that financial returns to labor and capital are positive for some cereal crops, vegetable and animals. According to this study, there is need for MFIs to focus on these activities in an attempt to reduce poverty in Central Tigray. There are also other studies that attempted to examine the impact of MFIs in improving the life of the poor. For instance, Mengistu (1998), Berhanu (1999), and Teferi (2000) tried to see the impact of microfinance on poverty reduction in Ethiopia. However, these studies did not employ the desired methodologies to clearly indicate the impact of microfinance on poverty reduction. This is because they all used loan repayment performances as the best indicator for improvement in income of the clients.

In addition, Daba (2004) used logit model and descriptive statistics to examine the relation between participating in microfinance and the improvement in income. Then, he indicated that OCSSO has made positive contribution towards improving the income of the participant clients. He went on explaining that since the outreach is increasing as the years go by and the loan repayment performance has been 100% for several years, it is possible to argue that OCSSO is contributing to poverty alleviation. But, loan repayment performance cannot be taken as best indicator of improvement in levels of well being because there are people who intentionally commit default of repayment. In addition, people may be forced to pay the money they have borrowed although there is no improvement in their incomes.

Berhanu (1999) also studied the impact of credit using descriptive analysis on enterprise income. In his study, he used improvement in living standard as proxy indicator for improvement in incomes of the poor. This again concentrates only on one dimension of well-being, that is income and ignored other important dimensions of well-being like education, expenditure on health, asset building. Getaneh (2005) conducted research using a before and after the participant analysis of impact on clients and shows that ACSI brought very little impact on poverty reduction and enterprise development.

Fiona (2000) and Zaid *et al.* (2001) conducted a research to examine the impact of DECSI on the life of the participant clients using secondary data as well as descriptive analysis such as percentages; they indicated that DECSI has brought a positive impact on incomes of people in Tigray. Here, one can see the methodological problem the study might have faced in terms of depth of analysis, especially with respect to application of econometric methods.

In addition, the findings of Tsehay and Mengistu (2002) on the impact of microfinance among poor women in Ethiopia indicates that the microfinance interventions have brought positive impacts in the improvement of economic status and empowerment of women microfinance participants. This study too used only Chi-Square analysis to investigate the impact of microfinance on poverty reduction. So, it is possible to say that the studies made so far in the field are not exhaustive enough to see the impact of micro-finance on the well-being of the poor in Ethiopia.

Samson (2002) also conducted another study in Loume woreda. He used Multiple Linear Discriminant Analysis and indicated that consumption credit users were found to be characterized by greater affiliation to equbs. In addition, participants were found to spend the loan for grain purchase and emergency expenditure on health care, not for the stipulated purpose. This study was aimed at examining financial arrangements and determinants of household credit. Therefore, it was not purely an impact analysis.

On the other hand, Asmelash (2003) using simple descriptive statistical like ANOVA and Chi square conducted a research work in Tigray. He indicated that the credit provided to the poor has brought a positive impact on the life of the participant clients as compared to those who do not get access to microfinance services. He showed that microfinance has brought a positive impact on income, asset building, and access to schools and medical facilities but in all these study there were methodological problem especially econometric

application like analyzing without correcting selection bias in the study area.

2.8 Studies on Application of PSM Methods

Due to dearth of available information on impacts of microfinance intervention studies, only application of the model used by different researcher is discussed. A number of researchers have applied this semi parametric model to evaluate social programs both in Ethiopia and elsewhere in the world. Below are some of the recent studies who have applied PSM in program evaluations particularly in Ethiopia.

Jalan and Ravallion (2003) have applied a PSM technique in their study on the benefit incidence of an antipoverty program in Argentina. Esquivel and Pineda (2006) employed the PSM method in their study of the impact of international remittance on poverty in Mexico using food-based, capabilities-based and assets-based outcome indicators.

Hope (in press) has conducted a study to evaluate social impacts of watershed development in India. The study was intended to estimate changes in gross agricultural returns from two crops and access to domestic water in rural villages following the introduction of watershed development project. The author adopted a PSM method to analyze the impact of the program on farmers' income and domestic water collection time.

Unlike econometric regression methods, PSM compares only comparable observations and does not rely on parametric assumptions to identify the impacts of intervention and it does not impose a functional form of the outcome, thereby avoiding assumptions on functional form and error term distributions, e.g., linearity imposition, multicollinearity and heteroscedasticity issues. In addition, the matching method emphasizes the problem of common support, thereby avoiding the bias due to extrapolation to non-data region. Results from the matching method are easy to explain to policy makers, since the idea of comparison of similar group is quite intuitive.

According to Fitsum *et al*, (2006), used PSM in order to analyze the impact of small scale water harvesting on household poverty in Tigray .The main objective here was to assess whether households with ponds and wells are better off compared to those without. Results show that households with ponds and wells are not significantly better off compared to households without, even though they are comparable in essential household characteristics.

Yebeltal (2008), applied the model to assess the impact of Integrated Food Security Program in Ibant district of Amahara region. The study found that the program has increased participating households' calorie intake by 30percent (i.e., 698 calories) compared to that of nonparticipating households.

Alemu (2010) applied the model to assess the impact of input and output market development interventions by improving productivity and market success project: The study shows that the participation in market development intervention has significant, positive and robust impact on outcome variables measured using different indicators. Program has increased participating households' calorie intake by 24percent compared to that of non-participating households.

In assessing the impact of the Productive Safety Net Program (PSNP) in Ethiopia on livestock and tree holdings of rural households, Andersson *et al.* (2009), have applied PSM model. They found that there was no indication that participation in PSNP leads households to disinvest in livestock or trees. In fact, the number of trees increased for households that participated in the program. It could be the case that participation in PSNP (where tree planting and subsequent forest management work on public lands are usual activities) leads to households becoming more skilled in forestry, and that they switch to increased forest planting as a result. All the above reviewed literature use PSM to evaluate impacts of PSNP whereas this study focused on impacts of microfinance services on household income using PSM.

CHAPTER THREE

RESEARCH METHODOLOGY

The purpose of this chapter is to provide an overview of the research methodology. It includes the research approach and design, the data source and data collection method, Definition and Measurement of Variables, population and sampling, and methods of data analysis, in meeting the objectives of the research.

3.1 Research Approach and Design

The two main types of research approaches used in social sciences are: quantitative and qualitative research approaches. Quantitative research approach refers to the systematic empirical investigation of phenomena and quantitative properties and their relationships. That is to say, it emphasizes on collection of numerical data, which is a deductive approach (Bryman & Bell, 2003). Qualitative research approach refers to all non-numeric data or data that have not been quantified and can be a product of all research strategies (Saunders et al, 2009). It can range from a short list of responses to open-ended questions in an online questionnaire to more complex data such as transcripts of in-depth interviews or entire policy documents. (Saunders et al, 2009). Based on the above approach the researcher used a combination of both qualitative as well as quantitative research method. The researcher believes that using these two (mixed) methods simultaneously enables him to tackle the research problem under the study.

3.2 Data Sources and Data Collection Method

The research used both primary and secondary sources of data. Primary data collected to attain the research objectives regarding to the impact of Gasha service for the economic status of clients, its contribution on improving client's decision making power, self-esteem, and business management skill, and build up their asset as well as participants view of the strength and limitation of Gasha by using Survey/questionnaire, Focused Group Discussion (FGD), and key informant interviews. In order to address the objective of outreach performance of Gasha Micro financial Institution secondary data source is obtained from unpublished Gasha documents as well as key informant's interview with Gasha coordinators and project staffs

The Data are collected through Documentation, Survey/Questionnaires, Focus Group Discussion (FGD), and Key Informants Interviews (KIIs).

- i. **Documentation:** involves collecting information and data from existing surveys, reports and documents of Gasha and Association of Ethiopian Microfinance Institution's (AEMFIs) as well as any relevant Publications.
- ii. **Survey/Questionnaire:** This is used to collect information from beneficiaries and non-beneficiaries of Gasha. For this purpose structured questionnaires are developed and administered that obtaining quantitative data on issues regarding the impact of micro-financial services on poverty reduction based on selected indicators.
- iii. **Focus Group Discussion (FGD):** is done to complement the survey data. The main purpose of FGD are to draw upon beneficiaries' attitudes, feelings, beliefs, experiences and reactions. FGD participants are selected from each of branch's and the researcher are use funnel approach (This approach involves the use of broad questions followed gradually by more narrow questions) in collecting information (Regally, 1996).
- iv. **Key Informants Interviews (KIIs):** Key informants are selected based on their knowledge about related issue to micro finance and clients prior economic as well as social conditions. Key informants interviews are prepared for Gasha officials, Branch Mangers', MFIs officials /coordinators, and some of the beneficiaries of microfinance services.

3.3 Population and Sampling

I. Study Area

Gasha Micro finance Share Company (GMFSC) is a micro financing institution operating under the Ethiopian law. It was established in May 1998 by a local NGO called PRO PRIDE and over 756 clients organized under the savings and credit program of PRO PRIDE. It is led by a five member board of directors elected from among the shareholders. As of June 2015 GMFISC has over 14,000 clients and within this client's 4,125 are active clients (client with loan) and its services are provided through 6 branches and sub branch offices located in Addis Ababa, Bishoftu and Adama and their environs (Gasha, 2015).

Gasha serves both rural and urban communities. However the majority of its clients are engaged in the food and drink processing (service) sector. This group represents 69% of total clients. About 36% of the clients hold both voluntary and compulsory savings; while

64% of total clients hold compulsory savings only. Significant numbers of clients have declared that their monthly income ranges between Birr 2,000 and 3,500. This group represents 77% of total clients. Moreover it has been observed that about 85% of the clients of Gasha earn less than Birr 2500 per month. The majority of clients of GMFSC (77%) are taking their loans by offering group guarantee as collateral. Salary, title deeds and Vehicle ownership certificates came as the next common mode of collateral by covering 23% of clients (Gasha, 2015).

The institution has currently six branches which four are found in Addis Ababa and two found outside of Addis Ababa (Bishoftu and Adama). To increase the reliability of the study, the researcher is motivated on all of this six branches namely (Entoto, Merkato, Yeka, Kolfe Gojam berenda, Bishoftu and Adama).

II. Population

The study population refers to the large groups of people or things (Ruane, 2005). The study population for this research are covered staff members, beneficiary from Gasha microfinance institutions and clients who are ready to get services from Gasha MFI in the near future but not yet received the services from Gasha microfinance institutions. In analyzing the impact of microfinance institutions on poverty reduction, focus has been given to the households which are access to and using microfinance services from Gasha more than three years. This population will give priority due to the needy of getting realistic evidence. In deed the total size of the population is 14,154 consisting of both male and female clients who are permanent resident in Addis Ababa, Bishoftu and Adama.

III. Sampling Procedure and Sample Size

Determining the appropriate sample size is important in research undertaking. Thus, sample size depends on the total number of population, the level of confidence and the maximum deviation from true population that can be tolerated in the study. The study are used two groups of samples namely, experimental or treatment group and control group. Control group are used to avoid the problem of intervening variables (variables that are affecting the output of the research other than independent variables).The researcher applied a simplified formula provided by (Yamane, 1967) as cited by Yilma Muluken to determine the minimum required treatment group sample size at 95% confidence level, degree of variability= 0.5 and level of precision (e) = 10%.

$$n = \frac{N}{1 + N(e)^2}$$

Where n is sample size, N is the total number of study population 14,154

Where e is the level of precision

Using the total population of 14,154 and level of precision of 10%, the sample size will be calculated as follows.

$$n = \frac{14,154}{1 + 14,154(0.10)^2}$$

$$n = \frac{14,154}{1 + 14154 * .01} = \underline{100}$$

120 control group are selected from the list of people who are in the training phase or incoming clients; (clients ready to get service from Gasha in the near future but not yet in the pipe line at present). To manage the research within the given time and limited budget, a total of 220 samples are selected. From the total sample size, 100 samples are used as treatment group and 120 are used as control group. Treatment group is composed of regular clients who are users of microfinance services at least for three years, whereas control groups are a clients in the training or incoming clients (clients ready to get service from Gasha in the near future but not yet in the pipe line at present). This is done to see whether the improvements in the income of the clients could easily be achieved without joining the microfinance participation.

On the other hand, the participant of Key informant interviews and Focus Group Discussion are selected purposively. The selection criterion includes knowledge of micro-finance issues and beneficiaries economic, social situations prior to Gasha services, or are currently using Gasha services.

3.4 Methods of Data Analysis

3.4.1 Descriptive statistics

Descriptive statistics like mean, variance, standard deviations, frequency distributions, and percentages were used to assess the socio economic situations of the sample respondents. From the statistical tools, Chi Square test was used for dummy variables to investigate the difference between the treatment and control groups.

3.4.2 Propensity score matching

Rosenbaum and Rubin (1983) pioneered propensity score matching methodology followed by many other improvements and applications. They define propensity score as conditional probability of treatment given pretreatment characteristics. Their argument is based on the fact that since assignment of subject to treatment and control groups may not be random, the estimation of the effect of treatment may be biased by the existence of confounding factors.

Therefore, they proposed propensity score matching as a way-out to correct the estimation of effect of the participant controlling for the existence of these confounding factors. Based on the idea that the bias is reduced when the comparison is performed using treatment and control who are as similar as possible.

This study applied the propensity-score matching method to match each treatment client with control clients who had (almost) the same probability of joining microfinance participant. A group of control client was selected in this way can then serve as an accurate control group to correct for selection bias.

To achieve main research question of this study, propensity score matching which makes matching feasible was applied. Propensity score is a conditional probability estimator, and any discrete model such as logit or probit can be used as they yield similar results (Caliendo and Kopeinig, 2008). This study employed logit model assuming logistic distribution of the sample mean and variances. The matching estimators are nearest neighbor, stratified, radius and caliper, and kernel matching method all conditional on propensity score. The propensity score model is expressed as:

$$P(x) = Pr \{D = 1 / X_i\} = E\{D / X_i\} \dots \dots \dots 1$$

Where $D = (1, 0)$ the indicators of improvement in income, it is the binary variable whether a participating clients income improve (improvement in income, 1= yes, 0 = otherwise) χ_i = is a vector of pretreatment covariate propensity score to ensure that matching estimation is done on treatment and control clients that are as similar as possible for effective comparison. As a result given a population of units denoted by (i) if the propensity score $P(x_i)$ is known as average effect of treatment (AET) can be estimated as

$$AET = E \{Y_{1i} - Y_{0i} / D_i = 1\} \dots \dots \dots 2$$

$$= \{E\{Y_{1i} - Y_{0i} / D_i = 1, P(x_i)\}\}$$

$$= E\{E\{Y_{1i} / D_i = 1, P(x_i)\} - E\{Y_{0i} / D_i = 0 P(x_i) / D_i = 1\}\} \dots \dots \dots 3$$

Where AET is the average effect of treatment

Y_{1i} and Y_{0i} are the potential outcome for the two counterfactual situations of the treatment client and control client respectively. $P(x_i)$ is propensity score, D is client variable, where $D=1$ if the clients participated in microfinance and 0 otherwise. This model works under two assumptions:

- 1) **The balancing assumption:** States that participation is shaped by pre participation characteristics or that the balancing of participants and control is through the propensity score. Therefore, if $P(x_i)$ is the propensity score then

$$D \perp X / P(x) \dots \dots \dots 4$$

\perp represents independence i.e. exposure to the program participant (D) is shaped by the participation covariates (X) the balancing assumption is thus the propensity score $P(D) = 1, X_i = P(x_i)$.

- 2) **Conditional independence assumption:** Assume that selection is biased on observable covariate of the subject and treat all the covariates that influence participation and potential outcomes are simultaneously observed. It is expressed as

$$Y_1, Y_0 \perp D / P(x_i) \dots \dots \dots 5$$

Where Y_1, Y_0 are potential outcomes with and without the program respectively, D_i is participation variable, $P(x)$ is propensity score. In other words, for a given propensity score exposure to program is random and therefore participant and control clients should be on average observationally identical (Caliendo and Kopeinig, 2008).

A logit model will applied to estimate propensity scores using a composite of predictors characteristics of the sampled clients (Rosenbaum and Robin, 1983) and matching were then performed using propensity scores of each observation. In estimating the logit model, the dependent variable is participation in microfinance services, which takes the value of 1 if a household participates in microfinance service and 0 otherwise. The mathematical formulation of logit model is as follows:

$$p_i = \frac{e^{z_i}}{1 + e^{z_i}} \dots \dots \dots 6$$

Where, P_i is the probability of a clients to participate in microfinance services,

$$Z_i = \alpha_0 + \sum_{i=1}^n \alpha_1 x_i + u_i \dots\dots\dots 7$$

Where $I = 1, 2, 3 \dots n$

α_0 = intercept

α_1 = intercept regression coefficient to be estimated

x_i = predictors or explanatory independent variable and

u_i = a disturbance term,

The probability that a household belongs to non-participant or control group is

$$1 - p = \frac{1}{1 + e^{Z_i}} \dots\dots\dots 8$$

The mean impact of participant in microfinance is given by

$$I = \frac{\sum_{j=1}^P (Y_{ij1} - \sum_{I=1}^{NP} Y_{ij0})}{P} \dots\dots\dots 9$$

Where, Y_{ij1} is the post intervention income level of beneficiary j , Y_{ij0} is the income level of the i^{th} non-beneficiary matched to the j^{th} beneficiary, P is the total number of participant or treatment client, NP is the total number of non-participant or control and I is income level in birr.

Rosenbaum and Robin, (1983), the logit model via which the propensity score is generated include predictor variables that influence the selection procedure or participation in the program and the outcome of interest. Several factors guide selection of predictor variables. In this study, an explanatory variable of the logit model is identified using findings of previous empirical studies on impact of microfinance on household income level, and own field observation. The study includes as many explanatory variables as possible to minimize the problem of unobservable characteristics in the study.

3.4.2.1 Matching estimators

After estimation of the propensity scores, seeking an appropriate matching estimator is the major task. Estimation of the propensity score *per se* is not enough to estimate the ATT of interest. This is due to the fact that propensity score is a continuous variable and the probability of observing two units with exactly the same propensity score is, in principle, zero. There are a number of matching methods that differ from each other with respect to the weights they attribute to the selected controls when estimating the

counterfactual outcome of the treated and the way they select the control units that are matched to the treated. However, they all provide consistent estimates of the ATT under the CIA and the overlap condition (Caliendo and Kopeinig, 2008). The most commonly used matching estimators nearest neighbors matching, radius matching, kernel matching, caliper matching are discussed below. First, nearest neighbor (NN) matching, it is the most straight forward matching estimator. In NN matching, an individual from a comparison group is chosen as a matching partner for a treated individual that is closest in terms of propensity score (Caliendo and Kopeinig, 2008). NN matching can be done with or without replacement options. In the case of the NN matching with replacement, a comparison individual can be matched to more than one treatment individuals, which would result in increased quality of matches and decreased precision of estimates. On the other hand, in the case of NN matching without replacement, a comparison individual can be used only once. Matching without replacement increases bias but it could improve the precision of the estimates. In cases where the treatment and comparison units are very different, finding a satisfactory match by matching without replacement can be very problematic (Dehejia and Wahba, 2002). It means that by matching without replacement, when there are few comparison units similar to the treated units, we may be forced to match treated units to comparison units that are quite different in terms of the estimated propensity score.

Second, stratification or interval matching, this procedure partitions the common support into different strata (or intervals) and calculates the program's impact within each interval. Specifically, within each interval, the program effect is the mean difference in outcomes between treated and control observations. A weighted average of these interval impact estimates yields the overall program impact, taking the share of participants in each interval as the weights.

Thirdly, caliper or radius matching, the above discussion tells that NN matching faces the risk of bad matches, if the closest neighbor is far away. To overcome this problem researchers use the second alternative matching algorithm called caliper matching. Caliper matching means that an individual from the comparison group is chosen as a matching partner for a treated individual that lies within a given caliper (propensity score range) and is closest in terms of propensity score (Caliendo and Kopeinig, 2008). If the dimension of the neighborhood is set to be very small, it is possible that some treated units are not matched because the neighborhood does not contain a control unit. On the other

hand, the smaller the size of the neighborhood the better is the quality of the matches (Becker and Ichino, 2002). One problem in caliper matching is that it is difficult to know a priori what choice for the tolerance level is reasonable.

Fourth, kernel and local linear matching, this is another matching method whereby all treated units are matched with a weighted average of all controls with weights which are inversely proportional to the distance between the propensity scores of treated and controls (Becker and Ichino 2002; Venetoklis, 2004). Kernel weights the contribution of each comparison group member so that more importance is attached to those comparators providing a better match. The difference from caliper matching, however, is that those who are included are weighted according to their proximity with respect to the propensity score. The most common approach is to use the normal distribution (with a mean of zero) as a kernel, where the weight attached to a particular comparator is proportional to the frequency of the distribution for the difference in scores observed.

According to Caliendo and Kopeinig (2008) a drawback of this method is that possibly bad matches are used as the estimator includes comparator observations for all treatment observation. Hence, the proper imposition of the common support condition is of major importance for kernel matching method. A practical objection to its use is that it will often not be obvious how to set the tolerance. According to Mendola (2007) kernel matching with 0.25 band width is most commonly used. This study also used kernel matching following Mendola recommendations.

3.4.2.2 Common support

Imposing a common support condition ensures that any combination of characteristics observed in the treatment group can also be observed among the control group (Becker and Ichino, 2002). The common support is the region where the balancing score has positive density for both treatment and control units. No matches can be formed to estimate the TT parameter (or the bias) when there is no overlap between the treatment and control groups. We define the region of common support by dropping observations below the maximum of the minimums and above the minimum of the maximums of the balancing score.

3.5. Definition and Measurement of Variables

A combination of socio economic and demographic variables is used to explain client's participation in microfinance program as well as the outcomes in terms of poverty reduction.

3.5.1 The Dependent Variable of the Model:

Participation in microfinance is a dummy variable indicating that whether a clients is treatment or control client, 1 for treatment participating household, and 2 other wise or control clients.

3.5.2 Description of Explanatory Variables

1. **Income of Clients (TOINCOM):** Increasing income gives the households many options, increases consumption possibilities, allows the households the possibility of saving for future, reduces the weaknesses arising from future income failures and gives the children better educational opportunities. Hence, rising household income has a particular place in all poverty reduction programs including Gasha microfinance programs. Therefore, the impact of Gasha micro finance Institute on the income of its participants needs to be evaluated to see the extent to which microfinance programs have been successful in alleviating poverty.
2. **Saving of Clients (SAVR):** MFIs are spending much cost on awareness creation among their users so as to mobilize huge amount of saving and made that saving as a source of money for further lending (Meyer 2002). Saving culture of a people can play key impact in assuring sustainability of microfinance services. Savings can be used in case of emergencies, or to finance major purchases, investments or to smoothen out consumption.
3. **Assets accumulation (FIXA):** Assets accumulation plays a multitude of impacts among clients of microfinance service. The ways in which households use assets to smooth out consumption is a well-documented process. Households purchase assets when their income are better and sell them during the lean periods therefore assets also serve as a form of saving. Besides an asset accumulation by borrowers is expected to have a positive impact on loan repayment performance having the perception that the assets will be under liability in case of default. In fact material assets which included other physical and financial assets like for instance land, housing, livestock, saving and jewelry, enable people to withstand shocks and expand their horizon of choices (World Bank, 2002). The

researcher wants to evaluate the effectiveness of Gasha Micro-financial service on the level of asset accumulation of the clients.

4. **Decision Making Power:** Women's ability to influence or make decisions that affect their lives and their future is measured to be one of the important components of empowerments. Many microfinance institutions focus their attention on women's use of loan and ability to make decisions about loan based enterprises as the most direct impact of their program (Cheston and Kuhn, 2002). Thus, the measure of client's autonomy in the household decision making will be constructed to capture client's empowerment status. It will be measured by the extent of their participation and impact in making decisions on issues such as expending money, use of profits from the loan based enterprise, putting loan enterprise income in the saving accounts, buying raw material and selling, using small items and use of loan. In such cases, the Gasha clients will be asked whether they have made these decisions mostly alone, jointly with partner /children or spouses made them alone in both before and after the loan.
5. **Number of Clients:** in analyzing the effectiveness of microfinance in alleviating poverty, it is crucial to look at the outreach performance of MFIs. It is argued that microfinance can play an important impact in poverty alleviation only if the extent of outreach is reasonably large (Tsegaye, 2005). Conversely, if MFIs are restricted to only few geographical locations or serve only a small fraction of the population or the poor, their importance in poverty alleviation efforts would be limited (Mayoux, 1997). Outreach of microfinance sector can be looked at in numerous aspects among a few are the number of clients reached and loan disbursed over the years
6. **Age (AGER):** It is a continuous variable defined as clients age at the time of interview measured in years. Vigano (1993) noted that with increase in age, it is usually expected that participants get more stability and acquire experience. So we expect this variable to have a positive effect on performance. Hence age of the participant was hypothesized to have a positive relation to income. In other words, the probability of being microfinance treatment client increases with age.
7. **Sex (SEXR):** This is a dummy variable which takes a value 2 if the household head is female and 1 otherwise. Sex difference among microfinance clients plays a significant impact in the economic performance of a given client. Some empirical evidences demonstrated that sex is important in defining the economic impact of people in Africa (Dey, 1980). More specifically sex differentials can be related to access to microfinance services. This variable is included to differentiate between males and females in the use

of microfinance. Women's are generally more likely to participate in small business and assumed to be microfinance client and in microfinance operation females are given priority. Therefore, in this study sex was expected to correlate positively when the participating household head is female.

8. **Marital Status (MARR):** this is a variable whether a household is engaged in marriage or not. Married individuals are more likely than single one's to participate in microfinance services. Usually microfinance institutions provide small loan and other financial services depending on individual's behavior and characteristics. Respondents will be ask about their marital status whether they are unmarried, married widow/widower or divorced in their life. The expectation of this variable will be positive relationship with income if a household is married and had family responsibility with participation in microfinance.
9. **Educational status (EDUR):** Household income is expected to be much higher when household head attain a higher level of education. According to Holvet (2004) education is an input in income since it provides the means of earning a higher income via enhancing earning capabilities. It is also a welfare outcome in itself as it allows individuals to participate in decision making that determine the well-being. Literate individuals may get more information about financial services in their residential area than individuals with no formal education.
10. **Family Size (FMSZR):** this variable refers to a total number of family members of the household make their life under one roof regardless of age and sex. Existence of large household size with limited income source could affect participation in microfinance. This indicates that it has positive impact on income. This is due to increased demand for consumption with limited income source. Therefore, the larger household size will become treatment household and it will have positive relationship on income generating ability of the household member.
11. **Dependency Ratio (DPRR):** continuous variable defined as number of dependent household members. This refers to total number of economically inactive members of a household whose age is below 18 years and above 65 years old. This variable tells us the proportion of household members who are dependent on the active members of the family. It was expected that the more the number of dependent in a household the lower the income level would be because the per capita income lowers as the number of dependent increases.

Table 3-1 Type, Definitions and Measurement of Variables used in PSM Analysis

Variable	Type and Definitions	Measurement
Dependent Variable		
PART	A dummy variable that measures the participation of individuals in Gasha microfinance programme	1=if Yes and 2=Otherwise
Explanatory Variable		
AGER	Represents age of the client	In years
SEXR	A dummy variable representing sex of the client	1= female and 2= Male
MARR	A dummy variable representing marital status of the client	1=unmarried 2= married 3= widow 4=divorced
EDUR	Represents the educational level of clients	Number of years completed
FMSZR	Represents the number of family members of the client	In number
DEPRR	Represents the number of dependent family members of the client	In number
Outcome Variable		
TOINCOM	Represents total monthly income of the client	In Birr
SAVR	Represents total monthly savings of the client	In Birr
EXPHLT	Represents total annual health expenditure of the client	In Birr
EXPCHL	Represents total annual children education expenditure of the client	In Birr

Source: Own definition

CHAPTER FOUR

RESULTS AND DISCUSSIONS

This chapter presents the findings of the impacts of Gasha microfinance in the reduction of poverty using both descriptive and econometric analyses. Propensity score matching (PSM) method was employed to estimate the impact of microfinance on poverty reduction. Mean, standard deviations, frequency distributions and percentages are used as tools of descriptive statistics and the results are presented in the first part of this chapter.

4.1 Institutional Profile and Outreach Performance of Gasha

4.1.1 Institutional Profile of Gasha

Gasha Micro Finance Share Company (GMFSC) is a micro financing institution operating under the Ethiopian law. It was established in May 1998 by a local NGO called PRO PRIDE and over 756 clients organized under the savings and credit program of PRO PRIDE. It is led by a five member board of directors elected from among the shareholders. As of June 2015 GMFISC has over 14,000 clients and its services are provided through 6 branches and sub branch offices located in Addis Ababa, Bishoftu and Adama and their environs (Gasha, 2015).

Gasha serves both rural and urban communities. However, the majority of its clients are engaged in the trading sector. This group represents 69% of total clients. About 36% of the clients hold both voluntary and compulsory savings while 64% of total clients hold compulsory savings only. Significant numbers of clients have declared that their monthly income ranges between Birr 2500 and 5500. This group represents 77% of total clients. Moreover, it has been observed that about 85% of the clients of Gasha earn less than Birr 6500 per month. The majority of clients of GMFSC (77%) are taking their loans by offering group guarantee as collateral. Salary, title deeds and vehicle ownership certificates came as the next common mode of collateral that constitutes 23% of clients (Gasha, 2015).

4.1.2 Financial and Non-financial Outreach Services provided by Gasha

The Key Informant's Interviews disclosed that Gasha provides financial as well as non-financial services to the active poor. The financial services delivered by Gasha are lending and saving services. The non-financial services provided by the company are training, orientation service as well as monitoring and supervision.

I. Financial Outreach Service

The financial services delivered by Gasha are lending, saving and insurance services. The target clients eligible for its services are the active poor who are willing to engage in income generating activities of their own in rural and urban areas of the country (Gasha, 2015). As mentioned earlier Gasha provides its services using mostly the group-based methodology. Each self-selected group, which is a central unit of Gasha operation, contains three to seven members including their leader. What is more the center has been serving as a core body of clients to make a manageable and direct link with the institution. The center leader is the main contact person to the credit officers through which direct link is made with the institution. As the groups are self-selected, members are expected to know each other, have similar background, enjoy trust and develop confidence. Given that group members are jointly responsible for the loan, they will take the risk if one of the group members fails to repay the loan. Besides, cooperative and individual based lending methodologies are lately introduced in to the system. The cooperative based loan requires physical asset or capital as collateral. Similarly the individual loan requires property or salary of permanent employees as collateral. In fact, if the client reaches higher level of loan intake he/she will be allowed to operate individually rather than on a group basis. Loan disbursements are made at a sub-branch or branch level. However, cash collections and savings mobilization activities are carried out at the center levels.

II. Non-Financial Outreach Services

(a) Orientation

Other non-financial services provided by the Gasha include provision of orientation, training, monitoring and supervision. Key Informant Interview with one of the credit officer divulges that eight to ten hours orientation is regularly provided for new clients of Gasha before they join the program. The orientation deals with the services provided,

criteria to be a client, method, amount of loan provided, term of loan, and some other relevant information. Business development training about marketing, record keeping, and pricing is delivered for every client on voluntary basis for a month. On -job training is delivered for the staff to build their capacity.

(b) Training

The clients especially those engaged in group lending undergo training for about a month about entrepreneurial skills, book keeping, accounting, loan deposits and administration. The training helps the clients to appreciate what is expected of them with their loans like optimum exploitation of loan use, savings, deposits and loan repayment. Before the initial loan is disbursed, all clients must attend some training which explains the rules of membership, savings requirement and penalties for late payment. In addition, the training will keep going for every six months to equip clients with the necessary tools and knowledge.

(c) Monitoring and Supervision

The organization aspires to be able to have a successful and default free clients. Subsequently Gasha Micro Finance Institute provides a monitoring and supervision service. In fact the credit officers make assessment on whether the clients diverted the loan they have taken to another purpose or so together with this the organization open a door for helping clients designed for enhanced management of the loan money.

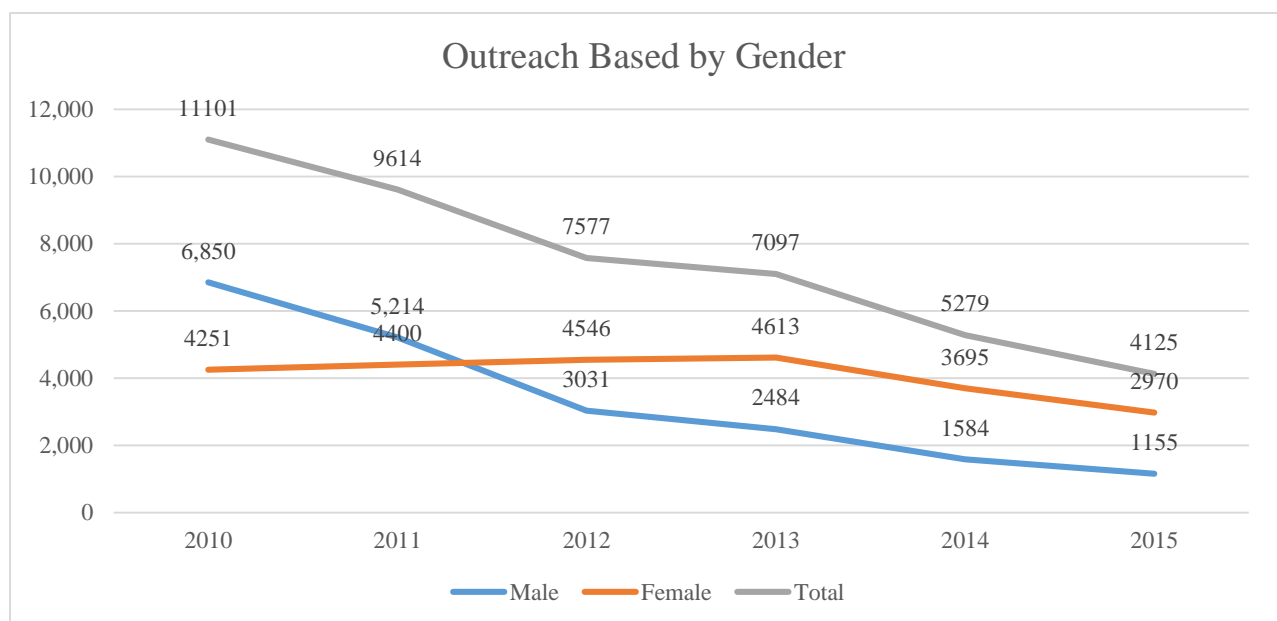
4.1.3 Outreach Performance of Gasha Micro Finance Institute

I. The Number of Clients

In analyzing the effectiveness of microfinance in alleviating poverty, it is crucial to look at the outreaches performance of MFIs. It is argued that microfinance can play an important impact in poverty alleviation only if the extent of outreach is reasonably large (Tsegaye, 2005). Conversely, if MFIs are restricted to only few geographical locations or serve only a small fraction of the population or the poor, their importance in poverty alleviation efforts would be limited (Mayoux, 1997). Outreach of microfinance sector can be looked at in numerous aspect among a few are the number of clients outreached and loan disbursed over the years.

The data from both documentary analysis as well as key informant's interview revealed that with the prime vision of reducing poverty through making financial services available to the needy and thereby creating a scenario where people could live with all the power determining their future in their own hands, Gasha is operating in two regions in Ethiopia: Addis Ababa and Oromia regions. Currently, it has six branches. The number of clients showed a decreasing trends over the period of 2010-2015 (see figure 4.1).The number of active clients in the year 2010 and 2011 were 11,101 and 9,614 respectively. However, the number of clients declined year after year and it reached at 4,125 in 2015. The results of the key informant's interview with Gasha officials showed that the number of branches remained the same (6 branches) between 1998 and 2015.

Figure 4-1 Gender based Outreach



Source: Own analysis based on secondary data from Gasha (2017)

It has been mentioned that Gasha gives women precedence in the provision of loan and saving service. As a result, the total number of women is higher than their male counterpart (see Figure 4.1). The number of women clients in the year 2010 was 4,251 (38%) whereas that of the male clients in the same year was 6,850 (62 %) male clients. In 2012, the number of female clients is estimated at 4,546 (60%) and that of male clients is 3,031 (40%). It can be seen that the number of female clients is catching up with that of male clients recently. This shows that the trend in the number of females as a percentage of the total clients is increasing over time while that of male is decreasing. If the trend of giving priority to women continues, the outreach practices of Gasha microfinance can be

argued that it is in line with what MFIs are championed for in terms of targeting women and the disadvantaged groups of the society.

II. Loan Term, Size and Disbursement

Loan Term: In relation to loan terms, a key informant interview with the Bishoftu branch manager of Gasha avowed that they are established at different levels for different activities with maximum loan period being two year i.e. loans are extended for a maximum duration of 24 months. Loan terms are related with maturity of enterprise for which loan is used. Furthermore, the minimum loan term established by Gasha is six months only.

Loan Size: Indeed Loan size is the amount of money that clients are eligible to take as loan in each loan cycle (Yaron, 1997).Gasha average loan size on a group base for the first loan period is 5,000 Birr (see Table 4.1). Nevertheless, this loan is subject to change every year if a loaner continues as a client with Gasha and graduated from one phase to the next. As a result an upcoming client always start with the first average loan amount (5,000 birr) and pass to the higher loan size after they settled the first loan. The maximum loan size (50,000) was stated by Gasha’s operation manual.

Table 4-1 Loan size by loan cycle:

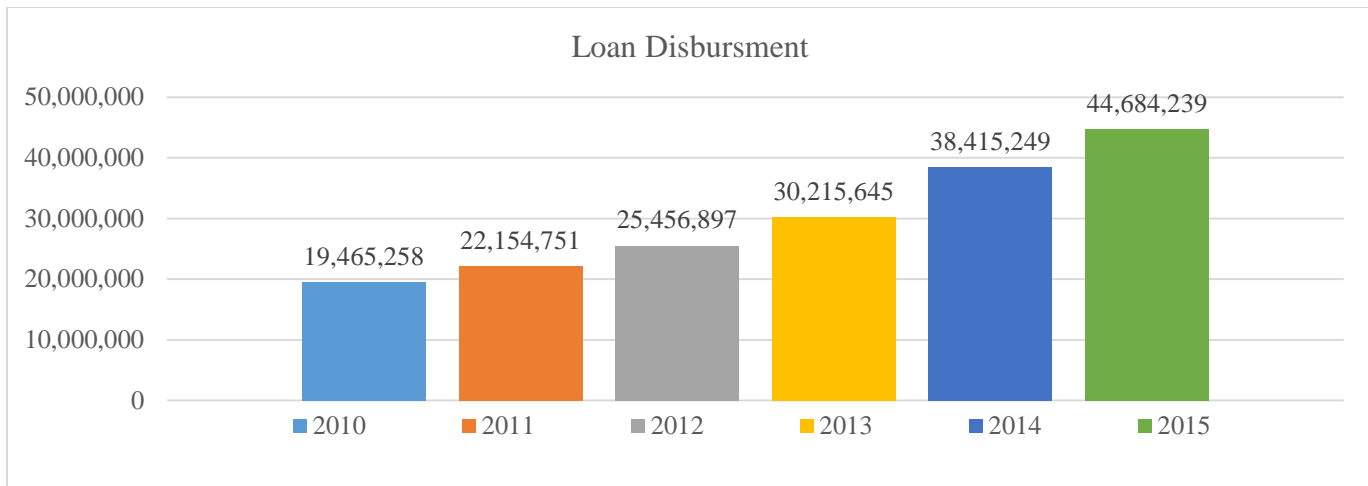
Cycle	Amount in Birr
First Cycle	Up to 5,000.00
Second Cycle	5,001- 10,000.00
Third Cycle	10,001.00- 15,000.00
Fourth Cycle	15,001.00- 20,000.00
Fifth Cycle	20,001.00 – 30,000.00
Sixth Cycle	30,001.00 – 40,000.00
Seventh Cycle	40,001.00- 50,000.00

Source: Own analysis based on secondary data from Gasha (2017)

Loan Disbursement of Gasha

As it is demonstrated on Figure 4.2, Gasha has undergone an incredible ride in loan disbursement. Indeed the loan disbursement of Gasha continued to increase from Birr 19,465,258 in the mid of 2010 to Birr 22,154,751 at the end of 2011. Once more this loan disbursement trend showed remarkable progress during 2012 through 2015 reaching to the point of birr 44,684,239.

Figure 4-2 Loan Disbursements as an Outreach Indicator



Source: Own analysis based on secondary data from Gasha (2017)

4.2 Clients view about the Strength and Limitation of Gasha

4.2.1 Limitation of Gasha Microfinance Institution S.Co

In order to be able to provide improved service to the clients of MFIs assessing the negative as well as the positive view of the clients is a chief component. Consequently, respondents were asked to demonstrate the limitation of Gasha's in rendering microfinance provision services. The following figure will put forward the responses of participants.

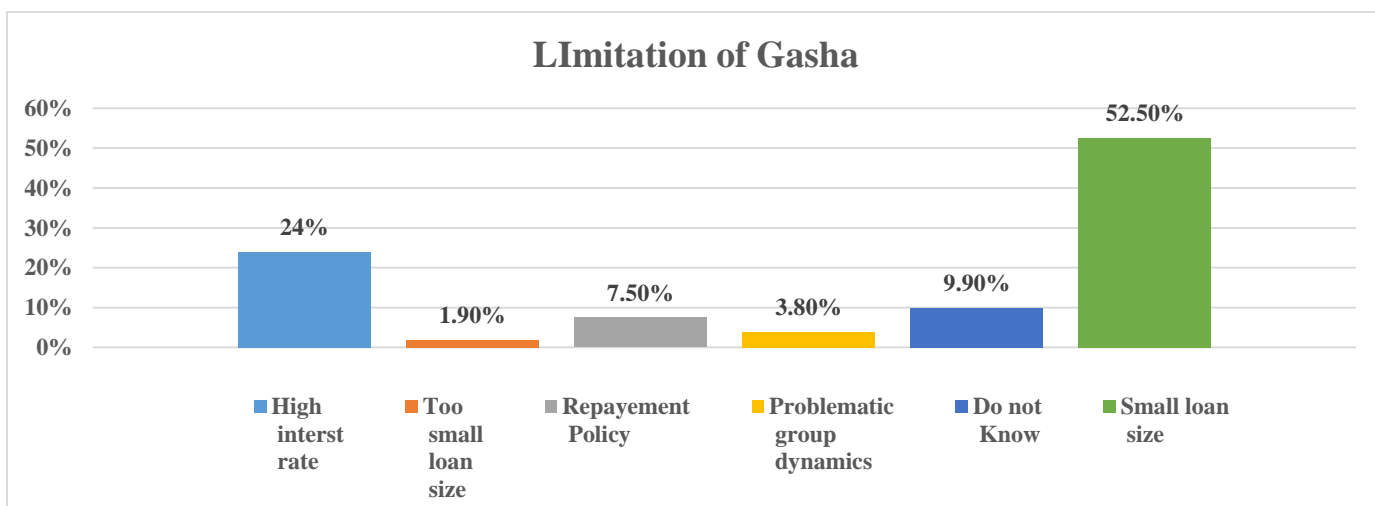


Figure 4-3 Percentage Distributions of Clients View regarding Gasha Limitation

Figure 4.3 indicates that 24.4% of the respondents do not like Gasha's loan due to the supposed high interest rates while 7.5% showed dislike owing to the repayment policy. The perceived problematic group dynamics and the too small loan size appear to be the source of dislike respectively for 3.8% and 1.9% of the clients. Furthermore, more than half of the respondents, i.e., 52.5% have complained about high interest rates, too small

loan size and the repayment policy. The rest 9.9% were not able to identify any negative perceptions regarding Gasha. In a similar line of argument participant of the Focused Group Discussion complained about the relative high interest rates, i.e., 18-20 percent interest on loans taken as compared to only 5 percent when they save in the Gasha.

A divorced client who is 42 years of age and has been a member of the Gasha for seven years noted the following.

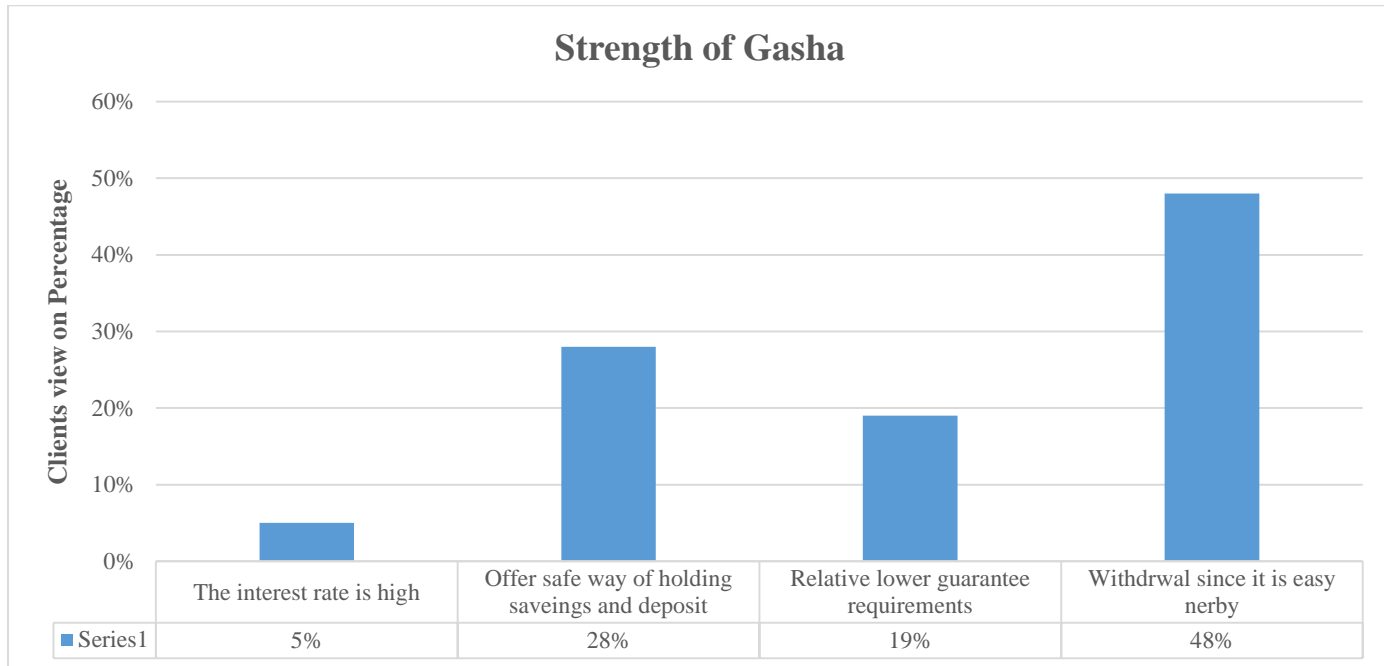
The interest rate applied by the Gasha is smaller compared to that levied by private lenders. However, the rate is still too much for me. In addition, the interest rate on loans taken is not comparable to the amount offered for savings. (Key informant).

Furthermore, participants in the FGD think about the loan offered as very small which is not adequate to start business or any other activity.

A 35 years old lady who has been a member of the Gasha for the last six years had this to say *In fact, the loan size increases as we settle the loan in full and take another. However, the loan still falls short of the amount needed to start business. It would be better if they could increase the amount of loan so that we are able to engage in our own business, earn better incomes and settle our debts more quickly (Key informant).*

Consequently, one can see that Gasha usually offer small loan amounts. Subsequently, this small loan size impedes large capital investments and also limits their engagement as well as expansion of business activities

4.2.2 Strength of Gasha Microfinance Institution S.Co



Source: Survey of 2017

Figure 4-4. Percentage Distributions of Clients View regarding Gasha Strength

As depicted in the above Figure, 5% of respondents like the credit facilities offered by Gasha for the reason that it have good interest rate while 28% of them due to its positive impact on offering a safe way of holding savings and deposit. 19% of the clients prefer Gasha because of the relatively lower guarantee requirements compared to other sources of loan, whereas 48% of them like it because it has easy withdrawal since it is nearby than other informal sources of credit.

4.3 Descriptions of Characteristics of Sample Clients

This section discusses the characteristics of sample respondents by applying descriptive statistics such as mean, standard deviation, percentages, and frequency. Inferential statistics such as Chi square test (for categorical variables) and t-test (for continuous variables) are used for the two groups of sample respondents (programme participants and non-participants) so as to compare them with respect to some socio-economic, institutional and other characteristics that will shed light on the estimation of impact using PSM technique.

4.3.1 Analysis of socio-demographic characteristics affecting clients income

Table 4-2 Comparison of Categorical Variable between Treatment and Control group

Variable Definition		Treatment Client		Control Client		Total		X2
		Frequency	%	Frequency	%	Frequency	%	
Sex	Male	19	19	40	33.33	59	26.82	
	Female	81	81	80	66.67	161	73.18	
	Total	100	100	120	100	220	100	2.41***
p-value = 0.016								
Marital Status	Unmarried	10	10	25	20.83	35	15.91	
	Married	59	59	84	70	143	65.00	
	Widow	17	17	4	3.33	21	9.55	
	Divorced	14	14	7	5.83	21	9.55	
	Total	100	100	120	99.99	220	100	3.94***
p-value = 0.000								

Source: Own survey result (2017)

4.3.1.1 Sex

Out of the total 220 respondents in the study area 73.18 % were female-headed and 26.82 % were male-headed households. Among male-headed households, 33.33 % were control clients and 19 % were treatment clients. Likewise, within female-headed households, 81 % and 66.67 % were treatment client and control client respectively. Among treatment clients 81 (81%) of them are female headed and 19 (19%) are male headed whereas among waiting clients only 33.33 % are male headed and 66.67 % are female headed. The statistical analysis showed that there was statistically significant difference in the sex of the household head between treatment and control client household heads at 5% of level of probability (Table 4.2).

4.3.1.2 Marital status

Table 4.2 shows that marital status of the respondents. The result indicates that the majority (78%) of the treatment client respondent and 85.83% of control clients were married. This shows that clients with household responsibilities (married individuals) were most likely to participate in microfinance services. It can also be assumed that married households are most likely to be involved in micro-enterprise activities, in part, because they can get initial capital and support from family. So it is fair to assume that these married household heads were most likely to get support in terms of capital and business ideas from their partners. It also goes with the belief that married individuals

are considered to be more responsible and are more unlikely to break promises on their loans than unmarried individuals. This was pointed out by some of the members during the interviews when they were complaining about the default rates on their loans. Some of these members pointed out that unmarried individual just pack overnight and leave the area without anybody noticing their action. Marital status was statistically significant at 1%.

4.3.1.3 Age

Table 4.3 shows the age distribution of respondents. Age ranged between 22 to 63 years old. The mean age of the head of the household was estimated to be 37.10. Most of the clients belong to the group of 31 to 45 years (40.45 %) followed by age group of 15-30 years (40.00 %) (Table 4.3). The t-test shows that age is statistically significant at 1% probability level.

4.3.1.4 Educational level

Level of education tends to determine where one works and income level. The respondents were divided into four groups with respect to educational attainment, including those having no formal education, primary school, secondary school and high school or more completed. The majority of the respondents have obtained some education level and only 12.27% of the respondents were reported no formal education. Out of the total respondents, about 80% were treatment whereas about 60.83 % were the control clients were received a primary and secondary level of education. This shows the treatment group attained more primary and secondary education than control groups. The proportion of no formal educations for the treatment clients is about 12% which is much nearly the same with that of the control clients (12.5%). This indicates that there is no difference in no formal education between treatment and control clients. Nearly 88 % of the treatment clients and 87.5% of the control clients have acquired primary, secondary and high school education. But the proportion of control clients (26.67%) with high school complete is by far greater than treatment (8%) clients (Table 4.3). Educational level of respondents has statistically significant influence on participation in microfinance services at 5% level.

4.3.1.5 Family size

Sample Family size have an average size of 4.13 persons per household. The maximum Family size observed was 5 while the minimum was 1. The mean Family size of treatment

client was 4.31 and that of control client was 3.97. Moreover, 10% of the sample households have less or equal to 2 Family members, 90% of the sampled Family size have more than 3 household members. This shows there is difference between the two categories under consideration. In addition, 90 % of the treatment client households, as well as more than 88% of control client households, reported to have three or more family members and the survey results show much variation in the average household size between the two group households. The t-test shows a statically significant difference in household size at 5% probability level (Table 4.3).

Table 4-3 Comparison of Continues Variable between Treatment and Control Client

Variable	Treatment Client				Control Client				Total Client					t-Value	P-Value
	Mean	Min	Max	St.dev	Mean	Min	Max	St.dev	Mean	Diff	Min	Max	St.dev		
AGER	39.37	22	63	11.84	35.21	22	56	10.13	37.1	4.16	22	63	11.11	2.81	0.005***
EDUR	3.52	0	10	2.93	6.08	0	12	4.35	4.92	-2.56	0	12	3.97	-5.02	0.000***
FAMSZR	4.31	1	5	1.06	3.98	2	5	1.1	4.13	0.33	1	5	1.09	2.28	0.023**
DEPRR	1.58	0	3	0.99	1.23	0	3	0.93	1.39	0.35	0	3	0.97	2.74	0.000***

Source: Own survey result (2017)

4.3.1.6 Dependency ratio

The dependency ratio (DEPRR), calculated as the ratio of household members without income to household income earners, reflects the economic activities of a household. Households with higher dependency ratio will be more financially stressed than those with lower ratios. As dependency ratio increases, the need for enough basic needs and financial resource is also increase. This indicates economically productive age has to support itself as well as additional persons for their livelihood. About 75% of the sample clients experience a dependency ratio between zero and one and 17.27% of the sampled clients involved with a dependency ratio of 2, and 7.73% sample clients experiences 3 to 4 dependency ratio (Table 4.3). Dependency ratio is statistically significant at 1% probability level in influencing impacts of participation in microfinance.

4.3.2 The Impact of Gasha microfinance

The main aim of this study is to assess the impact of Gasha microfinance on poverty reduction. The impact will be measure in economic status of clients like income, saving, and asset holdings of clients. The psycho-social empowerment of clients will be measured in terms of participation in decision making power, and business management skill. The impact would be measured by comparing the means of the treatment clients with control group (non-participants). The t-test statistic and chi square test was used to test for significance.

Table 4-4 Comparison of Outcome Variables Respondents

Variable	Treatment Client				Control Client				t-Value	P-Value
	Mean	Min	Max	St.dev.	Mean	Min	Max	St.dev		
TOINCOM	1120.19	200	3990	1154.3	607.84	300	780	122.11	4.83	0.000***
SAVR	383.38	70	1260	383.94	222.19	105	275	45.69	4.56	0.000***
EXPHLT	361.58	240	492	65.33	298.44	200	450	53.21	9.06	0.000***
EXPCHL	706.84	456	850	95.02	556.76	350	850	115.27	10.4	0.000***

Source: Own survey result (2017)

4.3.2.1 Impact of microfinance on respondent's income level

One of the primary objectives of the MFI is to improve the income of the participating clients through the provision of financial services as a business startup and/or expansion loans. If we look at the descriptive statistics for the treatment and control groups, the mean income of treatment client is more than the mean income of the control clients (1120.19 versus 607.84). As indicated the mean difference in income level between the treatment and the control clients is 513 Birr. About 80% of the treatment household reported an improvement in their incomes from the time they accessed financial services from Gasha MFI where as 50.83% of control household respondent expressed an increase in income of the household during the same period with their counter part in treatment group. This shows income level of treatment group is more improved as compared to the control group. Increased incomes from the businesses were, therefore, channeled into enhancing facilities like furnishing house, children's education, food and expenditure on health. The table that present the result for the sample showed that there is statistically

significant difference between the average household income of treatment households and control households. The t-value table shows a t-value of (4.83) and a p-value of (0.000). In a nutshell impact of microfinance on household income is statistically significant (Table 4.4).

4.3.2.2 Impact of Gasha on respondent's ability to save

The majority of the (74%) expressed that their participation in the Gasha have given them an opportunity to accumulate savings. However the saving ability of the control group is much less than their counter part (26%). If we look at the descriptive statistics for the treatment and control groups, the mean saving of treatment client is more than the mean saving of the control clients (383.38 versus 222.19). As indicated the mean difference in saving between the treatment and the control clients is 161.19 Birr. This indicates that treatment group felt empowered because they owned their saving even though it was small, and they still could accomplish gender specific impacts and responsibilities within their households. The respondents appreciated Gasha savings arrangement because saving money at home is problematic due the risks involved such as theft, fire and the temptation to misuse, particularly when there is an additional income. The t-value table shows a t-value of (4.56) and a p-value of (0.000). In a nutshell impact of microfinance on household saving is statistically significant (Table 4.4).

FGD result show that many of the respondents have savings account in Gasha but are not aware of the amounts they have and the applicable interest rates. In some cases the clients withdraw all or some of their savings and they start to save all over again. There are also case where respondents feel that the money they have at hand before joining the Gasha is too little to be in a bank. A case in point in this regarded is statement quoted from 42 years old key informant client.

Before joining the Gasha, I did not have a saving account. Since I had a very small amount of money, it was shameful to go to the bank and deposit it. In addition, I did not have the necessary knowledge of saving to do that. I now have a bank book opened with the Gasha which allows me to deposit my savings upon settlement of the loan (key informant interviewee).

This indicates that the Gasha helped them to earn money and open a saving account relieving them from the feeling of intimidated to deposit small money in their account.

Nowadays they can save and deposit a small amount of money starting from Birr one which they are able to do every time when they go to the Gasha to settle their loans.

4.3.2.3 Impact of microfinance on expenditure on health facility

Expenditure on health status of the respondent is a critical variable for the wellbeing of the client since a healthy client is more productive and resources that go to medication can be saved or invested in income generating activities, hence progress in income helps to come out of the poverty trap. Health is also an important ingredient in protecting the productivity of the household's effective use of the household scarce resources.

Table 4.4 shows that the treatment client respondents about 92 % of the treatment client's respondents had the capacity to meet their medical expense while 8 % of the treatment clients were remain the same in ability to pay the private medical expenses after joining Gasha MFI. About 80.45% of both groups showed an improvement in their economic performance to cover their medical expenses while about 19.55 % of both groups remain the same in economic performance to cover medical expenses which seems to be explained by increasing cost of medication. Majority of the clients had a sick person in the family in the last three years. All the clients could afford to visit health centers and also could afford to pay the medical expenses every time a member of the household could fall sick. This indicates that participation in micro financing activity enabled the treatment clients to cover medical expenses whenever a family member faces sickness.

4.3.2.4 Impact of microfinance on expenditure on children's education

There were different questions asked to the clients about their expenditure on children's education. The first one sought to find out how many children are in the household who were in the school age and how many attended school both boys and girls. 74% of treatment clients revealed an improvement in terms of covering their children's schooling expenses whereas that of control client is 70%. This shows there slight difference between the two categories. However, 30% of the control group and 26% of treatment group have no change in expenditure on children's education. The respondents felt empowered due to the fact that they had a substantial contribution towards the education of their children. Apparently 71.82% of the respondents had children or grandchildren in school ranging from nursery (kindergarten) school age to higher education. The means expenditure for control households was less than that of the treatment households. The participating households had mean expenditure greater than

the general mean expenditure for total sample of 220. The t-test ($t = 10.40$) showed that the difference in expenditure between the groups is significant there by showing some level impact. The p-values give enough evidence for that there is statistically significant difference between the two groups (Table 4.4).

4.3.2.5 Impact of Gasha on respondent's Asset accumulation

Assets accumulation plays a multitude of impacts among clients of microfinance service. The ways in which households use assets to smooth out consumption is a well-documented process. Households purchase assets when their income are better and sell them during the lean periods therefore assets also serve as a form of saving. Besides an asset accumulation by borrowers is expected to have a positive impact on loan repayment performance having the perception that the assets will be under liability in case of default. In fact material assets which included other physical and financial assets like for instance land, housing, livestock, saving and jewelry, enable people to withstand shocks and expand their horizon of choices (World Bank, 2002). As a result the researcher holds the position of evaluating the effectiveness of Gasha Microfinance service on the level of asset accumulation of the clients.

According to tabular 15 demonstration out of all respondent 72.27 % of them affirmed that they have fixed and movable asset after joining the microfinance provision. However, 27.73% of them avowed that they didn't possess any movable asset after being the client of Gasha. Subsequently based on the survey result the impact of Gasha microfinance service provision on the respondent asset accumulation will be exhibited in the next table below.

Table 4-5 Asset accumulation of respondents after joining Gasha (% of respondents)

Impact type	Treatment (N=100)%	Control (N=120) %	Total (N=220)%	χ^2
Asset accumulation after joining Gasha				
Yes	91%	57%	72.27%	
No	9%	43%	27.73%	
Total	100%	100%	100%	4.21***

***, **, * significant at 1%, 5% and 10% probability level

respectively Source: Own field data, 2017.

4.3.2.6 Impact of Gasha on respondent's psycho-social empowerment

The treatment clients were asked whether participation in microfinance program has empowered them. The majority who answered to this question felt that their position in the family had been strengthened, had attained a real change in their lives and self-esteem when they compare themselves to the period before they joined microfinance. Many felt that they can look after their children and educate, afford a nutritious diet to the household and are no longer dependent on others shoulder. Some treatment clients said that with the income they get, have managed to buy housing furniture and fixture while others said that their voices are heard in the household, their contribution in terms of income, their involvement in the decision making process has increased. On a business level, several participants have managed to set up their businesses and run. As a consequence of this their leadership and business skills have been enhanced. Generally, access to microfinance resources tends to improve participants bargaining position within and outside the household.

There are remarkable changes in the situation of treatment or participants accruing to microfinance intervention. Treatment clients have had their voices strengthened, they have managed to set up their businesses, they are no longer dependents on others and their leadership as their business skills has been enhanced. Moreover, they have gained more confidence that can enable them to stand in public and speak. Some of them have managed to join politics and have been elected on local councils namely Woreda. Now they can attend and speak freely in village meetings.

Table 4-6 Improvements in business expansion & decision making (% of respondents)

Impact type	Treatment (N=100)%	Control (N=120) %	Total (N=220)%	X^2
Business expansion				
Yes	84	60	70	
No	16	40	30	
Total	100	100	100	6.69***
Decision making				
Improved	92	68	79	
Remain same	8	32	21	
Total	100	100	100	1.77*

***, **, * significant at 1%, 5% and 10% probability level respectively Source: Own field data, 2017.

Respondents in this study felt that microfinance services had a positive impact on their lives, because they saw an increase in their incomes, they had an opportunity to save money, they could contribute to children's education, and they were better able to purchase household assets. Additionally, most program participating respondents (92.5% Vs. 68%) reported that they felt empowered to decisions because their self-confidence was promoted, leading to an enhanced ability to exchange and learn new ideas from fellow group members. Some respondents believe they learned a lot through group interactions and through exchanging ideas with fellow members. Some of the group members who have had the opportunity to become group leaders such as a chairperson, a secretary and a treasurer in the group, felt empowered and confessed that being leaders within Gasha groups also had a spillover effect. Others have taken responsible social positions in their communities (Table 4.6).

It was apparent from respondents with participating clients that they saw the financial services they received from Gasha microfinance institution as a means to improve the well-being of the entire family and not just to themselves. The majority of the respondents (93%) recognized that self-confidence was raised because they were more in control of their lives, and the feeling of ownership and being successful.

In summary microfinance program of Gasha have been empowering them by increasing their business skills, improving their self-esteem, and increasing their impact of decision-making in household and community through improved access to jobs, training, expanded businesses, supervision and group meetings.

I. Decision making power of client

Women's ability to influence or make decisions that affect their lives and their future is measured to be one of the important components of empowerments. Many microfinance institutions focus their attention on women's use of loan and ability to make decisions about loan based enterprises as the most direct impact of their program (Cheston and Kuhn, 2002). Thus, the measure of client's autonomy in the household decision making was constructed to capture client's empowerment status. It was measured by the extent of their participation and impact in making decisions on issues such as expending money, use of profits from the loan based enterprise, puts loan enterprise income in the saving accounts , buying raw material and selling, using small items and use of loan. In such cases, the Gasha clients were asked whether they have made these decisions mostly alone,

jointly with Spouse /children or spouses made them alone in both before and after the loan.

Furthermore, Table 4.7 shows that 100 % of the female respondents reported that they have made decisions on expending loan money whereas 80 % of them have affirmed that they have made a decision on the use of profit from loan based enterprise after they have become the client of Gasha microfinance institution S.Co. The remaining 81%, 68% and 85% respectively have avowed the fact that they have made a decision on issue regarding putting loan enterprise income in the saving account, buying raw material and selling and use of loan. This entails that the decisions pertaining to the loan received from Gasha are contributing a sizable amount for the client’s empowerment.

Table 4-7 Percentage Distributions of Respondents by Decision Making Power

Type of Decisions	Number	Percent
Expending money loan money	81	100%
Use of profits from loan based enterprise	65	80%
Puts loan enterprise income in the saving accounts	66	81%
Buying raw material and Selling	55	68%
Using Small items and Use of loan	69	85%

II. Self-Esteem and Self-Confidence

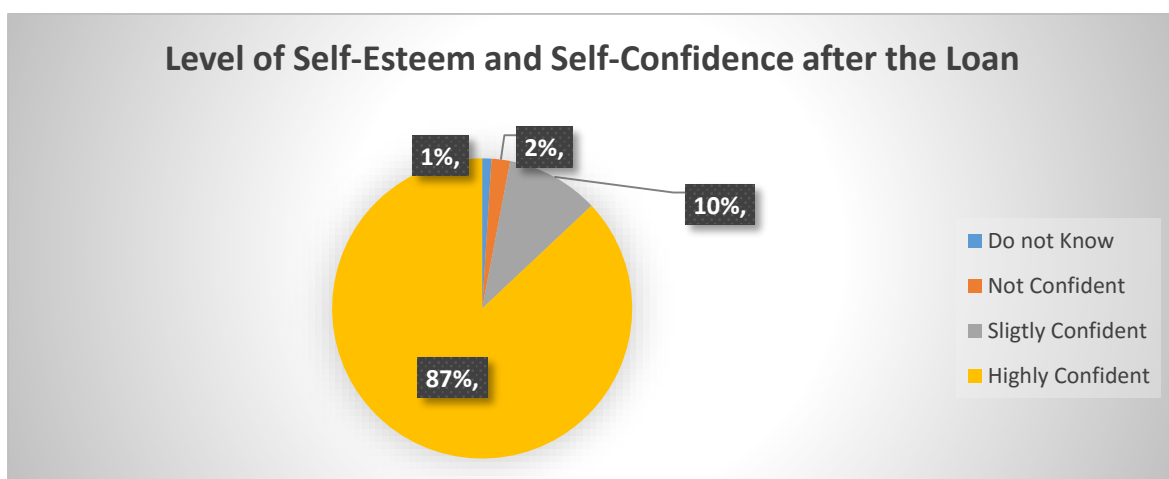


Figure 4-5 Level of Self-Esteem and Self -Confidence

As it is demonstrated above table, the self-esteem and self-confidence of the clients has generally improved after they joined Gasha. It appear the same results from the replies of

the FGD participant that their self-confidence and self-esteem toward themselves has enhanced after the intervention of Gasha microfinance Institution S.Co. Similarly, key informant interview with a 28 years old lady who is single said the following.

The fact that I now engage in some sort of business has itself enhanced my self-confidence (Key informant).

The following has been noted by a 34 years old widow.

After I joined the Gasha micro financial program the changes that are brought about in me and my family constantly encourage me. Subsequently, this gives me the confidence that I can work and improve my living (Key informant).

A 28 years old client Alemitu say the following

Previously I was financially dependent on my husband. My confidence has improved because I now have my own income (Key informant). A 28 years old lady respondent stated that, *Despite my husband is not contented with the contribution I make to the household, my self- esteem and self-confidence has augmented because I have realized that I can work and become economically independent* (Key informant)

As it can be seen from the above, the self-confidence of most of the clients has enhanced after their participation in Gasha. This is a very basic requirement of empowerment as the clients would be encouraged to work hard and improve their lives as their self-confidence enhances.

4.3.2.7 Types of the business clients are engaged in

The majority of the respondents (53.64%) engaged in the food and drink business and worked in cooked food vending businesses followed by small petty trading business (27.73%), textile sales (6.36%), hair salon (5.45%) and Metal work (3.18%). Others (3.64%) including tailoring, home furniture making and retailer of telephone cards (Table 4.8). A possible explanation for why micro-entrepreneurs concentrated in food business and small petty trading could be because the needed startup capital for this business is relatively low and its market opportunity. That means micro entrepreneurs can easily secure initial capital from personal savings, friends and relatives. Additionally, low income earner want to involve themselves in business ventures such as home based enterprises, which will allow them enough time to attend to other household activities

like keeping children's under five at home and cooking food to the family.

Table 4-8 Type business respondents engaged

Business type or occupation	Treatment		Control		Total	
	Frequency	%	Frequency	%	Frequency	%
Food & drink vending	46	46.0	72	60.00	99	53.64
Small business	34	34.0	27	22.50	51	27.73
Textile Sales	6	6.0	8	6.67	13	6.36
Hair Salon	5	5.0	7	5.83	11	5.45
Metal Work	4	4.0	3	2.50	7	3.18
Others	5	5.0	3	2.50	6	3.64
Total	100	100.0	120	100.0	220	100.0

Source: Own survey result, 2017

4.4 Econometric Results

This part describes the whole process of deriving the impact of microfinance on poverty reduction. It explains the estimation of propensity scores, matching methods, common support region, balancing test and sensitivity analysis. It also explains the treatment effect of the intervention across the participating clients.

4.4.1 Estimation of propensity scores

The logistic regression model was used to estimate propensity score matching for treatment and control client households. As, indicated earlier, the dependent variable is binary that indicate households' participation decision in the microfinance services. Results presented in Table 4.9 shows the estimated model appears to perform well for the intended matching exercise. The pseudo- R^2 value is 0.376. A fairly low R^2 value shows that program households do not have much distinct characteristics overall and as such finding a good match between treatment and control clients becomes easier.

The pseudo- R^2 indicates how well the regresses explain the participation probability. After matching there should be no systematic differences in the distribution of covariates between both groups and therefore, the pseudo- R^2 should be fairly low (Caliendo and Kopeinig, 2008).

The results in Table 4.9 are generally unsurprising and reveal a number of significant covariates of program participation. The probability of a client's participating in microfinance tends to increase with sex being female, individual with married and hold

family responsibility, large household size, self-employed or casual occupation, with household ability to save and decrease with the age, educational level and dependency ratio. Sex, family size and dependency ratio were all not statistically significant. This means that there is no relation between sex, family size and dependency ratio with participation in microfinance services.

Looking at the result for the logit estimated sample in table 4.9 the intercept (0.755) is positive and significant, showing that the microfinance has positive impact on the reduction of poverty. Eight variables were hypothesized to explain factors affecting participation in microfinance. Out of these five of the variables were found to be statistically significant at least at 5% while the three were less significant in explaining the variations in the dependent variable.

The maximum likelihood estimates of the logistic regression model show that age, marital status, educational level, savings of client and income of clients are important factors influencing access to participation in microfinance in the study area (Table 4.8).

Table 4-9 Logit results of client's program participation

Participation	Coefficients	Std. Err.	Z	p-value
Age	0.0419**	0.0164	2.54	0.011
Sex	0.2506	0.4551	0.55	0.582
Marital status	0.9104***	0.2582	3.53	0.000
Education level	- 0.1139**	0.0546	-2.08	0.037
Family size	- 0.0484	0.2110	-0.23	0.818
Dependency ratio	0.2813	0.2301	1.22	0.221
Saving of Client	-0.1696***	0.0307	-5.51	0.000
Income of Client	0.0605***	0.0108	5.58	0.000
Constant	0.7550**	0.2425	3.11	0.027

Source: Model Result, 2017. LR χ^2 (8) = 114.04 Prob > χ^2 = 0.0000
Pseudo R^2 = 0.376 Log likelihood = -94.5613
***, ** and * level of significance at 1%, 5% and 10% respectively.

Again it is important to emphasize that all the variables with weak predictive ability included in the logit regression can be still helpful to minimize bias in estimating casual effect in propensity score matching, since the ultimate goal is to not to predict selection

in to treatment but to balance covariates and get closer to the observationally identical non participants.

Looking into the estimated coefficients (table 4.9), the results indicate that participation in microfinance is significantly influenced by five explanatory variables. Education level and savings of clients are found to have strong and positive relationship with client's participation in the microfinance. The level of significance is at 1% for marital status, saving of client and income of clients, 5% for age and educational level. By contrast age, marital status and income of client has a strong and negative effect on household participation in microfinance service at 5%, 1% and 1% significant level respectively.

4.4.2 Propensity score

The result of the logistic regression model is used to estimate propensity scores for matching treatment client with control client. As indicated earlier, the dependent variable in this model is a binary variable indicating whether the client was a participant in the microfinance. The model is estimated with Stata 14 computing software using the propensity scores matching algorithm developed by Leuven and Sianesi (2003). In the estimation data from the two groups; namely, treatment and control client were pooled such that the dependent variable takes a value 1 if the household was treatment client (in the program) and 2 otherwise.

Propensity score matching is a way to “correct” the estimation of treatment effects controlling for the existence of these confounding factors based on the idea that the bias is reduced when the comparison of outcomes is performed using treated and control subjects who are as similar as possible. Since matching subjects on an n-dimensional vector of characteristics is typically unfeasible for large n, this method proposes to summarize pre-treatment characteristics of each subject into a single-index variable (the propensity score) which makes the matching feasible (Shadure, 2009).

The extent to which this bias is reduced depends crucially on the richness and quality of the control variables on which the propensity score is computed and the matching performed. To be more precise, the bias is eliminated only if the exposure to treatment can be considered to be purely random among individuals who have the same value of the propensity score. The propensity score matching (PSM) model were employed to estimate income improvement effects of access to MFIs and loans used for productive business purposes. This model compensates for endogenous binary treatment effects or sample

selection bias associated with access to MFIs. Despite some limitations e.g. arising from the unobservability of potentially important determinants of participation in microfinance program, significantly positive effects of MFI access on the multidimensional welfare indicator were confirmed by the model, a result which suggests that MFIs play a significant impact in improving income level. We found that the results from the propensity score matching model were similar to those derived by kernel matching in the PSM model (Shadure, 2009).

Propensity score matching (PSM) constructs a statistical comparison group that is based on a model of the probability of participating in the treatment, using observed characteristics. Participants are then matched on the basis of this probability, or propensity score, to nonparticipants. The average treatment effect of the program is then calculated as the mean difference in outcomes across these two groups. The validity of PSM depends on two conditions: (a) conditional independence (namely, that unobserved factors do not affect participation) and (b) sizable common support or overlap in propensity scores across the participant and nonparticipant samples (Shadure, 2009).

Table 4-10 Matching Methods to Measure Impact of Microfinance in poverty reeducation

Outcome Variable	Estimation Type	<i>ATT</i>	<i>Std.Err</i>	<i>z-value</i>	<i>p>/z/</i>
Income of Clients	<i>Inverse-probability weights</i>	493.31	116.53	4.23	0.000***
	<i>Nearest Neighborhood</i>	461.633	115.333	4.00	0.000***
	<i>Propensity-score matching</i>	465.493	117.335	3.97	0.000***
Savings of Clients	<i>Inverse-probability weights</i>	155.06	38.93	3.98	0.000***
	<i>Nearest Neighborhood</i>	143.895	38.567	3.73	0.000***
	<i>Propensity-score matching</i>	144.66	39.057	3.70	0.000***
Expenditure on Health	<i>Inverse-probability weights</i>	80.398	8.307	9.68	0.000***
	<i>Nearest Neighborhood</i>	82.49	9.857	8.37	0.000***
	<i>Propensity-score matching</i>	78.80	10.804	7.29	0.000***
Expenditure on Children education	<i>Inverse-probability weights</i>	161.112	16.388	9.83	0.000***
	<i>Nearest Neighborhood</i>	135.77	29.099	4.67	0.000***
	<i>Propensity-score matching</i>	166.33	19.204	8.66	0.000***

Source: Own survey result, 2017

***, **, * significant at 1%, 5% and 10% probability level respectively

4.4.2.1 Estimation of impact of factor influencing treatment effect (ATT) on income of the client

Table 4.10 presents results from the PSM model that was estimated for comparison purposes with the treatment effect model results. Three matching estimators, the inverse-probability weights, the nearest neighbor and the propensity-score matching algorithms were employed for all out come variables as robustness checks. The three estimators result indicate that microfinance has a significant impact on the income of clients. Participants got more monthly income as compared to non-participants. In this respect, the difference between participants and nonparticipants in total monthly income is significant at 1% significant level.

ATT results of these algorithms show that participation in the microfinance program increased income of the household by birr 493.31, birr 461.63 and birr 465.49 for inverse-probability weights, nearest neighborhood and propensity-score matching respectively. The average income estimated using the inverse-probability weights matching algorithm is higher than that of the other two matching algorithms. Moreover, there is a slight difference in the average monthly income difference of participant and their counterfactual between the results of these algorithms and result of simple t-test (table 4.4) ranging from birr 19.04 to birr 50.72 for inverse-probability weights and nearest neighborhood matching algorithms. This indicate that, the difference revealed with these algorithms is the only difference with participation to microfinance or not and the difference between the result of these algorithms and the result of t-test is the difference with un observable factors. Comparing the results across the different matching methods indicate that the estimated microfinance impact is robust.

4.4.2.2 Estimation of impact of factor influencing treatment effect (ATT) on saving of the client

Table 4.10 shows that participants save more as compared to non-participants. The ATT result of the above three algorithms revealed that participants' saving status is significant at 1% significant level. Results show that participation in the microfinance program increased the amount of saving of the non-participant by birr 155.06, birr 143.895 and birr 144.66 based on the ATT results of Inverse-probability weights, Nearest Neighborhood and Propensity-score matching algorithms respectively. This means that

the amount of saving of treatment client is higher with these figures compared to control clients. All of these figures are smaller compared to the difference of saving between participant and non-participant simple t-test (table 4.4) which is 161.19. This indicates the robustness of the PSM method and this is the reason why the researcher chooses this method.

4.4.2.3 Estimation of impact of factor influencing treatment effect (ATT) on expenditure to health

Table 4.10 demonstrates that participants' expenditure on health is higher as compared to nonparticipants. This indicates that participants have an access to get health treatment for his/her household member. In this respect, the difference between participants and non-participants is significant at 1% probability level. Results show that participation in the microfinance program increased expenditure on health of the household by birr 80.398, birr 82.49 and birr 78.8 using ATT results of Inverse-probability weights, Nearest Neighborhood and Propensity-score matching algorithms respectively. The differences between these results and t-test result ranges from 15.66 to 19.35 for Propensity-score matching and Nearest Neighborhood respectively. Indicating the most robustness of Propensity-score matching algorithm compared to other methods and conservativeness of t-test. This difference comes from the impacts of unobservable variables to the researcher. So, the difference between participant and non-participant because of microfinance participation is the result of these algorithms with the best one is the result of Propensity-score matching algorithm.

4.4.2.4 Estimation of impact of factor influencing treatment effect (ATT) on expenditure to children education

Table 4.10 reveals that participants expend more for education as compared to non-participants. In this respect, the difference between participants and non-participants is significant at 1% probability level. Results show that participation in the program increased expenditure on education of the household by birr 161.112, birr 135.77 and birr 166.63 for ATT results of Inverse-probability weights, Nearest Neighborhood and Propensity-score matching algorithms respectively. From these results, results of propensity score matching is higher indicating its conservativeness compared to other two.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Major Findings

As it has been clearly indicated in the introduction part, the main objective of this thesis was to show impact of Gasha Microfinance Institution S.Co in the reduction of Poverty and to locate the key problem areas that seek attention and improvement. Therefore, the following major findings were obtained on the basis of the analysis.

- The study revealed that the products and services provided by Gasha Microfinance is mainly targeted women who constitute 81% of their clients.
- It is noticed that most of the respondents and informant agreed that Gasha Microfinance institution has improved the life styles of the poor section of the people.
- They are argue that it has boosted economic development directly and indirectly and enhanced happiness in the household.
- Gasha microfinance plays a significant impact in contributing to poverty reduction by providing financial and nonfinancial services.
- To be part of the program, the client must already be involved in a business activity that can generate income for the repayment of the loan. Also, the products mostly target food and drink vending and small business.
- The study continues to reveal that, the aim of MFIs reaching out to the poorest in terms of outreach hasn't been achieved. It was, again, uncovered that, Microfinance try as much as possible to reduce the risk involved in giving out unsecured loans. One of their ways of trying to achieve this is by group lending which automatically sideline the poorest since the groups are formed based on the income level of the individual.

5.2 Conclusions

In this study, the survey analyzed the impact of microfinance on poverty reduction of participants in Gasha micro finance conducted on 220 clients using the technique of propensity score matching. The study used a comprising approach of a treated and a control group. The treated group is composed of clients who participated at least for three years, and the control group is made up of new program entrants or potential clients waiting for the service. The study applied recent advances in propensity score matching methods to assess the impact of microfinance on poverty reduction. Since a baseline survey or randomizations are not feasible options in this case, the study is well suited to

matching methods. For the purposes of comparison the study presented estimated results with treatment and control groups separately.

There are several attractive features associated with propensity score matching, including the potential to allow for heterogeneous impacts, while optimally weighting observed characteristics when constructing a comparison group. The technique is well suited due to its flexible (non-parametric) nature, not imposing exclusion restrictions or ad hoc assumptions about the functional form of impacts. The method eliminates selection bias due to observable differences between treatment and controls. Although a very limited data set was used, permitting to match on a wide range of household characteristics, the likelihood always remains of latent unobserved factors being correlated with microfinance participation and outcome variables.

In the study area, respondents from the treatment category were found to register an increased income for the last three years in comparison with control group. With respect to client's income improvement, participation in microfinance services definitely has a positive impact for low-income earner clients.

Most of the clients intimated that their participation in the microfinance program has brought about an increase in income level, increase in savings, and increase in total expenditure. The impact in decision making of most of the clients has increased significantly since joining the program. The study also established that through the training and education the field officers offer to their clients before loan dispersed, helps them manage and run their businesses well. The leadership positions the female clients occupy in their various groups has helped build their leadership skills.

According to the women, they have seen tremendous improvement in their business skills, self-confidence, and good relationship with others in the community as well as reduction in domestic violence against them. It is again revealed that, women feel very confident to make contributions during community meetings, group meetings and in their households, they have also seen a great improvement in their impact of decision making.

5.3 Recommendation

Depending up on the findings of this study, the following recommendations are forwarded. The MFI should be encouraged to give loans to individuals who are not accepted at the group level due to low or no income generation or business activity apart

from farming, to uphold the fundamental objective of the MFIs. The MFI should also provide microcredit to the poor who have good business plans to start up their own businesses thereby alleviating them from poverty and not only target the productive poor. To fully achieve their impact of reaching out to the poorest, MFIs must move to the countryside where poverty is endemic in Ethiopia and elsewhere in the developing countries. They can still operate in some area in poor communities and be profitable since the clients are ready to pay whatever interest rate they charge them as they are being provided with a tailor-made products and services they need on a continuous basis.

Finally, sustainable development and poverty reduction objectives can only be successful through the implementation of practical and sound development instruments and strategies. Provision of microfinance is one of the most essential instruments of tackling the problem of poverty and under development. Therefore, such institutions should gain all necessary supports from the government, the public, funding institutions, and other development stakeholders. The government also can do more in reducing poverty by providing the rural areas with good infrastructure and social amenities to attract more microfinance activities to the extreme poor in those deprived areas. It is only through working together that we can tackle the challenges of poverty in Ethiopia.

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Appendix - A

Appendix A1: Estimation result on clients Income

```
Treatment-effects estimation      Number of obs      =      220
Estimator      : inverse-probability weights
Outcome model  : weighted mean
Treatment model: logit
```

TOINCOM	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
ATET PART (Treatment.. vs Control ..)	493.3097	116.5336	4.23	0.000	264.9081	721.7113
POmean PART Control c..	626.8833	13.96079	44.90	0.000	599.5207	654.2459
TME2						
SEXR	.2018613	.3773513	0.53	0.593	-.5377336	.9414562
AGER	.0364354	.0137056	2.66	0.008	.0095729	.063298
RELR	-.1848032	.1389539	-1.33	0.184	-.4571478	.0875414
MARR	.676788	.2247951	3.01	0.003	.2361976	1.117378
EDUR	-.1686239	.0424761	-3.97	0.000	-.2518755	-.0853724
FMSZR	-.202715	.2026975	-1.00	0.317	-.5999948	.1945648
DEPRR	.150709	.1800873	0.84	0.403	-.2022557	.5036736
_cons	-1.60419	1.397242	-1.15	0.251	-4.342734	1.134354

```
. teffects nnmatch (TOINCOM SEXR AGER RELR MARR EDUR FMSZR DEPRR) (PART), atet
```

```
Treatment-effects estimation      Number of obs      =      220
Estimator      : nearest-neighbor matching      Matches: requested =      1
Outcome model  : matching                        min =      1
Distance metric: Mahalanobis                    max =      2
```

TOINCOM	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]	
ATET PART (Treatment.. vs Control ..)	461.633	115.3326	4.00	0.000	235.5853	687.6807

```
. teffects psmatch (TOINCOM) (PART SEXR AGER RELR MARR EDUR FMSZR DEPRR), atet
```

```
Treatment-effects estimation      Number of obs      =      220
Estimator      : propensity-score matching      Matches: requested =      1
Outcome model  : matching                        min =      1
Treatment model: logit                        max =      2
```

TOINCOM	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]	
ATET PART (Treatment.. vs Control ..)	465.493	117.3349	3.97	0.000	235.5208	695.4652

Appendix A3: Estimation result on clients Medical Expenditure

```
Treatment-effects estimation      Number of obs      =      220
Estimator      : inverse-probability weights
Outcome model  : weighted mean
Treatment model: logit
```

EXPHALT	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
ATET PART (Treatment.. vs Control ..)	80.39861	8.307156	9.68	0.000	64.11688 96.68034
POmean PART Control c..	281.1814	5.273505	53.32	0.000	270.8455 291.5173
TME2					
SEXR	.2018613	.3773513	0.53	0.593	-.5377336 .9414562
AGER	.0364354	.0137056	2.66	0.008	.0095729 .063298
RELR	-.1848032	.1389539	-1.33	0.184	-.4571478 .0875414
MARR	.676788	.2247951	3.01	0.003	.2361976 1.117378
EDUR	-.1686239	.0424761	-3.97	0.000	-.2518755 -.0853724
FMSZR	-.202715	.2026975	-1.00	0.317	-.5999948 .1945648
DEPRR	.150709	.1800873	0.84	0.403	-.2022557 .5036736
_cons	-1.60419	1.397242	-1.15	0.251	-4.342734 1.134354

```
. teffects nmatch (EXPHALT SEXR AGER RELR MARR EDUR FMSZR DEPRR) (PART), atet
```

```
Treatment-effects estimation      Number of obs      =      220
Estimator      : nearest-neighbor matching      Matches: requested =      1
Outcome model  : matching                               min =      1
Distance metric: Mahalanobis                               max =      2
```

EXPHALT	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]
ATET PART (Treatment.. vs Control ..)	82.49	9.857468	8.37	0.000	63.16972 101.8103

```
. teffects psmatch (EXPHALT) (PART SEXR AGER RELR MARR EDUR FMSZR DEPRR), atet
```

```
Treatment-effects estimation      Number of obs      =      220
Estimator      : propensity-score matching      Matches: requested =      1
Outcome model  : matching                               min =      1
Treatment model: logit                               max =      2
```

EXPHALT	Coef.	AI Robust Std. Err.	z	P> z	[95% Conf. Interval]
ATET PART (Treatment.. vs Control ..)	78.8	10.80381	7.29	0.000	57.62493 99.97507

Appendix - B

Appendix- B 1

For key informants interview for Gasha officials

Branch _____

Key informant interview Identification number _____

The Researcher signature _____

Date of Interview _____

Interview started at ____: ____hrs.

Interview finished at ____: ____hrs. (Fill at the end)

1. Who are the beneficiaries of Gasha services?
2. Do Gasha provide training for clients before or after loan provision? When?
3. What types of loan is Gasha currently providing (example group based, individual....etc.)?
4. Explain the mechanism used for addressing the poor?
5. How do you treat women and men in the provision of credit?
6. Describe your term of loan and repayment?
7. What was your mechanism used as collateral in loan provision?
8. Is there any controlling mechanism for clients to ensure that loans are used for the intended purpose?
9. Is there any feedback mechanism from clients to assess their needs?
10. How do you view the impact of Gasha services on the economic status of the clients (by comparing with the situation before becoming Gasha client)?
11. Have you recorded any improvement in the living conditions (quality of life) due to the service rendered? If so what are the possible indicators?
12. How do you weigh up the impact of Gasha on empowerment and psycho-social development of women clients?
13. Have there been any incidents of client dropout? If so what are the main reasons for client dropouts?
14. What are clients' opinion about your service provision and the amount of interest rate (both loan and savings)?

15. What is the main source of income for the institution?
 16. How do you suggest the impact of the institution in poverty reduction?
 17. What are the main constraints and challenges faced by the institution?
 18. Are there any legal or policy gaps and challenges in the institution's function?
- What are the main limitations of the institution?

Appendix-B 2

Focus Group Discussion (FGD) Questions Guideline

Branch _____

Group leader Code _____

FGD Identification number _____

Name of the FGD Facilitator _____ sign _____

Date of Interview _____

Interview started at ____: ____ hrs.

Interview finished at ____: ____ hrs. (fill at the end)

List of Discussions

Participant Number	Age	Religion	Marital Status and relationship to the head	Level of Education (in completed years of schooling)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

I. Discussion Points

- 1) From where did you hear about the Gasha before you applied for it? Describe the information you obtained about the institution?
- 2) Discuss how you become member of the loan program.
- 3) What is your current income level in comparison to the one prior to joining the Gasha? What about your savings? What do you comment on saving amounts, types and periods? What is your comment on saving withdrawal?

- 4) What were the income generating activities you engaged in to make living before loan membership?
- 5) Discuss if you have made an Asset and capital accumulation as a result of Gasha service rendered.
- 6) Is there any change in your household decision making power after your Gasha membership? Explain.
- 7) How would you compare your self-confidence before and after you joined the Gasha? Why?
- 8) Do you have any support mechanism among group members? Explain.
- 9) What problems have you encountered since becoming beneficiary of the program?
- 10) Do you support the activities and supervision of the Gasha? Discuss your idea about the program.

Appendix –B 3

ST. MARY’S UNIVERSITY SCHOOL OF GRADUATE STUDIES MBA IN PROJECT MANGEMENT

Questionnaire for the survey on The Impact of Gasha Micro finance Institution S.Co in the Reduction of Poverty

Code _____

Branch _____

Name of interviewer _____

Name of supervisor _____

Date of interview _____

Dear Respondent,

My name is Abiyot Urga, students of St. Mary’s University, studying Project Management. As a partial requirement of Masters of Art program, I am undertaking a research study entitled “The Impact of Gasha Micro finance Institution S.Co in the Reduction of Poverty”. The purpose of my study is to find out the impact of micro finance institution in the reduction of poverty. It may be providing insight for policy makers and microfinance institutions found at different levels. Thus, you’re free will and cooperation in giving the reliable information is very important. Filling out these questionnaires booklet may not take that much of your time. Any information provided will only be used for academic purpose. As a result it will be kept confidential and utmost anonymity.

General instruction

1. Please do not write your name in the questionnaire
2. Your participation is voluntary .i.e., there is no penalty if you do not participate.

Thank you in advance for
Your cooperation

Section I. Basic information of the respondent

1.1 Sex: 1. Male 2. Female

1.2 How old were you at your last Birthday?
Age in a complete year _____

1.3 Religion

1. Orthodox 3. Catholic
2. Muslim 4. Protestant 5. Others _____

1.4 Marital status

1. Unmarried 3. Widow
2. Married 4. Divorced

1.5 Level of education

1. None/ Illiterate 5. Secondary
2. Read and write 6. Diploma
3. Basic education/pre-school 7. Bachelor Degree
4. Primary 8. Others (specify) _____

1.6 Are you the head of the family 1. Yes 2. No

1.7 Family size: M _____ F _____ Total _____

S/N	NAME	SEX	AGE
1			
2			
3			
4			
5			
6			

Section II. Information about sources of income and level of family income

2.1 What is your source of income before joining the Gasha? (Multiple response)

1. Own income 3. Spouse income
2. Children's income 4. Support from relatives and friends

2.2 What is your average monthly income from all sources (give income by source)?

S/N	Source of Income	Amount of income in Birr/Quintal	
		Before Gasha	After Gasha
1			
2			
3			

4			
5			

2.3 During the last two or three years has your overall family income _____

1. Decreased 2. Stayed the same 3. Increased

2.4 (If decreased) why did your income decrease?

1. One or more household members have been sick 3. Poor sales
 2. Unable to get input 4. Others (specify)

2.5 (If increased) why did your income increase? (Multiple response)

1. Expanded existing enterprise 2. Started new enterprise
 3. Able to buy inputs at a cheaper price 4. Sold in new market
 5. Got other job 6. Others _____

2.6 Is any of your family members engaged in income generating activities?

1. Yes 2. No

If yes, what kind of income generating activity? _____

Section III. Living Standard and Expenditure of Households

3.1 What was the average monthly total expenditure of your household before the loan?

Give estimate in Br _____

3.2 Who was the bearer (source) of expenditure in your household before the loan?

1. Yourself 2. Spouse 3. other family member's
 4. You and other family member's 5. Relative's 6. Others (Please specify)

3.3 How many times does your household eat meals in a day before joining Gasha?

1. Once 2. Twice 3. Threetimes 4. More than three times

3.4 How many times does your household eat meals in a day after joining Gasha?

1. Once 2. Twice 3. Threetimes 4. More than three times

3.5 What is the average monthly health expenditure of your family after the loan?

Give estimate in Br _____

3.6 What is the average monthly child education expenditure after the loan?

Give estimate in Br _____

Section IV. Information about the household asset and living condition

4.1 Are you living in your house? 1. Yes 2. No

4.2 If rented, how much do you pay per month(Birr)_____

4.3 Have you made improvement to your properties or build rooms for to let or premises to set a business? 1. Yes 2. No

4.4 If yes, where did you get the money from?

- 1. Credit from MFI
- 2. Saving at MFI
- 3. I sold out household asset
- 4. I received from relatives living abroad

4.5 Did you have fixed property before being engaged in Gasha?

- 1. Yes
- 2. No
- 3. No Answer

If “Yes” state the asset_____

4.6 Do you have fixed and movable asset after being engaged in Gasha Micro Financial Institute? 1. Yes 2. No

If “Yes” A. state the fixed asset_____

B. state the movable asset_____

Section V. Information on Credit

5.1 Do you receive Loan from the Gasha MFI?

- 1. Yes
- 2. No

5.2 If yes, what type of Loan?

- 1. GG loan
- 2. Special loan
- 3. Consumption Loan

5.3 Date of joining the program_____

5.4 What are you going to use the loan for (purpose) _____

5.5 Have you faced any difficulty of repaying loan? 1. Yes 2. No

5.6 If your answer is yes for question 5.5 what coping strategies have you used?

5.7 Number of loans you as a client have taken_____

5.8 Amount of first loan (Br) _____

5.9 Amount of current loan (Br) _____

5.10 Cumulative value of loans taken (Br) _____

Section VI. Information on Saving

6.1 Do you have savings at Gasha?

1. Yes 2.No

6.2 If yes, what type of saving?

1. Compulsory 2. Voluntary
3. Both 4. Others (Please specify) _____

6.3 Did you have other savings before joining the Gasha?

1. Yes 2. No

6.4 If yes Specify amount (in Birr) by type of saving:

1. Eqqub _____ 2.women's _____ 3. Association's _____ 4. Saving
and credit cooperatives _____ 5.other _____.

6.5 What is your current total amount of saving?

Specify amount of saving (in Birr): _____

6.6 What is your source of money for saving? (Multiple response)

1. From business profit financed by the loan 2. From other sources of income
3. Borrowed from relatives 4. Borrowed from friends
5. Borrowed at cost 6. Income from employment
7. Others (Please specify) _____

6.7 For what purpose do you save? (Multiple response)

1. For loan repayment 2.For safety of cash 3. For consumption
4. To earn interest 5. Bought household assets
6. Made improvement to the house 7. To withdraw during emergency
8. Have not used savings 9. Others (Please specify) _____

Section VII. Empowerment and Psycho-Social development (Female clients only)

7.1 Who decides to borrow from the MFI?

1. Husband only 2. Mostly husband 3. Husband and You equally
4. Mostly you 5. Only you 6. Others (Please specify) _____

7.2 Who decides to spend the loan money?

1. Husband only 2. Mostly husband 3. Husband and You equally
4. Mostly you 5. Only you 6. Others (Please specify)_____

7.3 Who decides on the use of profits from the loan based enterprise?

1. Husband only 2. Mostly husband 3. Husband and You equally

4. Mostly you 5. Only you 6. Others (Please specify) _____

7.4 Do you feel capable of handling money and making business decision?

1. Yes 2. No

7.5 Who puts loan enterprise income in the saving accounts?

1. Yourself 2. Partner 3. Children

7.6 Who buys inputs for the loan based enterprise?

1. Yourself 2. Partner 3. Children

7.7 Who sales products from the loan based enterprise?

1. Yourself 2. Partner 3. Children

7.8 Who does the financial accounting and keeps record for the loan-based enterprise?

1. Yourself 2. Partner 3. Children

7.9 Has loan experience led to a feeling of being more capable of handling money and making economic decision?

1. Yes 2. No

7.10 How are you confident about yourself?

1. Highly confident 2. Moderately confident

3. Not confident 4. Does not know

7.11 Do you feel more confident about yourself after participating Gasha program?

1. Yes 2. No

7.12 Are you confident enough to go to the following places to get services on your own?

1. Market 2. Bank 3. Health center 4. School 5. Women's association 6. Police 7. Court 8. Kebele or Woreda administration 9. Information about Gasha

7.13 Have you got any training from Gasha?

1. Yes 2. No

Describe the contents of training _____

Section VIII Questionnaire for Only New Clients

8. What are the reasons for not to be a client of Gasha till now?

8.1 No need for credit

1. Yes 2. No

8.2 Unable to form a group

1. Yes 2. No

8.3 Unable to meet compulsory saving requirement

1. Yes 2. No
- 8.4 Taking group responsibility unacceptable
1. Yes 2. No
- 8.5 Group requires members to pledge personal assets as collateral
1. Yes 2. No
- 8.6 I dislike group meeting
1. Yes 2. No
- 8.7 Gasha loan is too small to meet my credit needs
1. Yes 2. No
- 8.8 Lack of entrepreneurship
1. Yes 2. No
- 8.9 No information about the credit provision
1. Yes 2. No
- 8.10 I have a need to get loan, but I cannot get the opportunity
1. Yes 2. No
- 8.11 Easier to get loans from other sources
1. Yes 2. No
- 8.12 Due to high interest rate
1. Yes 2. No
- 8.13 Disagreement with families
1. Yes 2. No
- 8.14 Other reasons please specify _____

Section VIII. Information about Gasha

9.1 What are the attractive features of Gasha saving facilities?

1. The interest rate is good 2. Offers a safe way of holding savings
3. Convenient to make deposit 4. Convenient to withdrawal since it is nearby
5. Other (Please specify) _____

9.2 What do you think about the interest rate of Gasha paid on saving?

1. Less than the market rate 2. Greater than the market rate
3. Have no information about the interest rate 4. Does not know 5. No response

9.3 List three things you like about the Gasha activities?

9.4 List three things you are not comfortable with in relation to the Gasha activities

9.5 Give your comments or recommendations about Gasha _____

Interviewer r's comments _____

Thank you

Appendix - C

Declaration

I Abiyot Urga declare that this thesis conducted under the title *Impact of Gasha Microfinance Institution Share Company in the Reduction of Poverty* is my original work, prepared under the guidance of Dr. Maru Shete (Assoc Professor). All the sources of materials used for thesis have been full acknowledged. I further confirm that the study has not been submitted in part or in full to any other higher learning institutions for the purpose of earning a degree.

Abiyot Urga

St. Mary's University, Addis Ababa

June, 2017

Endorsement

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as university advisor.

Dr. Maru Shete (Assoc. Professor)
St. Mary's University, Addis Ababa

June, 2017