IMPACT OF OMO-MICROFINANCE INSTITUTIONS ON WOMEN'S ECONOMIC EMPOWERMENT IN Wolayta zone

MA THESIS IN ECONOMICS

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AUG, 2016

ARBA MINCH, ETHIOPIA

IMPACT OF OMO-MICROFINANCE PROGRAM ON WOMEN'S ECONOMIC EMPOWERMENT IN WOLAYTA ZONE

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A THESIS SUBMITTED TO ARBA MINCH UNIVERSITY,
SCHOOL OF GRADUATE STUDIES,
COLLEGE OF BUSINESS AND ECONOMICS,
DEPARTMENT OF ECONOMICS IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF ARTS IN ECONOMICS

AUG, 2016

ARBA MINCH, ETHIOPIA

DECLARATION

I hereby declare that this MA thesis is my original work and has not been presented for a degree in any other university, and all sources of material used for this thesis have been duly acknowledged.

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Hereby I declared that this Masters of Art thesis in economics has not been presented elsewhere as my evaluation that I read and advise this original work under my guidance by **Dawit Esatu** ID.No. SMA/040/05 entitled "**Impact of Omo-Microfinance Institutions programs on women's economic empowerment" in Wolayta zone case of Damot Gale and Damot Pullasa district** that be accepted as fulfilled the final requirements.

Therefore, I recommended that the student has fulfilled the requirements and hence can submit the thesis to the department for defense.

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ACKNOWLEDGMENT

Above all, I would like to thank the Almighty God for taking care of my life in all movements what I have been making. He has been lightening, shaping and directing May ways; for all God has been doing to me, I am thanks to God.

My special thanks to my advisor Niru Kishwaha (PhD) for her constructive shaping and guiding ends to this work. Since I have been never ever seen positive thinker and tireless work as like her. Her comment helped me to correct my mistakes I have been made.

I would like to express my sincere gratitude to Boditti senior secondary preparatory school for fulfilling relevant materials and facilities to let me this work.

I have alarming great full thanks for Damot Gale and Damot Pullasa OMFIs office rural extension agent service workers for providing me relevant information and client coordination of data collection for great full success of this study.

My special thanks to my wife, w/ro Mebrat Buchulo for deserving her time toward helping me in all my works.

I am indebted to Ministry of education for sponsoring my study and also last, but not least, my heartfelt appreciation to all my beloved families, relatives and friends for endless motivations' for completion of this study.

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ACRINOMY

CGAP-Canadian Government Association Program

CIDA-Canada International Development Agency

CSA-Central Statistical Agency

Ha- Alternative Hypothesis

MDG- Millennium Development Goal

MFI- Microfinance institutions

NGO- Non-governmental Organization

OMFI- OMO-Microfinance institutions

SNNP-Southern Nation Nationalities People

USAID-United Stated of America International Development

UNDP- United Nations Development program.

WEE- Women' economic empowerment

ABSTRUCT

Microfinance institution program plays an important role in women's economic empowerment enhancing independent income generation, prosperity of asset accumulation, smoothing household expenditure, mobilizing saving and entrepreneur development. Since the impact of MFIs services on women economic empowerment has no common consensus among different academicians, some of them argued it has positive and some other argued has negative impact. Therefore, the study was attempted to assess the economic empowerment of women's through impact of OMFIs program conducted in Wolaita Zone Damot Gale and Damot Pullasa woreda districts, SNNP, Ethiopia by using primary data through structured questionnaire.

The study includes a total of 285 subjects where convenient sampling was used to selected two Woreda randomly and then stratified random sampling techniques is used to group sample population from total study population of 1096 due to heterogeneity of population by the intended purpose borrowing; agricultural, commercial and small microenterprise service economic activities. The primary data collected by interviewing 285 rural respondents using questionnaire in addition to primary data that 255 respondents correctly stated the questionnaire.

A descriptive statistics and multiple logistic regression analysis are employed to analyze the impact of OMFIs on women's economic empowerment. The logistic marginal effect result showed that positive change of women economic empowerment indicators after intervention to OMFIs program; independent income generation(9.81e-04%), asset(7.38e-04%), saving($1.6*10^{-2}$%), expenditure(5.96e-04%), business profit(2.49%) and employment opportunity(93.07%). From the analysis result, the result showed that OMFIs services acting act as a key fulcrum to women economic empowerment through socio-demographic variables that the yet negative impact variables become positive impact after intervention to OMFIs program. To test fitness of model the data in regression analysis results the various test models were used such as t-test and chi-2 test for the descriptive frequency statistics, and Hosmer-Lemeshow, Wald and log likelihood ratio test models were used for fitness of the data in logistic regression result after model specification test. To determine reliability of data the Cronbach"s alpha value was determined as 0.814 in which data is reliable before administration of questionnaires to respondents. Since total of ten explanatory variables; four socio-demographic and six potential economic explanatory variables were included in the regression, model specification, multi-collinearity and heteroskedasticity test are useful to determine interdependence of explanatory

variables and normality of error term test are necessary to test significance of omitted variables. The resultant change of variation during intervention on women's economic empowerment explained about 80.02% by OMFIs program through mentioned explanatory variables that the model fit data very well at p-value of, p=0.000 and chi-square of 247.34.

CHAPTER ONE

1. INTRODUCTION

The first chapter gives a brief overview of background of the study and central research problem. It also presents objectives of the study, hypothesis, and significance of the study, delimitation of the study and limitation of the study.

1.1 Background of Study

Over the past years, microfinance institutions has been widely accepted in the world as policy option for empowering poor rural and urban women's economy by donor community, intercontinental organization, government and non-government organization due to the hope that through provision of MFIs program, women can play a crucial role in the economic development of their families and community. But certain obstacles such as poverty, unemployment, underemployment, low household income and social gender discrimination, unequal access to resources and opportunity and lack of access to financial service mostly in developing countries hinder their effective performance and their economic empowerment role.

Microfinance in Africa especially in rural sub Saharan African can practice the best approaches towards women empowerment because it addresses the material (economic) and non-material (social, political, psychological and cultural) empowerment. This is because why MFIs program important in Africa is that their economic performance has been closely associated with their low saving and investment, in fact relatively slow economic growth has been linked to its poor capital accumulation (I. Hussain and J. Underwood, 1990s).

As Muhammed Younus launched Grameen Bank since 1983s, from early 1970s he observed the main constraint that affects women's empowerment is access to finance. Therefore Microfinance has come to play a major role in development of strategies because of its direct relationship to poverty alleviation and hence to empower women's economy through microfinance and voluntary saving. As Cheston and Kuhn have observed, by giving women access to working capital and training, microfinance institution help to mobilize women's productive capacity to alleviate poverty and maximize output. Additionally, investing in women has proven to increase the positive impact of microfinance program since women are more likely than men to spend their income on house hold and family needs.

According to Leach and Sitaram (2002), MFIs argued that it has been considered an effective vehicle for women's empowerment and popular intervention against poverty in developing

countries and furthermore, it is argued that women have increasing role in household economy empowerment (Hunt & Kasynathan, 2002). The argument behind MFIs targeting women is that, women are more likely share the benefit with other in their household, specially their children (Gariki, s. 2008; Swain & Wallentin, 2009). Therefore by extending MFIs to poor rural and urban women enables to take up income earning activities that lead to a series of improved situation and hence positive impact on self and community empowerment. That is micro-finance institution enables women empowering to earn independent income and contribute financially to their household hence it targets women with the explicit goal of empowering as stated by Kabeer (1999).

Access to financial service and the resultant transfer of financial resources to poor women over time have led becoming more confident and assertive (CGAP, 2011) because women as an economic agent is improving by increasing their income and productivity. Despite remarkable achievement, the assumption that MFIs empowers women's economy remains controversial (Haile, Bock & Folmer, 2012). According to them, the evidence indicates that for some women in some context even very poor women, the MFIs program can indeed contribute to empowerment. However, for many women the impact of MFIs on both economic and community empowerment appear to be marginal and some may be disempowered (Mayuox, 1999). Therefore without adequate network training support and empowerment strategies, the MFIs can merely shift all the burden of the household to debt and subsistence life on to women may weaken rather than strengthen position. But many evaluation of MFIs program have shown that the service have positive impact on women empowerment (Pitt et al., 2006, Lakwo,2006) because of microfinance plays an important role in economic development by improving saving habit, providing finance for self job creation and improving empowerment.

In developing countries like Ethiopia, the financial resource is important input for continuous development. It requires wide range financial services for smoothing consumption, running their business and building assets. Due to lack of collaterals, poor people in most cases have no credit access from Banks, therefore microfinance institutions are important to offer financial services such as credit, savings and micro insurance to the poor people either in individual or in a group basis to those people. There is increasing recognition that economically empowering women is essential both to realize women's right and to achieve broader development goals such as economic growth, poverty reduction, health, education and welfare. The researcher has found

strong reasons to emphasize women's economic empowerment; since women make up the majority of world poor, women who are economically empowered contribute more to their families, society and national economies, it is power full routes for women to achieve their potential and advance their opportunities and hence helps good business sense.

Improving the women's economic empowerment is one of the important ways to reduce the poverty, achieving Millennium Development Goal and promote gender equality and empower women side by side to different policy measures improving living standard condition, maternal death and education (mayoux, 2000). For this reason the study analyzes impact of micro-finance on women economic empowerment have become an increasingly important component of strategies to alleviate poverty and attempts to fill the gap by investigating micro-finance service and women economic empowerment.

The achievement of microfinance activities in Ethiopia is mainly affected by the income of clients, which directly depends on the effectiveness of the small business of borrowers who live in urban areas; also it depends on crop harvest and the high risk due to drought for rural areas.

1.2. Statement of Problem

Nowadays, various studies have been carried out on impact of MFIs service on women's economic empowerment. But different academicians have different extreme argument that MFIs services have a very extern beneficial on women's economic empowerment and is a key factor in empowering women's economy for poor rural women who are unemployed, underemployed and self employed through emphasizing in the developing independent income generating, voluntary micro-finance saving, smoothing household expenditure and developing prosperity of asset (Holcombe, 2005 and Hossain, 2008). At the other end, there are pessimistic argument pointed out negative impact of MFIs service on women's economic empowerment (Adams and Pischke, 2009 and Buckley, 2007)

According to Mayoux (1997), it is argued microfinance has not always positive impact on women empowerment, because it can cause heavier work load and repayment pressures, loan used by men to set up enterprise, women epmployed with little benefit, withdrawals male contribution to household. However, some studies do the MFIs program enables the poor women to income earning activities that lead to a series of improvement in their economic situation (Hashemi, Schules and Riley, 1996; Holvoet, 2005). Furthermore according to ILO(1998) microfinance have been assumed positive impact on women's empowerment in leading to higher

income generating activity, employment in microenterprise and enhancing self-steem and confidence. After the fall of Derg regime, the current government, NGOs and other civil activities are trying to address special consideration about women's economic empowerment problem. But from the impressive blooming growth of the economy, averaging 10% during the past decade of MDG the high potential rural women's have not been benefited in economy in Wolaita zone SNNNP, Ethiopia. Therefore, the mission of this study is, OMFIs in which operating in Wolaita zone, SNNPR Ethiopia emphases the economic empowerment of poor rural is important and mandatory for the economic empowerment.

1.3 Objective of the Study

The general objective of this research was to understand the impact of MFIs services have a solution or a problem towards women's economic empowerment in wolayta zone, SNNPR, Ethiopia.

Therefore, the researcher interested to explore in line with general objective the impact of Omo-microfinance institution program in Wolayta zone to economic empowerment of women. Specific objectives to be achieved are:

To analyze the effect of OMFIs programs on women's entrepreneur empowerment during their participation than before.

To assess the impact of OMFIs program on women's saving scheme during their participation than before.

To examine the effect of OMFIs program on women's independent income generation during their participation than before.

To analyze the effect of OMFIs program on women household's asset prosperity during their participation than before.

To determine the effect of MFIs on clients' consumption pattern during their Participation than before.

1.4. Hypothesis of the Study

To base on an effective theoretical literature review frame work and to determine the impact of MFIs on women's economic empowerment, the following hypothesizes are developed.

Ha: The mean values of OMFIs services have impact on women's economic empowerment.

H_{a1}: There is significance relationship between OMFIs services and Women's entrepreneurship development.

H_{a2}: There is positive relationship between OMFIs services and clients' saving scheme.

H_{a3}: There is significance relationship between OMFIs services and women independent income generation.

H_{a4}: OMFIs services have significance impact on client's asset prosperity.

H_{a5}: OMFIs services have significant impact on smoothing expenditure of clients' household.

1.5. Significance of the study

This research will add to the body of knowledge on the outcomes of microfinance institutions program on economic empowerment of poor rural women who are residents of Wolayta zone, SNNP of Ethiopia which is reflected by the any change of self-employed entrepreneurship, micro-finance saving scheme, independent income generation, smoothing consumptions and developing prosperity of household asset. The research will review underlying economic-sustainability of client who receives micro-finance service yet a significant impact is realized than before a member or not. The result will be valuable for determinations of regulatory legal frame policy and strategic work for micro-finance institutions program in Ethiopia which will ensure the realization of the institutions' main objective of poverty eradication and best ways to address the specific gender issues specifically economic empowerment or not. The resultant change of the impact of MFIs on economic empowerment will be a source of knowledge for the future intellectual references by the people who will have interest to gain insight about impact of MFIs on women's economic empowerment and will provide additional information to fulfill the future research gap.

1.6. Scope and Limitations of the study

This study limited to the analysis on "impact of microfinance institutions on women's economic empowerment" of Wolayta zone Damot Gale and Damot Pullasa districts based on information obtained from clients and relevant bodies using logistic regression model. Women empowerment can be seen in the different aspects and multidimensional such as economic empowerment, socio-democratic empowerment, and socio-political empowerment, psychological and interpersonal empowerment (Malhotra and Schuler 2005). However, this research has limited to impact of OMFIs program on poor rural women's economic empowerment in Wolayta zone, Damot Gale and Damot Pullasa districts through voluntary micro-finance saving, developing

own business, prosperity of household Asset, smoothing household expenditure and generating independent income economic activity.

1.7. Organization of the paper

The rest of this research part is organized as follow; Chapter two concerned with review related literature and the third chapter presents a brief description of the methodology

CHAPTER TWO

2. REVIEW OF LITERATURE

2.1. Definition of micro-finance, empowerment and women's economic empowerment

What is micro-finance?

Microfinance, according Otero (1999, p.8) is "the provision of financial services to low income poor and very poor self employed people". As Ledgewood stated in 1999 these financial services are saving, credit, insurance and payment service. Schreine and Colombet (2001, p. 339) defined MF as "the attempt to improve access to small deposit and small loan for poor household neglected by banks". Therefore MF involves the provision of financial services such as saving, loan and insurance to poor people living in rural and urban settings who are unable to obtain such services from the formal financial sector due to lack of collateral assets.

Micro-finance is a form of financial sector that has primarily focused on alleviating poverty through providing financial services such as voluntary saving and microcredit to the lower-income people who are unable to obtain such services from formal banking sector due to lack of collateral assets. Microfinance is not offering this service only, but also it provides broader services including insurance, transactional services, and savings (Barr, 2004). Canadian International Development Agency (CIDA,2007) defined microfinance as, "the provision of a wide range of financial services to poor women and men to enable them to increase their incomes, build assets and reduce lack of access to formal financial institutions.

According to (Christen et al., 2003) microfinance is a means to provide banking services for lower-income peoples', especially the poor and very poor. The term "microfinance" is often used in a much narrower sense, referring principal to microcredit for tiny informal businesses of micro entrepreneurs using methods developed since 1980 mainly by social oriented.

Empowerment: Cornwall, Eyben and Kabeer (2008) define empowerment as the process that relates to the power of an individual to redefine his or her possibilities and to have the ability to act up on them.

Kabeer (1999) further defines empowerment as the expansion in people's ability to make strategic life choice in a context where this ability was previously denied to them. Accordingly, empowerment is about the improvement of individual's ability to make a difference in their setting which in turn affect their life. The World Bank (2009) defined empowerment as the

process of increasing the capacity of individuals or group to make choices and to transform those choices in to desired action and outcomes.

Economic empowerment: is the capacity of women and men to participate in , contribute to and benefit from growth process in ways which recognize the value of their contribution, respect their dignity and make it possible to negotiate a fairer distribution of the benefits of growth(Eyben et al., 2008)).

Women's economic empowerment: women's access to saving and credit gives them a greater economic role in decision-making about saving and credit. When women control decision regarding credit and saving they will optimize their own and household's welfare. The investment in women's economic activity will improve employment opportunity for women and thus have a trickle down and outreach effect (Mayoux2001). It is also the capacity of women to participate, contribute to, and benefit from growth process in ways which recognizes the values of their contributions respect to dignity.

Also as stated by DAC Net Work on Gender equality (OECD, 2012) is a process that increases women's access to and control over economic resources and opportunities including jobs, financial services, property and other productive assets from which one can generate an income. It is prerequisite for sustainable development and proper growth and the achievement. Therefore the economic empowerment of women is prerequisite for sustainable development, pro-poor growth and the achievement of all the Millennium Development Goal.

2.1.1The idea of micro-finance institutions

The idea to establish micro-finance institutions traces back to Muhammad Yunus, who developed it as a way to eradicate poverty in his home country Bangladesh. In 1979, he Founded Grameen Bank, the first institution which realized this concept and started to operate in the micro-finance business in the proper sense. Together, Yunus and Grameen Bank were laureates of the 2006 Nobel Peace Prize awarded for their efforts through Micro-credit to create economic and social development (Norwegian Nobel Committee, 2006).

Micro-finance institutions provide small-scale financial services to poor people who are excluded from the formal banking sector (Morduch, 1999, p.1569) and standard financial systems. Operating merely in developing and emerging countries, they have specialized in offering loans of minor scale to enable individuals to start small productive businesses and enhance

entrepreneurship. In rural and urban areas of developing countries, the development of financial systems is of poor, sometimes they have not fully emerged at all. In this case, micro-finance institutions often represent a first opportunity for the local population to participate in financial systems and to benefit from access to business and capital.

Although there have been organizations concentrating on offering loans and saving opportunities to needy people before (Counts, 2008, p.3), Grameen Bank is known for successfully implementing the system of group lending. In particular, it has proposed a number of indicators to measure the impact of poverty elimination methods (Yunus, in: Counts, 2008, p.8). These consider primarily basic needs similar to the definition of the International Labor Organization 1976(in: Schubert, 2007), and the financial situation of the poor. Yunus (2007) argues that global poverty does not emerge from market failures, but from capitalism as a theoretical concept which does not fully model real economic structures in general and economic behavior of each individual in particular(pp.18–19).

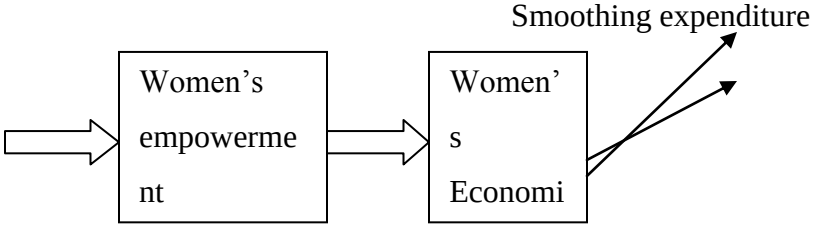
The idea of micro-finance institutions meets both requirements. They provide access to capital on smallest scales, and ideally act as social businesses realizing economic behavior augmented by social preferences. It enables poor people to engage in productive economic activities and thus contribute to development in low income population

2.1.2. Indictors of women's economic empowerment conceptual frame work MFIs program.

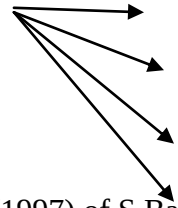
It is very essential to know the effect of MFIs program over women economic empowerment and that it is necessary to investigate with help of some economic empowerment indicators. These indicators are used mostly by researcher to identify whether the MFIs program has really help in making some positive change in life of poor rural women households as some assessment is conducted as follow. Economic empowerment indicators focus mainly on the economic status of the women and investigate whether MFI has lead to additional income, contribution to saving, create new employment opportunity, control over essential asset, and women entrepreneur development.

Table 2.1.4 . Frame work of dimension & indicators of women's empowerment in household, community and broader arena.

Level of impact type of impact Impact variables



MFIs services → Employment creation
Saving mobilization
Asset accumulation
Independent income generation



Source: Kabeer (2001b), Malhotra & Schuler (2005), Chen (1997) of S.Balamurugan,2012

2.1.3. Microfinance in Ethiopia

Microfinance institutions were introduced in Ethiopia after the downfall of the Derg regime following the policy of economic liberalization. The development of microfinance institutions in Ethiopia is a recent phenomenon. Ethiopian development strategy is the establishment of sustainable microfinance institutions serving large number of poor people. Microfinance is taken as a shift from government and NGO subsidized loan programs to finance services run by specialized financial institutions. Later microcredit programs were changed to microfinance institutions. Non-governmental organization (NGO) credit schemes and informal sources of finance have existed in Ethiopia for many years; the government instituted a legal and policy framework for MFIs in 1996 through Proclamation 40/1996 (Gebrehiwot, 2002). Currently, the Ethiopian microfinance industry is rapidly growing.

2.1.4. OMFIs in SNNP Ethiopia.

After introduction of proclamations no. 40/1996, one of the MFI established in Ethiopia is Omo Micro Finance Institution S. C (OMFI) which is operating in the southern nation's nationality and peoples Regional State of Ethiopia. It was originally established as Nongovernmental organization in 1997. OMFI is operating in nine (9) branches in SNNP region Ethiopia, wolayta zone is one of the nine branches that OMFI is operating.

2.2. Theoretical framework of Microfinance

The theoretical framework is the foundation on which the entire research project is based. It will identify the relationship between outcome OMFI and explanatory variables for which it is important to make the study proposed in the present research project. There are a number of theories that try to explain the concept of microfinance and its role in the life of poor people throughout the world. Governments and development partners have invested heavily in these economies to alleviate poverty which is an obstacle to development and empowering the poor people economically. These theories includes neo-classical growth theory, welfarist theory,

institutions theory, empowerment theory and uniting theory (Todaro et al, 2003; Robinson, 2001; Elsa and Stina, 2006; Cheston and Kuhn, 2002, Omoro and Omwange, 2013).

Micro-finance and income generation: Hunte and kasynathan (2002) described that micro-finance programs for women's have positive impact on economic growth by improving women income generating activity.

Micro-finance and voluntary saving: Micro-finance encourages voluntary saving as a self-insurance mechanism to guard household and individuals from a variety of risks. A woman's individual savings play a critical role in securing her well-being by enhancing her bargaining power. If she keeps saving under her control (usually anonymously), she is better able to act in her best interest in the case of an abusive husband or an economic downturn and hence saving puts money in the hands of women which plays a critical role in ensuring a household's expenditure.

Micro-finance and women's entrepreneurial development: The basic theory is that microfinance empowers women's economy by putting capital in their hand and allowing them to earn an independent income and to contribute financially to their households and communities (Mayoux 2001). As Cheston and Kuhn(2002) stated microfinance enables women empowerment by placing capital in their hand that allowing them income generating activity in the form of microenterprise and agricultural production that translate into economic empowerment. Also according to Mayoux (1999) the sustainable microfinance services alone might lead into women's economic empowerment through stimulating women's microenterprise development, leading to increased income under women's control.

Microfinance and women's ownership of asset/property: It is believed that the increased in income from women business activities will help women to buy and own things which they were not able to own before because of either poverty or not allowed by tradition in the society. Thus women will own their own property and assets when they have access to microfinance service (Chen, 1997)

Financial self-sustainability paradigm theory: According to Mayoux(2001) in the micro-finance program model the most dominant consideration of publications UDAID, World bank, UNDP, and GAP is thrust for self-sustainability of poor people, particularly micro and small entrepreneurs. Through economies of scale, the program contributes to women's economic empowerment and ultimately to economic growth. In this paradigm, it is assumed that increasing

women's access to micro-finance services (saving and credit) will in itself lead to individual economic empowerment, social, political empowerment and lives well-being. The objective of microfinance is to empower women economically. Providing access to microfinance for women is considered to be precondition of poverty alleviation and women's empowerment (Mayoux, 1997). Loan enables women to invest in and expand their business, and in consequence they are able to employ themselves leading to their empowerment. Moreover loan engages entrepreneurs in making major decision such as a loan approval and in improving the products and services produced (Charitoneko et al., 1998).

2.3 Knowledge Gap

From the review of literature the question as to whether MFIs services have effects on economic empowerment of women is not tackled among different academician in a broader way instead of positive or negative extreme argument impact, the focus has been on the as a general MFIs service; furthermore, there are very few literature on negative and positive effects of MFIs services to Women economic empowerment but still with much bias of the microfinance effect on economic empowerment. This study proposes to look at the impact of MFIs services total effects on women economic empowerment during intervention wheather acting as a fulcrum point of non-empowerment to empowerment.

2.4. EMPERICAL LITERATURE

The empirical literature of Omo-microenterprise in the measurement of efficiency in women economic empowerment has been established by different authors given in table below.

CHAPTER THREE

3. RESEARCH METHODOLOY

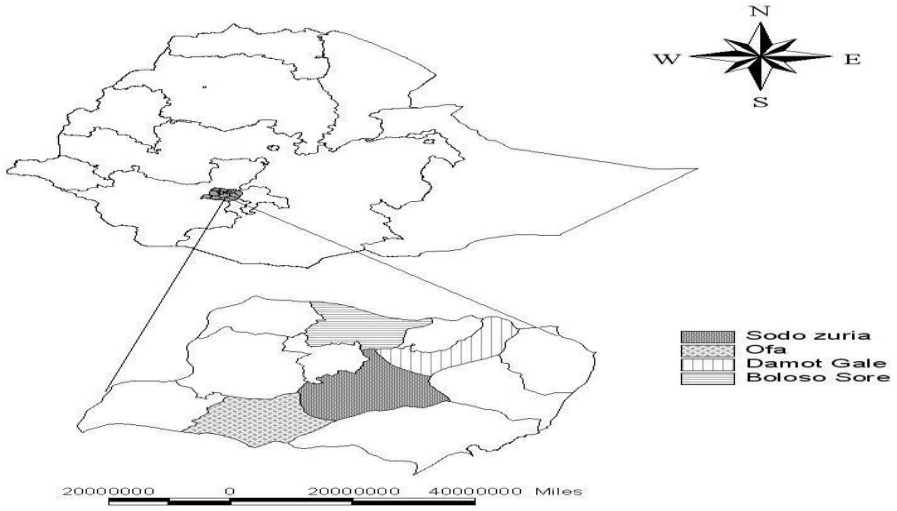
This chapter deals with the mode in which this study will be carried out to evaluate the research questions mentioned in chapter one and two. It gives out the research design that will be applied. It proceeds further to depict the target population of the study with the sampling technique that will be deployed. After which it ponders on the data collection tools and how the collected data will be presented. This chapter winds up by putting forward the analytical tools that will be used to analyze the presented data.

3.1. Description of Study area

Wolayta zone is located in Southern nation nationalities people region Ethiopia in which 390 km southwest of Addis Ababa following the road that passes shashemene to Arba Minch or alternatively, it is located 330km southwest of that road passes Hosanna to Arba Minch. Wolaita Sodo is main town of the zone and it has 12 woredas and 3 registered reform town, specifically Sodo town, Boditti town and Bolloso town. It surrounded by Hadiya zone from north, Gamo Gofa zone from south, Sidama zone from west and Kambata tambaro zone from east. OMFIs districts in Wolaita are one of districts in SNNPs' region in which the study conducted in Damot Gale and Damot Pulasa extension agent districts. According to 2007 CSA of Ethiopia the total population of wolayta zone it is about 1,527,908 from which the male is 49.3% and the rest were female. Like counter part of Ethiopia substantial agriculture, informal and formal businesses are predominant income generating and livelihood for population.

Rain fall is bimodal, with an average amount of about 1000mmHg from which lower in lowlands and higher in highlands. The mean monthly temperature vary from 26℃ to 11℃ from January to August respectively.

Figure.3.1. Location of study area



3.2. Study Population and Sampling techniques.

The base line of population is from which the sample made for study considered only women's who participate in OMFI program in Wolayta zone. The 10% of districts are recommended for the high degree of equal chance for large population as recommended by Mugenda(2003), then simple random sampling technique was used to select two woreda out of 15 main districts woreda in Wolaita zone for high degree equal chances as representative of large population in a zone, 44 rural extension agent districts of Damot Gale and Damot Pullasa to collect data for analysis. The total population of 1096 are conducted to research inferential analysis from base consistency of using potential economic variables which were made loan for identified purpose having with training skills, the sample size of 285 subjects are selected through the multistage sampling techniques due to the population supposed to be heterogeneous with purpose of OMFIs service (agriculture, commercial, small business and service economic activities

3.3. Data collection method

The study was used primary data, which were captured through semi-structured questionnaires. The questionnaires consist of only close ended questions and had two sections. Section one deal with general socio-demographic information of respondents and section two had to seek information regarding to the effect of OMFIs services on economic empowerment of women's research questions. The questions were presented in Amharic language to administer the better like understanding on OMFIs performance on their economic empowerment.

3.4. Sample size Determination

The total population of 1096 is conduct to research from which, the sample size of 285 subjects are selected for analysis as the true representative of population. According to Cochran's (1997) sample size for the given proportion of finite population is

$$n\left(\frac{z_{\alpha/2}^2}{d^2}\right)(p)(q) \quad \text{(1)},$$

Where, z= value of selected alpha level of 0.025 in each tail for 95% degree of confidence.

(p)(q)= estimate of the variance=0.25

d=acceptable margin of error for population being estimated at 5% significance level.

$= \frac{(1.96)^2 \quad 0.5*0.5}{(0.5)^2} = 384$. This sample greater than 5% of population, sample correction

Formula will be use full where stated by Cochran's (1997)

$$N_0 = \frac{n_0}{\frac{(n_{0-1})}{N}+1}, \text{where}$$

N=totalpopulation

$N_{0=}$ corrected sample size population

$n_{0=}$initial population sample at 95% confidence interval

$$N_{0=} \frac{384}{\frac{383}{1096}+1} = 285,$$ this sample population is believed as true representative of the study population at 95% confidence interval.

To determine sample size from each stratum, the sample size determination formula used was:

$$n_{0=}\left(\frac{N_h}{N_s}\right)n \text{ ,where}$$

$n_{0=sample\ size\ from\ each\ stratum}$

$N_h = populations\ in\ each\ stratum$

$N_{s=total\ sum\ of\ population\ from\ each\ strata\ for\ study}$

$n = corrected\ sample\ size\ of study\ population$

Table 3.1 Proportionate sample size from stratum.

strata	Total population in each stratum, N_h	Sample size from each strata, n_0	Sum of total population in strata, Ns
Agriculture	454	118	
Commercial	495	129	
Micro-enterprising service	147	38	
total	=1096	=285	=1096

Source: Own survey, 2015

3.5. Research method

Study strictly used quantitative data to assess wheather OMFIs program services are a solution or problem its contribution on women's economic empowerment. To find the effect outcome of OMFs program on women's economy descriptive statistics employed to show the relationship between women economic empowerment and socio-demographic characteristics of households. Binary logistic regression econometric analysis model also employed to analyze the degree of influence of explanatory variables on variation on women economic empowerment from data contains independent income generation, employment creation opportunity, control over prosperity of economic asset, smoothing consumption and voluntary microfinance saving scheme for participating subjects before and after availing the OMFIs service. Since aim of this research is mainly investigating economic impact, the relationship between women's economic empowerment and explanatory economic variables was discussed through stata 12 software version econometric analyses.

Additionally the study used secondary statistical economic profile data to understand the impact in depth. In this context for a comparison conducting discussion and carrying out observation of the client's economic status are crucial.

3.6. Data Type, Source and collection Procedures

To conduct the research primary data was used and active clients are the source of data. The primary data collected by using survey and well designed questionnaire method in order to solicit impact of the OMFIs program on women clients' economy, so as to enable the capturing of attitudes, knowledge, and perception of participants to OMFIs program the research questionnaires was translated into Amharic language to administer the respondents' and clearly to understand the questionnaires to get helpful information for the study through cross sectional data from each client.

3.7. Model Specification

The study made generalized binary logit regression model based on binomial probability theory approach of mathematical relationship to analyze the multi-explanatory variables to a dichotomous (dummy) dependent variable as elicit two responses. The logit function is employed because of dependent variable is dichotomous, whereas the assumed explanatory variables were mixture of continuous and categorical. Thus, the model was chosen over others due to independent variables need not be interval or normally distributed, nor linearly related or equal variance with in each subjects (O' Cornell, 2005)

As Maddala (1993) stated if the dependent variable is binary (dummy) outcomes and explanatory variables are non-linear function of binary variable; binary logit regression model is used as suggested by the reason for model:

While specifying the model, the steps followed as in Gujarati (2004)

$$Y = f(X_i, U_i) \quad (1)$$

Where Y is dependent variables, X_i is i^{th} explanatory terms and U_i is error term

In the present model the probability of women's economic empowerment, P_i is given by

$$P_i = f(Z_i) = \frac{1}{1+e^{-(\alpha+\beta_i\ x_i)}} \quad (2)$$

Where X_i represents the explanatory variables α and β_i are regression parameters to be determined. Obviously the probability that women are not empowered is (1-p)

Taking the ratio get in to, $Odds = \frac{Pi}{1-Pi} = e^{Zi}$ (3)

Taking the logarithms both sides the equation (3) is

$log \frac{P}{1-P} = loge^{\alpha+\beta_1 x_1+\beta_2+------+\beta_n X_n}$

Taking the natural logarithm of equation (3) yields:

$$\ln\left(\frac{Pi}{1-Pi}\right) = Zi = \alpha+\beta_{1X_1}+\beta_{2X_2}+\ldots\ldots+\beta nXn \ldots\ldots\ldots\ldots\ldots\ldots \quad (4)$$

If the distribution of error term Ui is taken into account, the logit model becomes:

$-(\alpha + \sum \beta x)$ From equation (2)

$Z_i = \alpha + \sum_{i=1}^{m} \beta_i X_i + Ui \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$ (5)

The dichotomous response variable Zi (Yi) = 0 or 1, Y=1 implies women's economy empowered while Y=0 otherwise. The dummy and categorical variables are indicators. In this study since only two options are available, namely women's economically empowered or not; Y=1 empowered, Y=0 not empowered. Therefore, the logistic regression model in this study specified as:

$Y=\beta_0+ \beta_1 X_1+ \beta_2 X_2 +\beta_3 X_3 +\beta_4 X_4+\beta_5 x_5 +\beta_6 X_6 +\beta_7 X_7 +\beta_8 X_8 +\beta_9 X_9+\beta_{10} X_{10}$ ……(6),

where Y is dependent variable, women's economic empowerment; β_0- is the intercept, X1- age of respondents, X2-education level of respondents ,X3- family size of household, X4-durationh of membership in Omo-microfinance, X5-marital status of households, x_6- entrepreneurship development; x_7- increase in saving; x_8- increase in income; x_9- clients household expenditure; x_{10}- increase in Asset; $and\ \beta_1 \ldots\ldots\beta_{10}$are the coefficients of independent variables used and Ui= error term.

Therefore the final employed model has the following form from equation (6) yields.

$WEE=\beta_0+\beta_1 Age + \beta_2 Educ + \beta_3 Fs + \beta_4 Marst + \beta_5 Buspr + \beta_6 Empop + \beta_7 S + \beta_8 Y + \beta_9 Exp + \beta_{10} Ass + Ui$ …… (7)

Where WEE - women's economic empowerment

Age- age of respondents

Educ-education level of household

Fs-family size of respondents

Marst- headship marital status of respondents

BusPr- entrepreneurship development

S-proportion of saving scheme, Ass--proportion of household asset prosperity

Y--Annual income of household, Exp--Annual household expenditure

Table.3.2. Descriptive summary of independent variables empowerment.

Indep. Variables	Description of variables
Age(AGE)	Continuous variable for age of hhs, measured in years.
Sex(SEX)	Discrete variable for the sex of the hhs (female=1, 0 other wise
Education level(EDUC)	Continuous variable for education of subjects , measured in level of education
Family size(FS)	Continuous variable for hhs size, measured in number
Duration of membership(LMEM)	Categorical variable of clients, measured in years
Marital status (MARST)	Categorical variable for hhs in which measured in hhs headed status
Annual income(Y)	Continuous variable of hhs measured in birr
Voluntary saving(S)	Continuous variable of hhs measured in birr
Asset prosperity (ASS)	Continuous variable of respondents measured in birr
Employment opportunity (EMPOPO	Categorical variable of hhs measured in number
Business profitability(BusPr)	Categorical variable of hhs measured in birr

3.8. Model Assumption of using logistic regression

Is binary /dummy/ which takes value 0 or 1 responses.

Is nonlinear regression model that forces the output /predicted values/ to be either 1 or 0 whereas logit response is not bounded.

Logistic regression estimates the probability of dependent variable to be 1(y=1) when the event of success is equal to 100%

Error term assumed to be normally distributed and standard logistic distribution with mean zero and variance $\frac{\pi^2}{3}$, $\lambda(\varepsilon) = \frac{e^{\varepsilon}}{(1+e^{\varepsilon})^2}$

Assumption on absence of Multicollinearity, heteroskedasticity, outliers

Ratio of cases to variable have enough responses in given category(1/0)

Absence of Multicollinearity, outliers and independence of errors

Linearity in the logit regression equation should have a linear relationship with the logit form of outcomes (monotonic relationship between probability and logodds.

LPM/OLS cannot produce sound result because non-linearity of out comes

3.9. Explanatory variables in the study and their measurement.

To find out the economic impact of OMFIs in Wolayta zone, Damot Gale and Damot Pulasa district members, the variables which were undertaken are socio-demographic characteristic and economic variables; income, assets, small business employment, expenditure, savings of the member. These independent variables are indicative of the value being used to explain the dependent variable for which the researcher has included five main explanatory variables assuming that it is best to explain their significance relationship of women's economic empowerment and OMFIs program.

SEX: many researcher argued that female were economically poor than male. Therefore expected sign and explanatory variables measured as follow:

AGE: In this study age will be hypothesized as positive on economic empowerment because of productive performance usually at certain level of age limit clients are more stable and experience productive, but beyond certain age limit this variable has negative relation with economic empowerment. This shows as people get older, ability to be ineffective.

EDUCATION LEVEL: This variable expected to have positive impact on women economic empowerment performance. In general more educated women expected to be more effective in information and resource management.

FAMILY SIZE: is defined interim of total number of household in the family whose need depends up on their family. When family size increases, the family needs more economic resources to fulfill their requirement that they have left over low capital. Therefore, negative relationship expected between women economic empowerment and high family size. INCOME: The annual and monthly income of the each subject was taken into account from income generating activity.

EMPLOYMENT OPPORTUNITY: It refers the employment generation through agricultural and other small business activity.

SAVING PATTERNS: It includes saving scheme of the subject in the Banks, MFI office and other financial form.

CONSUMPTION PATTERNS: The consumption pattern of beneficiary was recorded

The description and expected sign of the determinant of women's economic empowerment are summarized in following table

Table.3.3 description and expected sign of explanatory variables

Depe. Variable: Women economic empowerment, (1=economically better off, 0= worse off)			
Independent variables	symbol	Types of variable	Hypothesized relationship sign
Age of respondents	AGE	continues	(-)
Respondents sex	SEX	discrete	(+/-)
Educational level of households	EDUC	Categorical(0=illiterate,1=grade1-4, 2=grade 5-8, 3=grade 9-12 & 4=college/university)	(+)
Number of households size	Fs	continuous	(+/-)
Marital status	MARST	Dummy(1=male headship, 2=female headship)	(+/-)
Annual Income	Y	continuous	(+)
Annual Saving	S	Continuous	(+)
Expenditure	Exp	continuous	(+)
Asset Prosperity	Ass	continuous	(+)
Employment Opportunity	EMPOP	continuous	(+)
Business profitability	BusPr	continuous	(+)

3.10. Pre pilot testing

The pre-pilot testing is necessary and used before the questionnaire subjected to total sampled households for final administration. A random sample of thirty women clients selected from given rural extension agent sites by representing 10% of sample population to fill the questionnaire that presented. The choice of pilot testing study was to measure out of mere use of convenient data that the result used to check data reliability and validity of measurement tool.

Then as Cronbach"s alpha was computed and higher than 0.5 indicate that reliability and validity of measurement tool (Comer and Kelly, 1982). In my case computed Cronbach"s alpha value is equal to 0.816 i.e. 81.6% accuracy was considered to be data reliability and validity measurement tool are effective which helped me to avoid the ambiguities from what intended to measure. The data measurement tool is considerably sensitive for the model specification under ROC curve roughly equal to 82.14% to measure the validity and reliability of tools, (see Appendix.3)

3.11. Goodness of fit test

To find out the outcome of MFIs program on economic empowerment of women during their participation the is statistically more power full since the research emphasizes self-control subject period because to compare two sample data from each subject before and after the treatment of OMFIs yields more statistical power. Therefore, the goodness of fit test can be determined by the following test models.

A. Wald test (independent variable test)

Wald test estimates similarly as log likelihood ratio test, but it requires to estimate only one model containing explanatory independent test wheather coefficient of independent variables zero or not to reject null hypothesis stating that OMFIs have no positive impact on women's economic empowerment by computing chi-square value and p-value.

If the large chi-square and significant p-value of independent variable test statistics indicate reject null hypothesis that explanatory variables are significant to explain the response variable.

B. Hosmer-Lemeshow chi-square statistics test.

The Hosmer-Lemshow statistics is used to formulate wheather to reject null hypothesis and/or accept alternative hypothsis that the model fit data and alternatively the model does not fit data under grouping data in to 10(g) groups from least likelihood event to most likelihood event.

If the observed number of events different from what expected by the model, the chi-square been larger than p-value and there will be evidence agaist the null hupothesis and reject nullhypothesis. Alternatively, if chi-square smaller than p-value accept null hypothesis stating that explanatory variables have no positive impcat on explaing variation in response variable.

C. Log likelihood ratio test

Log likelihood ratio test involves in estimating by comparing two models of interactions with existing explanatory variables log likelihood regression result wheather the difference is

statistically significant or not that if the difference is statistically significant p-value and large chi-square implies the model fit data or can be calculated by hand as Lr=-2(Lm - Lmo), where, Lm is last interaction of log likelihood and Lmo is initial interaction of log likelihood.

3. 12. MULTICOLLINEARITY TEST

It is high degree linear dependency or correlation among several independent variables If the existence of observable independent variables Multicollinearity causes small change of data produce wide swimming in the parameters, coefficients may have standard error and low significance level, joint R^2 for the regression is quite high(Green, 2000, 256). These above conditions cause the consequence of multicollinearity by which it can cause Variance (SEE) of model and variance of coefficient are inflated as result data are not reliable and confidence interval level wide.

It could examine by the detecting following ways:

A. By collinearity diagnostics of evaluating mean variance inflation factor

B. By comparing $R_{Ki}^2 \; of \; independent \; variables \; with \; R^2$ of model regression.

R^2 of regression result is used to measure the usefulness of outcomes that indicating how much of the dependent variable variation explained in relation due to change of explanatory variables. If the R2 of regression less than R2 of summation of each independent variables indicate that explanation power variation on dependent variable can be affected by one-another implies that existence of multicollinearity.

$If \; R_{WEEi}^2 > R_{Age}^2 + R_{Educ}^2 + R_{FS}^2 + R_{Marstat}^2 + R_{AnnS}^2 + R_{AnnExp}^2 + R_{Asset}^2 + R_{AnnY}^2 + R_{Empop}^2 + R_{Buspr}^2$ Indicates absence of Multicollinearity

C. By determination of correlation coefficients

3.13. Heteroskedasticity test

Heteroskedasticity test is used to test wheather the variance of residuals is constant or not wheather the model has symptom of significant omitted variable. It is evaluated using Breush-Pagan/Cook-Weisberg test for heteroskedasticity.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

The objective in this chapter is organized in two sections to summarize the collected data. The first section presents descriptive statistics of socio-demographic & economic characteristics of respondents while the second section presents econometric analysis of binary logistic regression results and its interpretation for forecasting after different model testing for goodness of fit the data by targeting study populations.

4.1 Basic Socio-demographic variables of respondents.

The socio-demographic characteristics of respondents such as sex, age, education level, marital status and family size were analyzed by using descriptive frequency statistics.

4.1.1 Descriptive frequency statistics of socio-demographic variables of respondents.

In this study sample size has been 285 were subjects selected from a total population of 1096, from which 255(89.7%) have answered the questionnaire clearly while 30(10.3%) are incomplete and/or recording error. As result, 255 clients' socio-demographic characteristics of respondents were analyzed by using descriptive statistics through summary and descriptive statistics frequency table to determine its implication for economic empowerment in line with microfinance institutions on their economy.

A. Women's economic empowerment of respondents

After intervention of OMO-MFIs program the descriptive statistics show that from the total of 255 respondents, 182(71.4%) are economically better off while rest 73(28.6%) of respondents show no noticeable economic empowerment as stated in figure 4.1 below.

Figure. 4.1. Descriptive frequency statistics of women's economic empowerment status.

```
. tab WEE
```

women economic empowerment	Freq.	Percent	Cum.
0	73	28.63	28.63
1	182	71.37	100.00
Total	255	100.00	

Source: Own survey result, 2016

B. Sex characteristics of respondents

The surveyed household's sex composition exclusively determines the female respondents from which they engaged in different business such as agricultural, commercial and micro-enterprising activities.

C. Age characteristics of respondents

In table 4.1.1 below, the survey result reveals that majority of respondents were at cumulative frequency percentage of 220(86.3%) aged between 19-39 years, that respondents are of productive age groups from which 120(47.1%) were under aged group between 19-29 years, 99(38.8%) age group between 30-39 years, youth aged group 30(11.8%) are between 40-49 years and only 3(1.2%) aged 50+ years. Therefore, from this result the researcher concludes that most clients are active productive age groups and frequency of higher age household's decrease in OMO-MFIs intervention. The average age of economically non-empowered women's 32.29 years higher than empowered clients' 29.74 years of t-test statistics implies that as age of respondents' increases their economic strength become weak as shown t-test. The implication is that older women's have less likely participating in OMO-MFIs program and weaker economy than younger, that the t-test show that age of respondents statistically insignificant weak negative impact on women's economic empowerment at t-test value of 1.58.

```
    diff = mean(0) - mean(1)                                      t =   1.5807
Ho: diff = 0                                     degrees of freedom =      253

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9424         Pr(|T| > |t|) = 0.1152          Pr(T > t) = 0.0576
```

AGE

Table 4.1.1. Descriptive frequency statistics of age of respondents Source; Own survey result, 2016

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	age group b/n 19-29 years	120	47.1	47.1	47.1
	age group b/n 30-39 years	100	39.2	39.2	86.3
	age group b/n 40-49 years	32	12.5	12.5	98.8
	age group 50 & above years	3	1.2	1.2	100.0
	Total	255	100.0	100.0	

D. Relationship between WEE and Education level of respondents

Education level is an important yardstick and key element to assess women's economic empowerment through having relevant information to enhance the performance of OMFIs strategies and policies that it affects the household economic empowerment. It is evident from the study population descriptive frequency statistics in a rural area, as shown in table 4.1.3 below, the level of education ranges from unable to read and/or write (illiterate) to college or university level. The level of education, 45(17.6%) of them had no education, 48(18.8%) of the

members had enrolled primary school(1-4), 64(25.1%) respondents primary school, secondary cycle(5-8), 43(16.9%) of respondent had high school(9-12) and 55(21.6%) of respondents achieved college and university level. The average education level of economically non-empowered women is 1-4 grades less than average education level of 5-8 grades implies that as education level increases their economic strength increase show that education has positive significant effect on their economic empowerment at t-test value. This is because educated household has more awareness and can have a more developed knowledge in resource usage and information as shown t-test statistically significant at significant t-test statistics of /-5.87/ at 1% significant level reject null hypothesis stating that OMFIs have no impact on women's economic empowerment. It is consistence as Ahmed Aly Abdel Mowla, 2009 Egypt stated that higher the education is greater way off to increase economic opportunity.

```
    diff = mean(0) - mean(1)                                      t =  -5.8662
Ho: diff = 0                                     degrees of freedom =      253

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0000         Pr(|T| > |t|) = 0.0000          Pr(T > t) = 1.0000
```

EDUC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	illiterate	45	17.6	17.6	17.6
	primary school	48	18.8	18.8	36.5
	Primary cycle, secondary school	64	25.1	25.1	61.6
	high school	43	16.9	16.9	78.4
	collage& university	55	21.6	21.6	100.0
	Total	255	100.0	100.0	

Table 4.1.2 Descriptive frequency statistics of education level of respondents.

Source: Own survey result, 2016

D. Family size of respondents

Even though, in the rural area children's considered as input for production, the high family size affect the economic empowerment that as survey result of t-test statistics shown the average

family size of economically non-empowered versus economically empowered is 4.6 and 4 respectively implies that the households with higher family size less likely empowered than lower family size. Therefore, high family size has significant negative impact on their economic empowerment at 10% significant level. It is t-test value of /1.68/

```
    diff = mean(0) - mean(1)                                      t =   1.6746
Ho: diff = 0                                     degrees of freedom =      253

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9524         Pr(|T| > |t|) = 0.0952          Pr(T > t) = 0.0476
```

E. Marital status of respondents

From the survey descriptive frequency result marital status of subjects is as indicated 33(12.9%) single, 72(28.1%) female household headship and 150(59%) male household headship respondents (see appendix).

As different studies found that the female without male households are poorer than male headed by low asset base, low education, and high mortality rate due to economic pressure, World Bank, 2012. But, the survey result showed that the average number of economically non-empowered female headship lower than counter part of male headship and the average number of economically empowered female headship greater than counter part of male headship, this implies that the marital status of male headship o economic activity have negative impact on female's economic empowerment this argues x^2-statistics as shown the average number of economically empowered female headship households is of 82.902 and significant p-value of (p=0.000) at 1% significant level. Therefore, female headship of marital status have significant positive impact on their economic empowerment as the finding consistent with Bogalech and Mengistu,2007 in SNNP Ethiopia stating that due to traditional culture and male's decision over productive assets economically male headship females were worse off as compared to female headship household's economic status as confirmed in figure below.

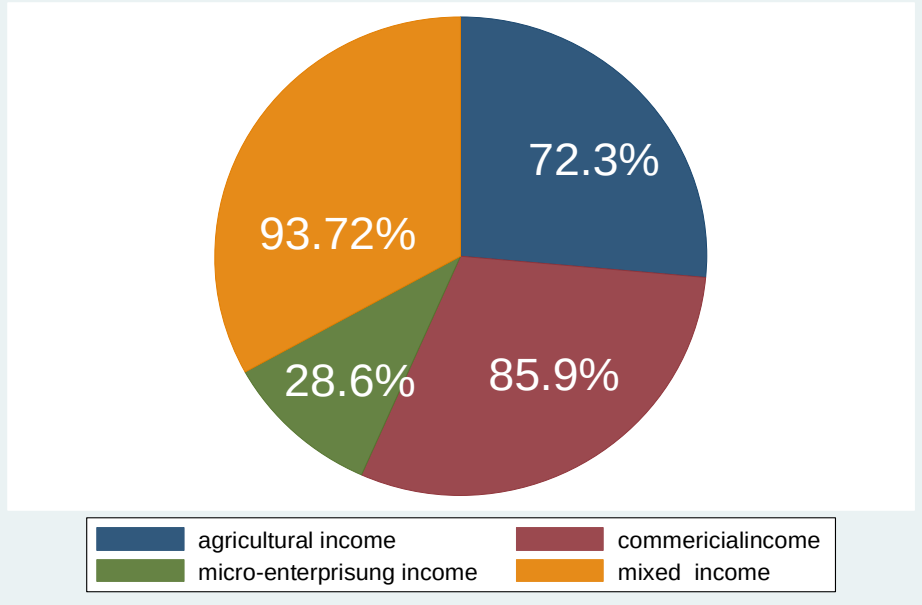
```
. tab WEE MHMARST
```

women economic empowerment	male headed households 1	2	Total
0	54	19	73
1	60	122	182
Total	114	141	255

4.1.2. Graphical representation of respondents' income earning possibilities.

As represented in graph 4.1.below the income earning possibilities are agriculture, commercial and micro-enterprising economic activities are main source of their income. Among these sources; mixed income earning, commercial income, agricultural income and micro-enterprising income earning opportunity are 93.72%, 85.9%, 72.3% and 28.6% respectively. From these representative sources of income earning opportunity, households have high opportunity of commercial to low opportunity from micro-enterprising opportunity.

Grapg. 4.1 grapgical representation of income earning economic activities



4.1.3 Summary statistics of potential economic explanatory variables.

It was deducted from the summary statistics finding the requirement of research is easily met as shown 182(71.4%) of households are economically better off while remaining 73(28.6%) are become have no considerable effect due to diffident factor. Generally, the mean score of items

measuring the impact of OMFIs program on women economic empowerment (figure 4.1) were more or marginally different impact after intervention and tends toward economic empowerment.

A. Employment creation opportunity

One of objective of establishing microfinance in general is to create job opportunity who seeks self-employment and in particular to increase job opportunity to other to bring economic empowerment. After intervention of OMFIs majority of respondents, 201(78.8%) are self-employed and the rest 54(21.2%) of respondents have no noticeable job opportunity after intervention of OMFIs program due to loan was not for intended purpose and as a result economically non-empowering. In the study area almost majority of client's created job opportunity for themselves.. Therefore, this result shows that MFIs service have positive impact on creating job opportunity in the study area and hence empowers women entrepreneurs' development indicator of economic empowerment reject null hypothesis stating that OMFIs service have no significant impact on women's entrepreneurs' development.

B. Business profitability

From above employment opportunity creation result it is clear that OMFIs strategy supports business profitness after availing of OMFIs service. From the total respondents, 77.26% entrepreneur profit activities OMFI service had significantly positive impact and 22.74% of member OMFI had no significant impact on entrepreneurs' profit. In general summary statistics analysis reveals through having intervention to OMFIs leads entrepreneurs development as shown figure below.

C. Saving mobilizations

On saving, the result show in summary statistics figure below the average mean saving amount of 3477.65 per annum felt that in study area OMFIs services have positive impact on per annum saving and hence significant at 5% significant level to empower women's economy reject the null hypothesis stating that OMFIs program have no impact on women saving hence women's access to saving mobilization gives them a greater role in economic empowerment to optimize their own and families wale fare and hence trickle down non-empowerment effect. It is significant t-test value of /-9.62/.

D. Expenditure smoothing

Similarly, the result revealed that the average mean of annual expenditure/consumption of 5215.686 boosts their life likelihood of expenditure implies OMFIs has positive impact on

smoothing annual expenditure that reject null hypothesis stating OMFIs program have no impact on household expenditure. It is significant at t-test value of /-6.54/

E. Independent income generation

In same way, as stated above clients are involved in the income generating activities such as agricultural, commercial and micro-enterprising. These all activities led to increase the income of members as revealed the mean average per annum income of 10975.29 members belonged to positive change after joining OMFIs. Therefore, OMFIs program have positive impact on independent income generation rejects null hypothesis stating that OMFIs program have no impact on independent income change. It is significant at t-test value of /-6.39/

Figure.4.1 Illustration of summary of variables in regression

```
. summarize WEE AGE EDUC FS FHMARST Y ASS S EX BUSPR EMOP
```

Variable	Obs	Mean	Std. Dev.	Min	Max
WEE	255	.7137255	.4529082	0	1
AGE	255	30.47059	11.66014	19	69
EDUC	255	2.058824	1.389099	0	4
FS	255	4.223529	2.381241	0	10
FHMARST	255	1.552941	.4981671	1	2
Y	255	10638.04	7002.226	500	45000
ASS	255	3672.941	4301.997	0	18000
S	255	3345.098	3074.336	0	15000
EX	255	5107.843	3771.085	0	13000
BUSPR	255	1.756863	.8982167	1	3
EMOP	255	.772549	.4200105	0	1

4.2. Model fitness specification test

The predicted probability of women economic empowerment, WEE_hat is pretty significant at p-value of (p=0.000) and WEE_hatsq has insignificant p-value links the model correctly specified/no specification error implies that error term of each subject variables normally distributed at fit line. Insignificant WEE_hatsq value also imply that model have no omitted pretty significant economic variables and specification error at 1%, 5% and 10% significant level in which absence of multicollinearity and heteroskedasticity.

Figure.4.2.1. Illustration of model specification fitness

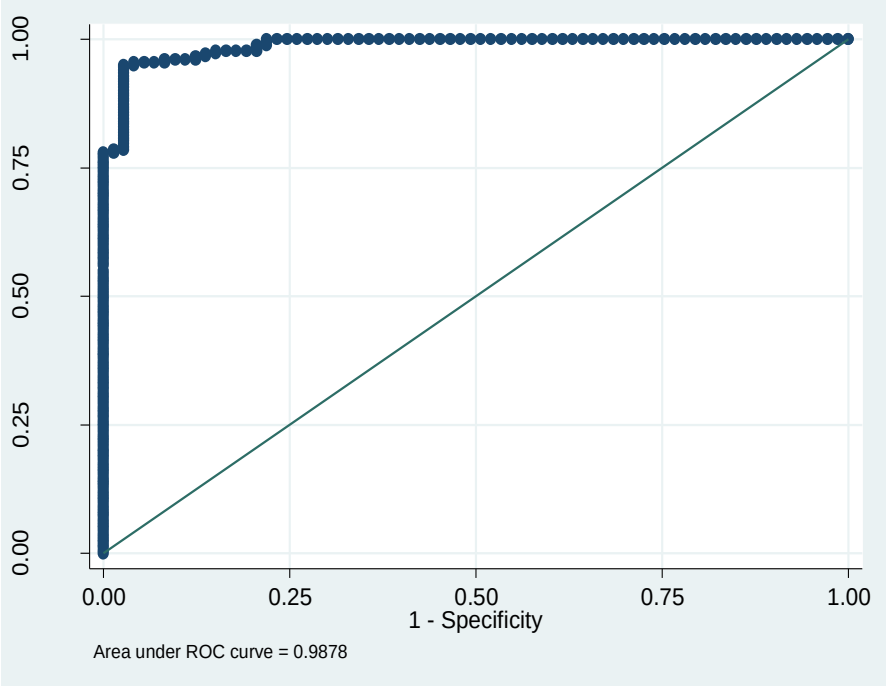
```
Logistic regression                                     Number of obs   =        255
                                                        LR chi2(2)      =     245.29
                                                        Prob > chi2     =     0.0000
Log likelihood = -30.042527                             Pseudo R2       =     0.8032
```

WEE	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
_hat	1.000749	.2116684	4.73	0.000	.5858866	1.415611
_hatsq	-.0006518	.0563835	-0.01	0.991	-.1111614	.1098579
_cons	.0015259	.3735674	0.00	0.997	-.7306527	.7337044

Note: 0 failures and 3 successes completely determined.

The area under ROC curve shows that the sensitivity of predicted performance of OMFIs service on women's economic empowerment that (WEE_hat –WEE_hatsq) ^{2} have insignificant p-value that specification of women's economic empowerment model is sensitive by 98.78% to OMFIs service performance in the study area.

Graph.4.2.1 Illustration of model fitness graphically



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4.3. Goodness of fit the data test

A. Wald test (independent variable test)

The cumulative independent variables test where large chi-square 25.73 and significant p-value, prb>chi2=0.0023 determines model goodness of fit the data rejects null hypothesis stating that OMFIs services have no impact on women economic empowerment. Therefore, from the given Wald test it is concluded that the joint test statistics is significant at 1% significant level that the model fits data at p-value (p=0.0023). This implies that joint explanatory variables are significant impact to explain variation in women's economic empowerment as given Wald test model below.

Figre.4.3.1.Illustration of goodness of fit test through Wald model

```
. test AGE EDUC FS MHMARST Y ASS S EX BUSPR EMOP

 ( 1)  [WEE]AGE = 0
 ( 2)  [WEE]EDUC = 0
 ( 3)  [WEE]FS = 0
 ( 4)  [WEE]MHMARST = 0
 ( 5)  [WEE]Y = 0
 ( 6)  [WEE]ASS = 0
 ( 7)  [WEE]S = 0
 ( 8)  [WEE]EX = 0
 ( 9)  [WEE]BUSPR = 0
 (10)  [WEE]EMOP = 0

           chi2( 10) =   25.73
         Prob > chi2 =    0.0041
```

B.Hosmer-Lemeshow chi-squared statistics test

Hosmer-Lemeshow chi2 statistics showed that the model fits data. Testing commulative independent variables chi-squre and p-value statistics can report goodness of model fit data by using Hosmer-Lemeshow test postestimation report and statistics. To conclude that having insignificant large prob>chi2 = 0.8813 and small chi-square=3.72 suggests that the model fit the data by 88.13% reasonably well. Therefore, OMFIs services were exert strong effect on women's economic empowerment in study rural area through mentioned explanatory variables. Figure.4.3.2. Illustration of goodness of fit test by Hosmer-Lemeshow test model.

```
. estat gof, group(10)

Logistic model for WEE, goodness-of-fit test

  (Table collapsed on quantiles of estimated probabilities)

       number of observations =       255
             number of groups =        10
     Hosmer-Lemeshow chi2(8) =      3.36
                 Prob > chi2 =      0.9095
```

C. Ramsey reset test using power of the fitted values of WEE

```
. estat ovtest

Ramsey RESET test using powers of the fitted values of WEE
       Ho:  model has no omitted variables
                 F(3, 241) =     15.67
                  Prob > F =      0.0000
```

D. Log likelihood ratio test.

As determined the intial interaction Log likehood and last interaction Loglikehood are -152.69 and -30.50 respectively; therefore, the estimated chi-square statistics log likelihood ratio test can have $2(\log L_m - \log L_o) = 244.38$ and statistically significant p-value p=0.000 indicating that the model fit data and reject null hypothesis stating that OMFIs service have no impact on women's economic empowerment and conclude that omitted variables are not statistically significant to explain variation in women's economic empowerment.

Table 4.3.1. Model fitting the data criteria

	Model fitting criteria Log likelihood ratio test, lr		
	Formula Lr	Chi-squared	sign
	-2Log likelihood(LLM-LLMo)		
Initial interaction, Intercept value only	-152.69		
Last Interaction value	-30.50	244.38	0.000

4.4. Multicollinearity Diagnoses test

Even though there is no clear cut criterion for diagnostic to (detecting) Multicollinearity, it is possible to examine Multicollinearity between two or more independent variables by following method.

A. Evaluating mean variance inflation factor, VIF

It is checked that collinearity diagnostics in both spss and stata soft ware the mean value of VIF are less than 10 indicating that absence of multicollinearity in model specification that there no pretty explanatory variables is/are omitted and specification error.

When mean of VIF> 10, $VIF = \frac{1}{1-R^2} > 10$ the model concerns Multicollinearity and in similar observation the mean of VIF= 1.82, $VIF = \frac{1}{1-R^2} < 10$ model do not concern Multicollinearity

Figure.4.4.1 Illustration of multicollinearity test through VIF

```
. estat vif
```

Variable	VIF	1/VIF
Y	4.33	0.231171
S	2.79	0.358181
EX	1.91	0.524477
EMOP	1.65	0.606424
ASS	1.51	0.662544
MHMARST	1.33	0.749537
BUSPR	1.25	0.802995
FS	1.22	0.820202
EDUC	1.14	0.877563
AGE	1.08	0.926361
Mean VIF	1.82	

Therefore model do not concern Multicollinearity because mean of VIF=1.82 which less than 10.

B. comparing $\boldsymbol{R^2_{xi}}$ ***and*** $\boldsymbol{R^2}$ of regression model

By comparing pseudo R2 regression result of dependent variable and summation of each independent explanatory variable regression R2, it is possible to determine existence and /or absence of multicollinearity, where $If\ R^2_{WEEi} < R^2_{Age} + R^2_{Educ} + R^2_{FS} + R^2_{Marstat} + R^2_{AnnS} + R^2_{AnnExp} + R^2_{Asset} + R^2_{AnnY} + R^2_{Empop} + R^2_{Buspr}$ Concerns existence of Multicollinearity

$If\ R^2_{WEEi} > R^2_{Age} + R^2_{Educ} + R^2_{FS} + R^2_{Marstat} + R^2_{AnnS} + R^2_{AnnExp} + R^2_{Asset} + R^2_{AnnY} + R^2_{Empop} + R^2_{Buspr}$; $R^2_{WEEi} < R^2$, 0.796 <0.8002 indicates absence of Multicollinearity

C. Determination of correlation coefficients

The correlation between WEE and factor variables education level, annual saving, annual expenditure, asset prosperity, annual income, employment creation opportunity and business profitability in the study area is positive. This shows that in the study area OMFIs program brought significant impact on rural women's economic empowerment. Age, family size of house hold and female headed marital status are negatively correlated as determined in correlation table below. By computing correlation coefficients indicates that all independent variables are significantly related to each other or not as shown below. As revealed below there is no significant correlation between independent variables so that no ferity high multicollinearity see figure below

Figure 4.4.2 Illustration of multicollinearity test by correlation coefficient of explanatory variables.

```
. pwcorr WEE AGE EDUC FS MHMARST Y ASS S EX BUSPR EMOP, sig star(.01)
```

	WEE	AGE	EDUC	FS	MHMARST	Y	ASS
WEE	1.0000						
AGE	-0.0989 0.1152	1.0000					
EDUC	0.3460* 0.0000	0.1286 0.0402	1.0000				
FS	-0.1047 0.0952	-0.0412 0.5121	-0.1087 0.0831	1.0000			
MHMARST	0.3728* 0.0000	-0.0402 0.5225	0.0837 0.1829	0.1277 0.0416	1.0000		
Y	0.5218* 0.0000	-0.1363 0.0296	0.1519 0.0152	-0.2033* 0.0011	0.2079* 0.0008	1.0000	
ASS	0.3246* 0.0000	-0.0867 0.1677	-0.0207 0.7416	0.1940* 0.0019	0.2295* 0.0002	0.4083* 0.0000	1.0000
S	0.5174* 0.0000	-0.1202 0.0553	0.1494 0.0170	-0.2298* 0.0002	0.2153* 0.0005	0.7810* 0.0000	0.3319* 0.0000
EX	0.3804* 0.0000	-0.1687* 0.0069	0.0981 0.1180	-0.1850* 0.0030	0.0464 0.4606	0.6326* 0.0000	0.0792 0.2073
BUSPR	0.3605* 0.0000	-0.0762 0.2250	0.0746 0.2351	0.0255 0.6852	0.1873* 0.0027	0.3694* 0.0000	0.3334* 0.0000
EMOP	0.8154* 0.0000	-0.1308 0.0369	0.2727* 0.0000	-0.0789 0.2094	0.4529* 0.0000	0.4033* 0.0000	0.2785* 0.0000

	S	EX	BUSPR	EMOP
S	1.0000			
EX	0.4080* 0.0000	1.0000		
BUSPR	0.2904* 0.0000	0.2163* 0.0005	1.0000	
EMOP	0.4126* 0.0000	0.2734* 0.0000	0.2911* 0.0000	1.0000

4.5. Heteroskedasticity test

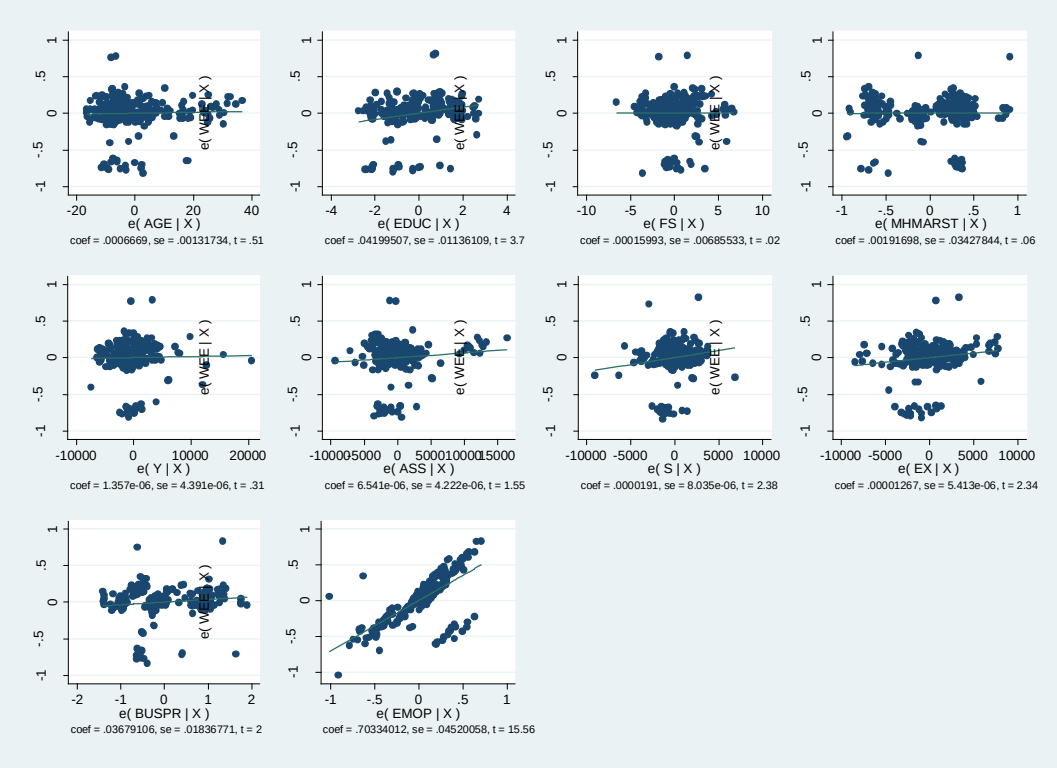
As shown figure below the large chi-square value of 128.01 and significant p-value of p=0.000 indicates residual of each individual error term normally distributed with predicted value line that there significant explanatory variable is no omitted in the regression. It is also graphically represented

```
. estat hettest AGE EDUC FS MHMARST Y ASS S EX BUSPR EMOP

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: AGE EDUC FS MHMARST Y ASS S EX BUSPR EMOP

         chi2(10)      =    128.01
         Prob > chi2   =    0.0000
```

As indicated above heteroskedasticity test with large significant chi2 value and significant p-value additionally argued by graphical test of residual value that error term of each subjects normally distributed along fit line indicate that model fit the data. It implies that the model has no omitted significant variables.



4.6. Logistic regression results

The multiple logistic regression model is fitted the data both using categorical and continuous explanatory variables. The result presented shows that five of the predictor variables such as education level, family size, independent income generation, business profitability and creation of employment opportunity have significant impact on women's economic empowerment at 5% significant level of 95% confidence interval, reject null hypothesis stating that OMFIs services have no impact on women's economic empowerment and alternative hypothesis is accepted.

4.6.1 Logit regression analysis results and its interpretations of socio-demographic Variables

Apart from potential economic variables, the socio-demographic variables are available in determining women's economic strengthening in relation to OMFIs service.

As the model fit the data very well ($p < 0.000$), for a unit increase in education, logodds of woman's economic empowerment expected to increase by factor of ≅2.03, similarly logodds of increase in women's economic empowerment having female headed economy by a factor ≅7.4 folds during intervention in OMFIs program. Therefore, education level and female headed marital status of households have positive impact of economic empowerment 1% significant level.

But on contrary, age and family size of household are significantly negative impact on women economic empowerment as p/z/ value ($p<0.05$) significant at 5% significant level. Therefore, for the unit year increase in age respondents, the logodds of women's economic empowerment expected to decrease by roughly a factor of 0.97. Similarly, logodds women's economic empowerment expected to decrease by a factor of 0.85 for a one increase in family size respondent as computed their relative coefficient have negative magnitude. Therefore, exception to potential economic explanatory variables, the maximum log likelihood of 25.53 % variation in women economic empowerment is explained by age, education level, family size and female headed marital status of households OMFIs service beneficiaries. So, the estimated logodds of women's economic empowerment is lower for OMO-MFIs service users with high family size and greater aged household .Conversely, the estimated logodds of women's economic empowerment is higher for more educated and economically female headed marital status households. Thus, in the study rural area family size and age was adversely affecting the

women's economic empowerment in relation while considering OMO-MFIs service constant, the reason behind this is large family size causes extra-expenditure to met family need income of households and female control their productive economic structure respectively. Since the estimated coefficients are negative, so the estimated logodds of women's economic empowerment are lower for if the households have high family size and higher aged rejects the null hypothesis that the individual coefficient of family size and age are zero.

WEE= -1.588-0.033age +0.71educ-0.158fs+ 1.99marst

Figure. 4.5.1 Illustration of logit regression and interpretation

```
. logit WEE AGE EDUC FS FHMARST

Iteration 0:   log likelihood = -152.68945
Iteration 1:   log likelihood = -116.28198
Iteration 2:   log likelihood = -113.71767
Iteration 3:   log likelihood = -113.70193
Iteration 4:   log likelihood = -113.70193

Logistic regression                             Number of obs   =        255
                                                LR chi2(4)      =      77.98
                                                Prob > chi2     =     0.0000
Log likelihood = -113.70193                     Pseudo R2       =     0.2553

------------------------------------------------------------------------------
         WEE |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         AGE |  -.0325691   .0138602    -2.35   0.019    -.0597347   -.0054035
        EDUC |   .7096201    .137188     5.17   0.000     .4407366    .9785035
          FS |  -.1575979   .0713881    -2.21   0.027    -.2975159   -.0176799
     FHMARST |   1.998139   .3522865     5.67   0.000      1.30767    2.688608
       _cons |  -1.587797   .7257829    -2.19   0.029    -3.010305    -.165289
------------------------------------------------------------------------------
```

4.6.2. Logistic regression (odds ratio) results and its interpretation of socio-demographic variables.

The log of maximum likelihood women's economic empowerment at null model is -113.7 predicted probability of 0.79 for OMFIs service users at average age of 30.5 years who graduate education level of 5-8 grade and average family size of 4 for female headship marital status of household OMFIs have significant impact on women's economic empowerment.

The odds ratio for log likelihood when having null model of explanatory variables women's economic empowerment for/before benefiting OMFIs services is 20.4%. The estimated odd ratio of age is 0.97. therefore, the estimated probability of women's economic empowerment decreases after the average age of 30.5 years old by factor of 0.97 times as age increase by one unit during participation in OMFIs program at citrus paribus. Therefore, a one year increase in age causes the decrease of expected probability of women's economic empowerment by factor of 0.97

The estimated odds ratio of women's education level is 2.03. Therefore, for a unit increases in education level, causes the estimated odds of women's economic empowerment increase by roughly a factor of ≅ 0.5 implies that education level and women's economic empowerment have positive relationship at citrus paribus i.e. a unit increase in education level, led to the increase the estimated logodds probability of women's economic empowerment by 0.5 other covariates and OMFIs services held constant.

The estimated odds ratio of family size is 0.85 that the estimated logodds of having family size the women's economic empowerment decreases as a unit number increase in family size by a factor of 85% i.e. by comparing the female with and without child, the economic empowerment will decreases by factor of 0.85 as family size increase by a unit.

The estimated odds ratio for economically female headed households is 7.4. Therefore, by comparing women's with and without male headed economy at citrus paribus condition the expected probability logodds of the women's economic empowerment having female headed households is experiencing to increases by a factor of 7.38 times higher holding other variables.

Logit(p(xi)=log$\frac{p(x)}{1-p(x)}$= -1.59+0.95Age +1.89Educ +0.81Fs + 4.71FHMarst

Figure.4.5.1. Illustration of logistic regression and interpretation of socio-demographic variables

```
. logistic WEE AGE EDUC FS MHMARST

Logistic regression                                     Number of obs   =        255
                                                        LR chi2(4)      =      77.98
                                                        Prob > chi2     =     0.0000
Log likelihood = -113.70193                             Pseudo R2       =     0.2553

------------------------------------------------------------------------------
         WEE | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         AGE |   .9679556   .0134161    -2.35   0.019     .9420145    .9946111
        EDUC |   2.033219   .2789331     5.17   0.000     1.553851    2.660472
          FS |   .8541932   .0609792    -2.21   0.027     .7426608    .9824755
     MHMARST |   7.375321   2.598226     5.67   0.000      3.69755    14.71119
       _cons |   .2043753   .1483321    -2.19   0.029     .0492766    .8476487
------------------------------------------------------------------------------
```

4.6.3. Marginal effect of socio-demographic variables and its interpretation

The predicted probability of women's economic empowerment for OMFIs service users in study area is 0.79 at average age of 30 1/2 years who graduate 5-8 education level and have average family size of 4 for whose economy controlled by female headed respondents during participation.

A year increase in age after intervention to OMFIs program leads a decrease in their economic empowerment by ≅ 0.8% during participation after average age of 30.5 years. This show that age of respondents has negative impact on their economic empowerment reject the null hypothesis stating that socio-demographic variables have no impact on women's economic empowerment as similar observation was made as Bogalech and Mengistu, 2012. For example, log of odds having economic empowerment when age of households equal to 19 year is -2.215 and when age equals 49 years, log of having economic empowerment is -3.205 implies that the probability of economic empowerment will decrease as age increases implies economic empowerment and age are negatively related holding other explanatory variables constant.

Regarding to education qualification, whose positive impact of a unit grade level increase in education increases women economic empowerment by 10.55% after average education level of 5-8 grades. Therefore, increase in education level increases an average women economic empowerment by odds ratio of having 2.03 times higher than before education during intervention in OMFIs. For example, when education level equals grade 5, the maximum likelihood probability log of odds having education level 5, the women economic empowerment is 1.96 and when education level equals grade 12, their economic empowerment is increased to 6.932 indicates that as education level increases the maximum probability of women's economic empowerment increase show that education and women economic empowerment are positively related.

But on contrary regarding to family size, comparing women's with and without child at home at citrus paribus, the odds of economic empowerment are estimated to be about 1.02 times lower for women have a child at home than non. Therefore, the large size of family ceases women's economic empowerment indicates that an odds of having above average family size of causes a decrease women's economic empowerment by 3.5% per-year during participation in OMFIs program at citrus paribus.

From the point of discussion holding other explanatory variables to remain constant economically female headed marital status had positive impact on their economic empowerment as similar finding of Bogalech and Mengistu, 2012 about married females' of economic status . Therefore, odds of having marital status the women's economic empowerment increases by 7.4 folds with compared to male headed households Once economy is to be controlled over male due to traditional culture and economic decision power of husband. Therefore, for female headed

economic households women' economic empowerment increases by a factor of 33.3% than male headed household indicate that female headed household have positive impact on women's economic empowerment.

Figure. 4.2.3. Illustration of marginal effect of socio-demographic variables on women economic empowerment

```
Marginal effects after logistic
      y  = Pr(WEE) (predict)
         =  .78887533
```

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
AGE	-.0054244	.00231	-2.35	0.019	-.009943	-.000906	30.4706
EDUC	.118188	.02144	5.51	0.000	.076159	.160217	2.05882
FS	-.0262481	.01177	-2.23	0.026	-.049319	-.003177	4.22353
MHMARST	.3327922	.05639	5.90	0.000	.222275	.44331	1.55294

4.7. Logit regression results and its interpretation.

For the sack of success the potential economic explanatory variables are inserted to determine the impact of OMFIs services on women's economic empowerment by using binary logit model to estimate relationship between the response variable and independent variables such as independent income generation, prosperity of productive asset accumulation, mobilization of saving, smoothing of family households expenditure, creating job opportunity and business profitability in addition to above mentioned socio-demographic variables. Before estimating the economic impact of OMFIs program in study area populations, there was test for model goodness of fit the data for their joint significance level of explanatory variables by using different test model.

The researcher stated the binary logit regression result coefficients looked a significant pseudo R^2 as 80.02% variation in women's economic empowerment explained by mentioned explanatory variables. As regression has been estimated by maximum likelihood method, over all data, model fit the data very well at ($p<0.000$), some of explanatory variables moderate/observable positive effect as /z/ statistics value are positive and less than 1.96, as such some other variables have weak negative effect as /z/ statistics less than 0 and some other predictors are potentially significant impact as /z/ greater than 1.96 at respective significant level. Such association of all independent variables is determined at citrus paribus condition on women

economic empowerment as Pseudo R^2 of 0.8002 and βi are non-zeros, rejects null hypothesis stating that OMFIs services have no impact on women's economic empowerment.

As stated in topic 4.5.1, coefficients of logit regression results p-value where (0.05<p <10) for OMFIs services have marginal effect, (0.01<p<0.05) observed significant effect and (0.000<p<0.01) high pretty significant. Therefore, from the mentioned explanatory variables OMFIs service has significant effect on economic empowerment through entrepreneur development of business profit at p-value (p=02) and employment creation at p-value (p=0.000), education(p=0.007), family size(p=0.078), male headed household(p=0.00), voluntary saving(p=0.042), annual income(p=0.07) are observed significant effect more than at 10% significant level, whereas annual expenditure(p=0.2) and asset prosperity(p=0.29) are weakly positive relation and age(p=0.41) is marginally negative association with women's economic empowerment. Therefore, OMFIs services have impact on women's economic empowerment in study areas' populations, Since estimated logit regression coefficients are positive except marital status of male headed households, the maximum likelihood log odds of women's economic empowerment folds higher than before when they participate in OMFIs program at different significant level as cumulative data fit model very well (p<0.000) and that the influence of independent variables over dependent variable is explained by 80.02% (R^2=0.8002) and chi-squared value of 244.37. Therefore, the model rejects null hypotheses that stating the mean value of MFIs services have no significant effect on women's economic empowerment.

$$WEE = -13.04 + 3.8*10^{-4}\,age + 1.02educ + 0.11Fs - 1.9*10^{-3}\,Marst + 5.1*10^{-4}\,VolS +$$
$$(0.000)\quad (0.014)\quad (0.067)\quad (0.512)\quad (0.998)\quad (0.025)$$
$$0.7Exp + 6.13*10^{-4}\,Ass + 5.9Y + 1.72Empop + 0.93Buspr + U_i$$
$$(0.029)\quad (0.087)\quad (0.000)\quad (0.029)\quad (0.098)$$

Figure: 4.1. Illustration of logit regression results.

```
. logit WEE AGE EDUC FS MHMARST Y ASS S EX BUSPR EMOP

Iteration 0:   log likelihood = -152.68945
Iteration 1:   log likelihood = -43.065283
Iteration 2:   log likelihood = -36.364496
Iteration 3:   log likelihood = -31.479336
Iteration 4:   log likelihood = -30.531667
Iteration 5:   log likelihood = -30.504117
Iteration 6:   log likelihood = -30.504041
Iteration 7:   log likelihood = -30.504041

Logistic regression                               Number of obs   =        255
                                                  LR chi2(10)     =     244.37
                                                  Prob > chi2     =     0.0000
Log likelihood = -30.504041                       Pseudo R2       =     0.8002

------------------------------------------------------------------------------
         WEE |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         AGE |    .029105   .0352621     0.83   0.409    -.0400074    .0982175
        EDUC |   .8802688    .324578     2.71   0.007     .2441077     1.51643
          FS |   .3946791   .2238119     1.76   0.078    -.0439843    .8333424
     MHMARST |  -.4409597     .73776    -0.60   0.550    -1.886943    1.005023
           Y |   .0002821   .0001182     2.39   0.017     .0000505    .0005138
         ASS |   .0002122   .0001991     1.07   0.286     -.000178    .0006024
           S |   .0004679   .0002299     2.04   0.042     .0000173    .0009185
          EX |   .0001714   .0001401     1.22   0.221    -.0001031     .000446
       BUSPR |   .7167025   .5701073     1.26   0.209    -.4006873    1.834092
        EMOP |   7.749961   1.833604     4.23   0.000     4.156163    11.34376
       _cons |  -13.86422   3.673842    -3.77   0.000    -21.06482    -6.66362
------------------------------------------------------------------------------
Note: 0 failures and 3 successes completely determined.
```

4.7. 1.Binary logistic regression results and its interpretation

The odds of women's economic empowerment for/before benefiting OMO-MFIs services is -13.86 holding fixed explanatory variables. Therefore, in the study rural area, OMFIs program could bring economic empowerment.

As logistic regression result showed in figure. 4.4.1 the estimated odds ratio of age is 1.0004 for OMFIs service beneficiery indivituals' that each year increase in age increases women's economic empowerment by a factor of at least 1.004 times during intervention, this positive unitry elasticity/nearly elastic WEE to age afte intervention as age goes due work oppoetunity individual households exepriances positive earning. Threfore, for each year increase in age, marginal effect of the predicted probability of women's economic empowerment increase by the factor of 0.12% and insignificant at p-value (p=0.409) regardless of other explanatory variables since during intervention in OMFis program individuals age was taken to having work opportunity and positive business profitability the increase in age exepriences the increase of

economic empowerment, implies that age of respondent have positive impact on women economic empowerment during intervention, opposite observetion pointed out with Duflo(2005) observetion was made the positive correlation between female economic empowerment and their age during intervention. This argued by goodness of fit(Wald) test of data as in significant p-value(p=0.4o9) and small chi2=0.68.

```
. test AGE

 ( 1)  [WEE]AGE = 0

           chi2(  1) =    0.68
         Prob > chi2 =    0.4091
```

Regarding to educational qualification, educational level is positively associated with women's economic empowerment since education is base for development. At the predicted probability of 0.96, the odds of having unit grade level increase in education can brought log lielihood of women's economic empowerment by 2.52 folds higher than before intervention to OMFIs program. Thus education strong relation with women economic empowerment likewise strengthen their earing possiblities, the marginal effect of a unit grade level increase in education increases women economic empowerment by 3.06% folding other factors after availing to the institutions. This result argued by goodness of fit (Wald) test (WEE) EDUC=0, large chi square=5.81 and significant prob>chi2 value (p=0.017) shows strong relationship of education level and women economic empowerment. The reason behind is role of education enable to see successful venture of business to bring economic empowerment through developing skills and knowledge as similar observation was made by Duflo (2005). From this point discussion holding other explanatory variable remains constant, the effect of education had positive impact on women economic empowerment both before-after intervention , but after intervention it is more effective due to OMFIs services enhances the effectiveness of education on economic empowerment. To further understanding, correlation between education level and women's economic empowerment is 0.346 showed in figure below that positive association between education and women's economic empowerment. Therefore, log likelihood of education and OMFIs program have positive relationship on women economic empowerment during intervention.

```
. correlate WEE EDUC
(obs=255)

             |      WEE     EDUC
-------------+------------------
         WEE |   1.0000
        EDUC |   0.3460   1.0000
```

```
. test EDUC

 ( 1)  [WEE]EDUC = 0

           chi2(  1) =    5.81
         Prob > chi2 =    0.0159
```

Similar observation to education, family size of household is positively associated with women's economic empowerment after intervention to OMFIs program. Thus, the odd ratio of family size is 1.48, then the predicted probability of log likelihood of women's economic empowerment 1.48 folds higher after intervention to OMFIs program times versus female without children at home holding other effect considered to be neglected. Therefore, the marginal effect of a unit number increase in family size causes 1.37% increase in women's household economic empowerment, the reason behind is that as work opportunity increases, the family size acting as factor of production and increases level of economic empowerment at average family size of 4. This argued in goodness of fit test (Wald test). By comparing women's with and without children's at home at mean family size of 4, the odds of economic empowerment is/are estimated to be ≅1.48 folds for non family/children at home. The possible reason behind is the one possible extra production remaining lost.. Therefore, family size and OMFIs are negatively related before OMFIs intervention; while after intervention it has elastic effect on WEE at citrus paribus. This argued in goodness of fit (Wald) test as shown very large chi2 3.11 and significant p-value prb>chi2=0.078

```
. test FS

 ( 1)  [WEE]FS = 0

           chi2(  1) =    3.11
         Prob > chi2 =    0.0778
```

The family size and age of household had have negative relationship with women's economic empowerment before intervention to OMFIs program, but after intervention MFIs services acting

as a fulcrum for the probability to have positive effect at 5% and 10% significant level respectively.

Marital status of male headed households had had positive impact on women's economic empowerment before intervention at 1% significant level as shown in topic 4.5.1. But, after the intervention as shown in figure 4.4.1 below it has negative impact on women's economic empowerment at insignificant level as similar observation was observed by Bogalech and Mengistu, 2007 due to traditional culture male controls productive asset and perfect mobility of females from business activity. Therefore, the predicted probability log likelihood of women's economic empowerment dropout by 0.44 fold holds other explanatory variable remain constant . Therefore, during intervention in OMFIs even though economy experiences positive marginal empowerment in study area, male headed marital status negatively associated with their economic empowerment. The odds ratio of male headed households is 0.64, thus having male headed household economic empowerment versus female household head drops up by 0.0.64 folds during intervention in OMFIs program. The discrete marginal change of economy decreases by 1.5% having male headed households in line with finding was made by Bone, 2005 female headed household compared to male headed are relatively poor. Looking at the Goodness of fit (Wald) test there is evidence having insignificant large p-value (p=0.5986) and small chi-square (chi2=0.28) satisfy data. On contrary, female headed household ceases women economic empowerment on average amount by 1.12% due to at log likelihood of 0.98, the odds of having been economically empowered versus not economically empowered are 2.52 folds higher

```
. use "C:\Users\bire\Documents\AMU STATA DATA.dta", clear

. correlate WEE FHMAST
(obs=255)
```

	WEE	FHMAST
WEE	1.0000	
FHMAST	-0.0612	1.0000

H_{a1}: OMFIs program have significance relationship with Women's entrepreneurs in development.

The analysis result yield a large chi-squared value of goodness of fit (Wald) test of 14.1 and significant p-value of 0.002 the model fit the data. The regression analysis result indicate that statistically significant relationship between their economic empowerment and entrepreneur development indicate that OMFIs services have significant positive impact on business profit at 5% significant level rejects the null hypothesis stating that OMFIs services have no effect on entrepreneurs' development. This implies that there was significant relationship between MFIs and women economic empowerment indicator of entrepreneur development through business profitability. Therefore, to see the impact of OMFIs program in study area on women's economic empowerment as analysis result, the odds ratio of business profit is 2.05 that logodds of having business profit the expected probability women economic empowerment is/are mean average business profit is higher after intervention by 2.05 folds and the logodds of likely to crat job opportunity for 2321 workers after intervention to OMFIs program indicates that OMFIs program has positive impact on women economic empowerment entrepreneur development through enhancing the efficiency of business profit and creating employment opportunity this finding consistent with previous studies by S.Balamurugan (2012) in wondogenet, Ethiopia as found positive relationship between OMFIs and women entrepreneur development. It is argued by goodness of fit test as shown below significant p-value and large chi-square statistics

```
. test BUSPR

 ( 1)  [WEE]BUSPR = 0

           chi2(  1) =   14.10
         Prob > chi2 =    0.0002


. test EMOP

 ( 1)  [WEE]EMOP = 0

           chi2(  1) =   17.86
         Prob > chi2 =    0.0000
```

H_{a2}: OMFIs have contributed for mobilizing saving scheme for women's during intervention than before.

The model fit data very well, as McFadden's Pseudo R2=0.8002 and prob> chi2=0.000 that the 80.02% variation in women economic empowerment explained by given explanatory variables in

study rural area. In case of the annual saving scheme, it explains women economic empowerment at 5% significant level of p-value (p=0.025) in citrus paribus condition. Therefore, the odds ratio of saving is 1.0005 for having estimated logodds of economic empowerment increase by 4.7% folds higher than before. That is, the log likelihood probability of 0.97, a unit increase in annual saving led to increase of women's economic empowerment by$1.63*10^{-3}$%. This result show that OMFI program has significant effect in of saving in the study rural area to bring women economic empowerment at 5% significant level rejects the null hypothesis stating that OMFIs have no impact on women economic empowerment. This result argued in different test statistics, goodness of fit (Wald) test at significant prob>chi2 (0.025) and large chi2=5.05 were statistically significant at 5% significance level leading to the rejection of null hypothesis stating that OMFIs services have no significant effect on women's economic empowerment association to access to voluntary saving as similar observation were made as

```
. test S

 ( 1)  [WEE]S = 0

           chi2(  1) =    4.14
         Prob > chi2 =    0.0418
```

H_{a3}: OMFIs services have significance impact on women's independent income generation during intervention than before.

The positive outcome of a mentioned profitable venture of entrepreneur and employment opportunity led to increase in the income of clients. That the odds ratio of independent income generation is 1.0003, therefore, the estimated logodds of women's economic empowerment having independent income generation is $2.8*10^{-2}$ times stronger than before intervention to OMFIs program at 5% significant level rejects the null hypothesis stating that OMFIs program have no impact on independent income generation. The result argued by goodness of fit (Wald) test with OMFIs services explains variation in economic empowerment by 5.7% and significant p-value of (p=0.017) for similar understanding positive correlation between OMFIs services and independent income generation as given below.

```
. test Y

 ( 1)  [WEE]Y = 0

           chi2(  1) =    5.70
         Prob > chi2 =    0.0170
```

```
. correlate WEE  Y
(obs=255)

             |      WEE        Y
-------------+------------------
         WEE |   1.0000
           Y |   0.5001   1.0000
```

H_{a4}: OMFIs services have significance impact on client's productive asset prosperity.

Regarding to asset prosperity, as discussed male has controlling power on productive asset, there is weak elasticity of asset accumulation and effect of OMFIs services this also indicates successful women's economic empowerment is an increase in assets. The research analysis result showed that a good number of clients have accumulated asset of different kinds been indicated in summary statistics on average amount of 3672.94 per-annum that the odds ratio of asset prosperity accumulation is 1.000212. Therefore, the expected logodds of women's economic empowerment having asset by a factor of 1.0002 times higher than before intervention to OMFIs program, that the finding in line with S.Balamurugan,2012 wondogenet OMFIs service Ethiopia rejects the null hypothesis stating that OMFIs services have no impact on asset prosperity of clients' after intervention.

H_{a5}: OMFIs services have impact on smoothing expenditure of clients' household.

It is clear that from above findings as illustrated OMFIs service have impact on increasing on household income, saving mobilization, business profitability, employment opportunity led to smoothing the clients' expenditure that the odds ratio of expenditure is 1.000171 that the log odds of smoothing expenditure having as women's economic empowerment indicator increased by the factor of 1.00017 times higher than before joining. Therefore, OMFIs services have positive impact on women's economic empowerment indicator through smoothing households' expenditure; reject the null hypothesis stating that OMFIs services have no impact on clients' expenditure. Similar finding was observed by S,Balamurugan,2012 Ethiopia.

Figure. 4.4.1 Illustration of logistic regression results and interpretation

```
. logistic WEE AGE EDUC FS MHMARST Y ASS S EX BUSPR  EMOP

Logistic regression                             Number of obs   =        255
                                                LR chi2(10)     =     244.37
                                                Prob > chi2     =     0.0000
Log likelihood = -30.504041                     Pseudo R2       =     0.8002
```

WEE	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
AGE	1.029533	.0363035	0.83	0.409	.9607823	1.103203
EDUC	2.411548	.7827354	2.71	0.007	1.276482	4.555932
FS	1.483908	.3321163	1.76	0.078	.956969	2.300997
MHMARST	.6434187	.4746885	-0.60	0.550	.1515344	2.731971
Y	1.000282	.0001182	2.39	0.017	1.00005	1.000514
ASS	1.000212	.0001991	1.07	0.286	.999822	1.000603
S	1.000468	.00023	2.04	0.042	1.000017	1.000919
EX	1.000171	.0001401	1.22	0.221	.9998969	1.000446
BUSPR	2.04767	1.167392	1.26	0.209	.6698595	6.25945
EMOP	2321.481	4256.677	4.23	0.000	63.82615	84436.78
_cons	9.52e-07	3.50e-06	-3.77	0.000	7.11e-10	.0012765

```
Note: 0 failures and 3 successes completely determined.
```

4.8. Marginal effect analysis of explanatory variables

At the 96% predicted probability of women's economic empowerment for most clients at average age of 30.5 years, education level of 5-8 grade and they have average family size of 4.2, whose negative impact of male headship marital status, average annual income of 10638, asset accumulation of 3672.9, with annual saving 3345.1 and annual expenditure of 5107.84. It also more likely at mentioned predicted probability 77.26% self-employment opportunity and has 1.76 folds higher profitable business after availed to OMO-MFIs program.

Regarding to age of respondents',

For a unit grade level increase in education causes 3.6% increase in their economic empowerment at 1% significant level and p-value of (p=0.007). Thus, after intervention to OMFIs program, women's economic empowerment is more elastic to the education than before implies that education facilitate the effectiveness of economic empowerment that the finding in line with Somaya.A.A.A.M (2009).

Regarding to family size it is unlike to prior hypothesis expectation, a unit increase in family size is found to have positive effect on the probability of women's economic empowerment increases by 1.37% holding other variables constant that additional number of children brings additional income and act as labor force

Marginal effect of explanatory variables as determined from the marginal effect analysis figure 4.5 the average annual saving of 6945.88 increased by $1.63*10^{-3}$ for the one unit increase in saving. Therefore, and women's economic empowerment and OMFIs service have positive relation through average saving rate.

For the completeness of observation average annual expenditure of 6912.94 increases by $1.06* 10^{-4}$%, asset prosperity of 5086.67 increases by $6.59e^{0.06}$%, business profit of 0.76 increases by 0.28% and employment creation of 1.32 decreases by $2.3*10^{-1}$%. Since all these changes can only bring changes smaller than a unit OMO-MFIs in the study area could not bring women economic empowerment.

As determined from predicted probability the same way, marginal effect result showed that the mentioned probability of WEE the average voluntary annual saving of 3477.65 increases by $1.23*10^{-5}$%, similarly the average annual expenditure of 5215.69 increased by $4.68e^{-06}$ %, asset prosperity of 5086.67 increases by $6.59e^{0.06}$%, business profit of 0.76 increases by 95.9% and average employment creation of 1.32 increases by $2.3*10^{-1}$%. Therefore, the marginal change of mentioned explanatory variables can only bring smaller than a unit women economic empowerment, OMFIs in the study area could come with observable/marginal effect on their economic empowerment.

Figure. 4.5 Illustration of Marginal effect Estimation of the explanatory variables of logit model

```
. mfx compute

Marginal effects after logistic
      y  = Pr(WEE) (predict)
         =  .96392688
```

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
AGE	.001012	.00125	0.81	0.419	-.00144	.003465	30.4706
EDUC	.0306086	.02328	1.31	0.189	-.015015	.076232	2.05882
FS	.0137237	.01002	1.37	0.171	-.005916	.033364	4.22353
MHMARST	-.015333	.02679	-0.57	0.567	-.067836	.03717	1.55294
Y	9.81e-06	.00001	1.30	0.195	-5.0e-06	.000025	10638
ASS	7.38e-06	.00001	1.18	0.236	-4.8e-06	.00002	3672.94
S	.0000163	.00001	1.47	0.140	-5.4e-06	.000038	3345.1
EX	5.96e-06	.00001	1.01	0.314	-5.6e-06	.000018	5107.84
BUSPR	.0249211	.02352	1.06	0.289	-.021168	.07101	1.75686
EMOP*	.9307503	.08044	11.57	0.000	.77309	1.08841	.772549

```
(*) dy/dx is for discrete change of dummy variable from 0 to 1
```

***Significant at 10%, **significant at 5%, *significant at 1% significant level.

4.9. Comparison of socio-demographic variables impact on WEE before-after

As observed below in table 4.6.1 after intervention to OMFIs programs the age and family size of socio-demographic variables relatively positive impact on women's economic empowerment. Before intervention to OMFIs service for the economic activities the age and family size have negative impact on women's economic empowerment as discussed in sub topic 4.5.2 and 4.5.3. But, after joining the OMFIs program, since its services provide the high employment opportunity and positive business profitability age and family size experiences positive effect on women's economic empowerment due to through age goes on during intervention logodds of their economic empowerment increase by factor of 1.03 higher than before and marginal change of economic empowerment have also increased 0.12% as age increase by one unit. This implies that OMFIs service, age and women's economic empowerment goes together for the age, education and family size. But, male headed households' economy was adversely affected after intervention to OMFIs program because of traditional culture their husbands' control their perfect mobility from any economic activity as similar observation was made by Bogalech and Mengistu, 2007 in SNNP Ethiopia. Therefore, the odds ratio of male headed households is 0.64. For the expected probability of women' economic empowerment after intervention is decreased by 1.5% for the male headed some respondents answered due to husbands control over productive asset.

Table.4.6.1.Comparsion of before-after impact of socio-demographic variables on WEE.

Before intervention			After intervention	
	Odds ratio	Dy/dx	Odds ratio	Dy/dx
Age	0.97	-005	1.03	0.0012
Educ	2.03	0.118	2.4	0.30
Fs	0.85	-0.026	1.5	0.014
MhMarst	7.38	0.333	0.64	-0.015

CHAPTER FIVE

5. SUMMERY, CONCLUSION AND RECOMMENDATION

Summery

The term economic empowerment is difficult to generalize because it depends instead of individual economic concept. Since nowadays determining women's economic empowerment is a key vision of every developing countries in the MDGs that designs of MFIs strategies are act as an appropriate fulcrum to empower women's economy than before intervention to ensure self-employment, entrepreneur development, increasing income, saving and asset prosperity even though there is no common concuss among different academicians on the impact of MFIs program a solution or a problem for women's economic empowerment. For the purpose of the analysis, 255 household women's data were examined using descriptive frequency statistics for socio-demographic characteristics, summary statistics for economic variables and multiple logistic regression analysis for potential economic variables.

Therefore, this study attempted to investigate the impact OMFIs program on women's economic empowerment in Wolayta Zone, as representative population of Damot Gale and Damot Pullasa districts clients' Ethiopia that the finding in line with Asemelash (2010), Halvoet (2005) and Kabeer (2001) and Mayoux (2001) who suggested that MFIs program brings positive impact on women's economic empowerment through strengthening women's entrepreneurship in development, independent income generation, control over essential productive asset and/or not. However, the impact of OMFIs program in the study rural area based on regression result suggests it would be relevant to further investigation how OMFIs impact different dimension from what the researcher expected positive outcome women economic empowerment.

Conclusion

The researcher, in the binary logit regression model has tried to assess the empirical evidence with the impact of OMFIs services on women's economic empowerment on study rural area population. Accordingly, ten independent explanatory variables; four socio-demographic and six economic explanatory variables were entered into regression against dichotomous outcome dependent variable of women's economic empowerment. Therefore, the following major finding conclusions were made

Based on the descriptive statistics and logistic regression analysis the study has brought a significant empirical evidence that OMFIs contributed to women's economic empowerment since 80.02% variation in economic empowerment explained by OMFIs and 71.4% of households are economically better off during intervention than before while rest of members have no noticeable economic change.

Socio-demographic characteristics of household coupled with association of women in OMFIs exerted greater degree of effect on economic empowerment in study area as shown age has weak/marginal negative and family size has significant negative impact on their economic empowerment, but on contrary, the marital status of male headed and education level of respondents are positively significant effect on women's economic empowerment at 1% significant level.

From total sampled population, 71.4% of households become economically better off, while 28.6% have no noticeable economic change after joining the OMO-MFIs program in rural study area and 80.02% variation in women's economic empowerment explained by mentioned explanatory variables.

Age of respondent's weak/ marginal positive impact on their economic empowerment that a unit year increase in age causes odds of having economic empowerment increase by 0.97 times lower after the average age of 30.5 and/or marginal effect of a year increase in age increases their economy by 0.31% folds during participation at 5% significant level.

Education level has significant positive impact on women's economic empowerment that a unit increase in education causes odds of having women economic empowerment is 2.03 folds higher than non-educated women at average grade level of 5-8 grade and a marginal effect change in unit education level causes 0.31% increase in their economy at significant level of 1% and p-value of (p=0.000).

Regarding respondents demographic characteristics female headship marital status of household have positive impact on women economic empowerment at 1% significant level and p-value(p=0.000) that odds of having economic empowerment is 7.38 folds higher than female headed marital status of households. Their economies strengthening by 33.28% times been supporting with their husband.

Regarding to entrepreneurs' in development, OMO-MFIs plays pretty significant role by 77.26% self-employment creation opportunity at 1% significant level and p-value of (p=0.000) that odds

of having economic empowerment indicator of job opportunity for 197.013 clients among sampled populations and the different business were 1.8 folds profitable than before implies that OMO-MFIs program have positive impact on women's economic empowerment.

OMO-MFIs program exert significant positive impact on women's economic empowerment indicator of annual income generation after availing MFIs program having average annual income of 10638.04 that odds of having women's economic empowerment is

Regarding to the annual saving habit after intervention, OMFIs services have weak positive impact on annual saving in study area to exert on women's economic empowerment at average annual saving of 3345.098 that the odds ratio of saving increase by a one unit having women's economic empowerment increase by 1.00048 times higher than before. Marginal effect of a unit increase in annual saving increases their economic empowerment by $1.6*10^{-3}$% than before intervention.

It is significant in t-test that the average annual saving for economically empowered clients is 4350.545 higher than 838.3562 annual saving of economically non-empowered.

On basis of annual expenditure, economically better off members' an average annual expenditure is 6014.56 greater than economically non-empowered clients' average annual expenditure of 2847.26. This implies that the positive outcome of a given profitable venture of business and creation of self-employment opportunity demonstrates asset accumulation and hence OMFIs program renders increase in asset accumulation. Log Likelihood odds of having economic empowerment is 1.000198% times more likely higher than before during intervention in MFIs program. Therefore, unit changes in a year causes an increase in annual expenditure of 5.96e-06% during participation indicates that OMFIs program increases in economic empowerment women participant.

Recommendations:

Based on the findings and conclusions drawn, the following key areas are forwarded for the effectiveness of OMFIs services as a tool for women economic empowerment.

Since in the study area majority female are aged between 19 and 30 years who soon enter to adolescent need to improve educational level go beyond 1^0 and illiterate to develop their human capital since education is tool for empowerment.

To explore the profitable venture in the area of business operation, the relevant bodies must foster equal opportunity for female's headship productive asset that to increasing their employability potential and advance their wale fare.

The institutional training and advices are very necessary to put the loan/credit to the intended purpose and aim for effectiveness of programs positive outcome on women's economic empowerment.

There must be planned strategies to realize their full potential economic empowerment through identified economic empowerment indicator variables to have elastic outcome from OMFIs program impact.

Support female's economic empowerment through providing OMFIs services for better positive outcome to sustain and transitioning women's income generating activities in a subsequent to widow up economy from marginal range(inelastic) to sound(elastic)impact of OMFIs services on women's economic status.

Generally this study examined the impact of MFIs programs on WEE, but the customer or clients' side should be studied in order to have complete skeleton on WEE.

Further study should be needed for more investigation on impact of OMFIs on women economic empowerment to validate the consistency of my result or different dimension by relevant variables and can reason out the inelastic effect of OMFIs program on women's economic empowerment in study populations.

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APPENDICES

Appendix-1 Questionnaires for the study

I. QUANTITATIVE QUESTIONNAIRE TO BE FILLED BY OMFIs PROGRAM BENEFICIARY CONSENT FORM.

FIRST, THANK YOU FOR COMING TO GIVE THE VALUABLE & POSSIBLE RESPONSE IN YOUR BUS SCHEDULE. THESE ARE SELF- COMPLETING SURVEY QUESTIONNAIRE WHICH IS REQUIRED FOR CONDUCTING THE STUDY ON THE **IMPACT OF MFIs PROGRAM ON WOMEN'S ECONOMIC EMPOWERMENT**. PLEASE KEEP IN MIND THAT EVERY RESPONSE IS ANLY VALUABLE TO RESEARARCHER. THERE FORE THIS IS THE PART OF RESEARCH WORK OF ARBA MINCH UNIVERESTY, FACULTY OF BUSINESS AND ECONOMICS, DEPARTMENT OF ECONOMICS. SINCE THIS RESEARCH WORK WILL ASSESS THE EFFECT OF OMFI PROGRAM ON WOMEN'S ECONOMIC EMPOWERMENT, YOUR RESPONSE WILL SERVE ME AS A SOURCE OF RELEVANT INFORMATION TO THE RESEARCH AND ITS OUTCOME. ANY RELEVANT RESPONSE YOU PROVIDE HERE BY IS KEPT STRICTLTLY CONFIDENCIAL AND WILL BE USED EXCLUSIVELY FOR THE BETTER RESEARCH WORK. YOUR PURPOSEFUL HONEST RESPONSE IN THE FORM OF THE RIGHT ANSWER IS IMPORTANT FOR THE GOOD RESEARCH AND RELIABLEOUTCOME.

APPENDIX.I.THE QUESTIONNAIRIE THAT TO BE FILLED BY THE OMFIs PROGRAM BENEFICIARY.

Appendix. A. Socio-demographic characteristics of the respondents:-

A.1 sex of respondents: ☐ female

A.2. Age of beneficiary:

☐ B/n19-40years ☐ B/n 41-60 years ☐ $>$ 60 years

A.3.Breakdown level of respondents' educational qualification: ☐ uneducated

☐ 1^{st}-$4^{th} class$ ☐ $5^{th} - 8^{th} class$ ☐ $9^{th} - 12^{th} class$ ☐ College ☐ University

A.4. Marital status of the respondent:

☐ Single ☐ Married ☐ widowed ☐ divorced

A.5. Family size with age in years: 1-18 19-40 40-60 >60

Male= _____ _____ _____ _____

Female= _____ _____ _____ _____

Give total no. of family members also_____

APPENDIX.B. THE QUANTITATIVE QUESTIONNAIRE THAT FURNISHES WOMEN'S ECONOMIC EMPOWERMENT INDICATOR VARIABLES TO BE FILLED BY THE OMFIs PROGRAM BENEFICIARY.

B.1 A OMFIs program services strengthen and balance the beneficiaries' economic empowerment status. ☐ True ☐ False

B.2. Does participating in OMFIs program restricts from other better ways of empowering your economy?

☐ Yes ☐ No

B.3. If the answer in B.2 is yes what does the most prominent cause for your economic empowerment after participating in OMFIs program? (Multiple response possible)

☐ Government fund ☐ Family remittance ☐ Other borrowing source("edir" "ikub"

☐ Other(specify)_____

B.4 Please number the following issues in table according to economic empowerment impact importance. Place "1" for the issues that you think the most important impact, place "2" for the next most important impact and so on through to "4" the issues less important on economic empowerment after participating OMFIs program.

Issue	rating
From Government donation program(safety net, transfer payment)	
From Family transferred asset	
OMFIs program service(saving, loan etc)	
Other borrowing source	

B.5 which of the following economic empowerment variables do you think is the outcome of participating in OMFIs program services? (Multiple response possible)

☐ Development of Self-employed Small business ☐ Smoothing household Consumption

☐ increase in family Asset ☐ Increase in saving

☐ Increase in independent Annual income

B.6.Have you ever owned any self-employed small business before being client to OMFIs program?

☐ Yes ☐ No

B.7. If the answer in B.6 is yes, in which business did you engage?

☐ Agricultural sector ☐ Service/enterprisingsector

☐ Commercial sector ☐ Other(specify)_____

B.8 How many employed workers did you have in your business before joining OMFIs program? Including the owner, Total number_____

B.9 In which of the following types of self-employed business currently you are engaged after being member of OMFIs program? (Multiple response possible)

☐ Agricultural sector (like animal fatting, bee farming, crop production…)

☐ Commercial sector (like "Baltina" "Gulitti" trade, container shop, selling serials,)

☐ Service sector (like beauty salon, computer center)

B.10 ☐ Enterprise sector (like construction, wood &metal work, cobble stone work)

From the above economic activity you selected, how long your business have has been there?

☐ Between 1-5 years ☐ Between 6-10years ☐ more than 10 years

B.11 On average, is there any difference in your business activity after a clients' of MFI program? Since receiving credit, what has changed in your business activity?

☐ Increase in market share ☐ Expansion of business ☐ Addition of new product

☐ Increase in number of employees ☐ Other(specify)_____

B.12 what was the amount of the annual total revenue and number of employee before joining OMFIs program from your business?

Source of revenue	Net total revenue	No. of employee
From agricultural product		
From commercial activity		
From service/enterprise activity		

Other(specify:)		

B.13. Is there any change of the business after being client to OMFIs program service?

☐ Yes ☐ No

B14. If the answer in B.13 is yes, what is the net average total revenue and No. of employee in your self-employed small business after joining OMFIs services?

Source of income	Net total revenue	No. of employee
From agricultural product		
From commercial activity		
From service/enterprise activity		
Other(specify):		

B.15 Did you have ever annual saving in any financial institutions before joining OMFIs program? ☐ Yes ☐ No

B.16 when did you started own saving?

☐ After joining OMFIs program ☐ Before joining OMFIs program

B.17 Is there any change in your saving scheme after joining the OMFIs program?

☐ Yes ☐ No

B.18 If the answer in B17 is yes, for what purpose do you save?

☐ To expand business ☐ To repay other loan ☐ For household expenditure

☐ Other expenditures(specify)_____

B.19 what is the average annual saving amount (in birr) after joining OMFIs program**?**

☐ Saving after joining OMFI program (amount in birr) _____

B.20 Have you ever any source of income (in birr) before joining OMFIs program?

☐ Yes ☐ No If yes how much (in birr)_____

B.21 If the answer in B. 20 is yes, which of the following term/s was/were the most prominent source of your annual income before joining OMFIs program service? (Multiple response possible)

Source	Net annual income
From government donation	
From family transferred capital	
From agricultural product	
From service/ enterprising activity	
Form commercial activity	
Other borrowing program/institutions (ider ikub banks…)	

B.21 Have you changed your annual income after you have been OMFIs program service beneficiary? ☐ Yes ☐ No

B.22 If the answer in B.21 is yes which of the following item/s is/are possible source of income After being a member of OMFIs program? (Multiple response possible)

Source	Net annual income
From government donation	
From family transferred capital	
From agricultural product	
From service/ enterprising activity	
Form commercial activity	
Other borrowing program/institutions(ider ikub banks…)	

B.24. Did you have annual expenditure plan before joining OMFIs program?

☐ Yes ☐ No

B.25. If the answer in B.24 is yes for what purpose did you spend your income before joining OMFIs program

Expenditure item	Annual expenditure in birr
Immediate needs	
Strategic needs	
Consumption of goods	

B.26. Has there been any change in your expenditure after benefiting from OMFIs program service? (In birr)

☐ Yes ☐ No

B.27. If the answer in B.26 is yes, what is average annual expenditure (amount in birr)?

Expenditure item	Annual expenditure(in birr)
Immediate needs (like foods, clothing, healthcare, repairing houses, addition…)	
Strategic needs (like school fee, investment for business….)	
Consumption of goods: Asset(durable& non-durable)	

B.28. Did you ever own any asset before as participant of OMFIs program service?

☐ Yes ☐ No

B.29 If the answer in B.28 is yes, which of the following asset item did you own?(multiple response possible)

	Amount in number	Expected market price
Horse		
Mule		
Donkey		
Goat/sheep		
Cattle		
Other hhs assets		

B.30 Do you think there has been change of asset after joining OMFIs program?

B.31 ☐ Yes ☐ No If the answer in B.30 is yes, what is the annual expected increase in asset post of OMFIs program beneficiary? (Multiple response possible)

	Amount in number	Expected market price
Horse		
Mule		
Donkey		

Goat/sheep		
Cattle		
Other hhs assets		

በአሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ሴቶች የሚሞላ

ቃለ-መጠይቅ ቅጽ

በቅድሚያ ዉድ ጊዜዎን መስዋዕት በማድረግ ይህንን በአርባምንጭ ዩኒቨረሲቲ በቢዚነስና ኢኮኖሚክስ ኮሌጅ በድህረ-ምረቃ ፕሮግራም በሁለተኛ ዲግሪ ከኢኮኖሚክስ ትም/ርት ክፍል ለምረቃ የሚያበቃኝንን ጥናትና ምርምር ቃለ-መጠይቅ ለመመለስ ፍቃደኛ በመሆኑ አመሰግናለሁ፡፡

ይህ ቃለ-መጠይቅ ዋና ዓላማዉ **አሞ ማይክሮ ፋይናስ ተቋም አገልግሎት የተጠቃሚ ሴቶች ኢኮኖሚን በማነልበት ያለዉን ተጽዕኖ** በሚል ጥናትና ምርምር ርዕስ መሠረት ስለሚያደርግ የሚሰጡኝ ምላሽ ለትምህርት ዓላማ ብቻ የሚዉልና ለሌላ አካል ተላልፎ የማይሰጥ መሆኑን አረጋግጣለሁ፡፡

ስለዚህ ይህንን ቃለ- መጠይቅ ስሞሉ ከተሰጠዉ ሳጥን ወይም ሰንረዥር ዉስጥ ካለዉ ምርጫ አንድ ወይም ከአንድ በላይ መመለስ የሚቻል ስሆን ከተጠየቁት ዉጭ የራስዎን ሀሳብ መግለጽ አያስፈልግም፡፡

ክፍል.ሀ. አጠቃላይ አሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ሴቶች ማንነትዎን የሚገልጽ ቃለ-መጠይቅ

ሀ.1 ጾታ ☐ ሴት

ሀ2 ዕ.ድሜ ☐1 19-40 ዓመት ☐2 41-60 ዓመት ☐3 ከ 60 ዓመት በላይ

3. የትምህርት ደረጃዎን የሚያመለክት ሳጥን ‘‘X’’ ሚልክት ያደርጉ፡

☐0 አልተማርኩም ☐1 1ኛ-4ኛ ክፍል ☐2 5ኛ-8ኛ ክፍል ☐3 9ኛ-12ኛ ክፍል ☐4 ኮሌጅ/ዩኒቨረሲቲ

ሀ.4 የጋብቻ ሁኔታ ☐1 ቤተሰብ አስተዳዳሪ ☐0 ቤተሰብ አስተዳዳሪ ያልሆነች

ሀ.5 የቤተሴብ ብዛት

በዕድሜ	1-18ዓመት	19-40ዓመት	41-60ዓመት	60 ዓመት በላይ
ወንድ	_____	_____	_____	_____
ሴት	_____	_____	_____	_____

ክፍል.ለ. አጠቃላይ ስለአሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ኢኮኖሚን በማነልበት ያለዉን ሚና መሠረት የሚያደርግ ቃለ- መጠይቅ

1. አሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከሆኑ ስንት ዓመት ነዉ?

☐1 5 ዓመት በታች ☐2 5-10 ዓመት ☐3 ከ10 ዓመት በላይ

2 የአሞ ማይክሮ ፋይናስ ተቋም አገልድሎት የተጠቃሚዉን ኢኮኖሚ ለማነልበትና ለማሳደግ ከፍተኛ ሚና አለዉ፡፡

☐1 እዉነት ☐0 ሐሰት

3. የእርስዎ ኢኮኖሚዉን ለማነልበት አሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ መሆን ከለሎች የተሻለ ተቋም ወይም አማራጭ አገልግሎት ይከለክላል?

1 አዎን 0 አይደለም

4 በጥያቄ ቁጥር ለ.3 መልስዎ ‘‘አዎን’’ ከሆነ የአሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከሆኑ በኃላ ኢኮኖሚ እንዲጎለበት ዋነኛ አስተዋጽኦ ያለዉን ተቋም/ምንጭ ያመልክቱ፡፡

☐ ከመንግሥት ዕርዳታና ብድር ☐ ከቤቴሰብ ሃብት ዉርስ ☐ ለሎች ብድር ሰጭ ተቋማት(ዕድር፤ ዕቁብ)

☐ ለላ ካለ ይጠቀስ_____

_____

5. የእርስዎ ኢኮኖሚን ለመቆጣጠር በባሌቤትነት ሃላፍነት ያለዉ ማነዉ?

1 እኔ ራሴ እቆጣጠራለሁ 0 ትዳር ጓደኛ/ባሌበቴይቆጣጠራል

5 ከዚህ በታች ባለዉ ሠንጠረዥ ዉስጥ ካሉት ሀሳቦች በእርስዎ ኢኮኖሚ ዕድገት አስተዋጽዖ ደረጃ መሠረት ከ1ኛ-4ኛ ደረጃ ይስጡ፡፡

ሀሳቦች	ደረጃ 1ኛ___4ኛ
መንግሥት ዕርዳታና ብድር ፕሮግራም(ሰፍትኔት፤ ዕርዳታ)	
ከቤተሰብ ዉርስ	
አሞ ማይክሮ ፋይናስ ተቋም አገልግሎት	
ለሎች ብድር ሰጭ ተቋማት(ዕድር፤ዕቁብ)	

6 ከዚህ በታች ከተመከከቱ 5ቱ ሀሳቦች እርስዎ በአሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከሆኑ በኃላ የታዩ ኢኮኖሚዊ እንቅስቃሰ ለዉጥ ያመልክቱ፡፡ (ከአንድ በላይ መምረጥ ይቻላል)

☐ የሥራ ዕድል መፈጠር ☐ ዓመታዊ የቤተሰብ ፍጆታ መጨመር ☐ ዓመታዊ ቁጠባ መጠን መጨመር

☐ ዓመታዊ ገቢ መጠን መጨመር ☐ አላቅና ቋሚ ንብረት መጠን መጨመር

7. የአሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከመሆኑ በፊት የገቢ ምንጭ ግል ሥራ (ቢዚነስ) አለዎት?

☐ አዎን ☐ አይደለም

8. በጥያቄ ቁጥር 7 መልስዎ ‘‘አዎን’’ ከሆነ ምን ዓይነት የገቢ ምንጭ ግል ሥራ አለዎት?

☐ እርሻ ሥራ ☐ ንግድ ሥራ ☐ አገልግሎት፤ ጥቃቅንና አነስተኛ ኢን/ር ፕራይዝ

☐ ለላ ካለ ይጠቀስ_____

9. የኦሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከመሆኑ በፊት ከተሠማሩበት ሥራ ዓመታዊ ትርፍና ተቀጣሪ ሠራተኛ አለዎት?

☐ አዎን ☐ አይደለም

10. በጥያቄ ቁጥር 9 መልስዎ ‘‘አዎን’’ ከሆነ ከመረጡት ሥራ ዘርፎች ዓመታዊ ትርፍ (በጥሬ ገንዘብ) እና ተቀጣሪ ሠራተኛ (በቁጥር) ይገለፁ፡፡

የገቢ ምንጮች	ዓመታዊ ትርፍ (በጥረ ገንዘብ)	ተቀጣሪ ሠራተኛ ብዛት(በቁጥር)
ከእርሻ ሥራ(እርባታ፤ድለባ´ማሞከት፤ ንብ ዕርባታ፤ እህል ምርት……..)		
ከንግድ ሥራ (ባልትና፤ ምግብ ዓይነትን ማቀነባበር፤ሱቅ ሽቀጣሽቀጥ፤ጅምላ ንግድ….)		
ከአገልግሎት፤ ጥቃቅንና አነስተኛ ኢን/ር ፕራይዝ ሥራ(ሴቶች ዉቤት ሳሎን፤ ኮምፒተር ማዕከል፤እንጨትና ብረታብረት ሥራ፤ ግንባታ ሥራ፤ ድንጋይ ንጣፍ……..)		

11. የኦሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከሆኑ በኃላ በሥራዎና ትርፍ መጠን ለዉጥ አለ ብለዉ ያምናሉ?

☐ አዎን ☐ አይደለም

12. በጥያቄ ቁጥር 11 መልስዎ ‘‘አዎን’’ ከሆነ ከታዩ ለዉጦች ከሚከተሉት ሐሳቦች ’’X’’ ሚልክት ያደርጉ፡፡

☐ የገበያ ሽፋን ማደግ ☐ አዳድስ ምርቶች መጨመር ☐ ሠራተኛ ቁጥር መጨመር ☐ ነባር ሥራን ማስፋፋት

☐ ለላ ካለ ይጠቀስ_____

_____

13. የኦሞ ማይክሮ ፋይናስ ተቀም አገልግሎት ተጠቃም ከሆኑ በኃላ የታዩ ትርፍና ሠራተኛ ዕድገት ከዚህ በታች ባለዉ ሠንጠኛዦ ይግለፁ፡፡

የገቢ ምንጮች	ዓመታዊ ትርፍ (በጥረ ገንዘብ)	ሠራተኛ ብዛት
ከእርሻ ሥራ		
ከንገረድ ሥራ		
ከጥቃቅንና አነስተኛ ኢን/ር ፕራይዝ ሥራ		

14. የኦሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከመሆኑ በፊት ዓመታዊ ቁጠባ አለዎት?

☐ አዎን ☐ አይደለም

መልስዎ ’’አዎን’’ ከሆነ ዓመታዊ ቁጠባ መጠን ይጠቀስ(በጥረ ገንዘብ)_____

15. የኦሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከሆኑ በኃላ ዓመታዊ ቁጠባ መጠን ዕድገት አለዎት?

☐ አዎን ☐ አይደለም

16. በጥያቄ ቁጥር 15 መልስዎ ‘‘አዎን’’ ከሆነ ለምን ዓላማ ይቆጥባሉ?

☐ ነባር የንግድ ሥራን ለማስፋፋት ☐ የእርሻ ሥራ ግብዓት ፍጆታ ☐ የቤት ፍጆታን ለማሻሻል

☐ አገልግሎት; ጥቃቅንና አነስተኛ ኢን/ር ፕራይዝ

☐ ለላ ካለ

ይጠቀስ_____

_____

17. እርስዎ የኦሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከሆኑ በኃላ ዓመታዊ ቁጠባ በምን ያህል ጨምረዋል?

ዓመታዊ ቁጠባ መጠን (በጥረ ገንዘብ) ይጠቀስ_____

18. የኦሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከመሆኑ በፊት ተጨማሪ የገቢ ምንጭ አለዎት?

☐ አዎን ☐ አይደለም

19. በጥያቄ ቁጥር

18 መልስዎ ‘‘አዎን’’ ከሆነ ከዚህ በታች ባለዉ ሠንጠረዥ ከተጠቀሱ ገቢ ምንጮች ዓመታዊ ገቢ ይጠቀስ፡፡

የገቢ ምንጮች	ዓመታዊ ገቢ
ከእርሻ ሥራ	
ከንግድ ሥራ	
ከጥቃቅንና አነስተኛ ኢን/ር ፕራይዝ አገልግሎት ሥራ	
ከበተሰብ ዉርስ	
ከመንግሥት ዕርዳታ	
ከለሎች ብድር ሰጪ(ዕድር፤ ዕቁብ፤ ባንክ……)	
ለላ ካለ ይጠቀስ	

20. የኦሞ ማይክሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከመሆኑ በፊት ዓመታዊ ፍጆታ ዕቅድ አለዎት?

☐ አዎን ☐ አይደለም

21 በጥያቄ ቁጥር 20 መልስዎ ‘‘አዎን’’ ከሆነ ዓመታዊ ፍጆታወን ለምን ዓላማ ያዉሉ ነበር?(ከዚህ በታች ባለዉ ሠንጠረዥ ያመልክቱ)

ፍጆታ ዓይነት	የፍጆታ መጠን(በጥረ ገንዘብ)
መሠረታዊ የቤት ፍጆታ	
አላቅና ቀም ዕቃ ግዥ ፍጆታ	
የተለያዩ ከፍያ ፍጆታ(የትም/ርት፤የጤና….)	

ለእርሻ ሥራ ግብዓት ግዥ ፍጆታ	
ጥቃቅንና አነስተኛ ኢን/ር ፕራይዝ ሥራ ፍጆታ	
ጥቃቅንና አነስተኛ ኢን/ር ፕራይዝ ሥራ ፍጆታ	
ለላ ካለ ይጠቀስ	

22. የኦሞ ማይከሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከሆኑ በኃላ በዓመታዊ ፍጂታ ላይ ለዉጥ አለ ብለዉ ያምናሉ?

☐ አዎን ☐ አይደለም

23. በጥያቄ ቁጥር 22 መልስዎ ''አዎን'' ከሆነ ከዚህ በታች ባለዉ ሠንጠረዥ በተጠቀሱ ዓመታዊ ፍጆታ ዓይነቶች በምን ያህል ጨምረዋል?

ፍጆታ ዓይነት	የፍጆታ መጠን(በጥረ ገንዘብ)
መሠረታዊ የቤት ፍጆታ	
አላቅና ቀም ዕቃ ግዥ ፍጆታ	
የተለያዩ ከፍያ ፍጆታ(የትም/ርት፣የጤና….)	
ለእርሻ ሥራ ግብዓት ግዥ ፍጆታ	
ጥቃቅንና አነስተኛ ኢን/ር ፕራይዝ ሥራ ፍጆታ	
ጥቃቅንና አነስተኛ ኢን/ር ፕራይዝ ሥራ ፍጆታ	
ለላ ካለ ይጠቀስ	

24. የኦሞ ማይከሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ ከመሆኑ በፊት የግል ንብረት አለዎት?

☐ አዎን ☐ አይደለም

25 በጥያቄ ቁጥር 24 መልስዎ ‘‘አዎን’’ ከሆነ ከዚህ በታች ባለዉ ሠንተረዥ ከተጠቀሱ ንብረት ዉስጥ ይጥቀሱ፡፡

የንብረት ዓይነት	ብዛት
የቀንድ ከብት - በሬ/ ላም	
-ፍየል/ በግ	
የጋማ ከብት -ፈረስ	
-በቅሎ	
-አህያ	
አላቅና አላቅ ያልሆኑ ዕቃዎች(ቲቪ፣ እርሻ መሬት፣ ቤት፣….) በጥረ ገንዘብ ይጥቀሱ	
ለላ ካለ ይጠቀስ	

26. የኦሞ ማይከሮ ፋይናስ ተቋም አገልግሎት ተጠቃሚ መሆን ንብረትዎ እንድጎለብት ተጽዕኖ ያደርጋል፡፡

☐ እዉነት ☐ ሐሰት

27.በጥያቄ ቁጥር 26 መልስዎ እዉነት ከሆነ በታች ካለዉ ሠንተረዥር ከተጠቀሱ ንብረት ዉስጥ ይጥቀሱ፡፡

የንብረት ዓይነት	ብዛት
የቀንድ ከብት - በሬ/ ላም	
-ፍየል/ በግ	
የጋማ ከብት -ፈረስ	
-በቅሎ	
-አህያ	
አላቅና አላቅ ያልሆኑ ዕቃዎች(ቲቪ፣ እርሻ መሬት. ቤት፣….) በጥረ ገንዘብ ይጥቀሱ	
ለላ ካለ ይጠቀስ	

Appendix-2 conversion factor of livestock

Animal category	TLU
Cow/ox----------	1.00

Horse----------1.10

Donkey(adult)----------0.70

Donkey(young)----------0.35

Mewl(adult)----------

Mewl(young)----------

Sheep/goat(adult)----------0.13

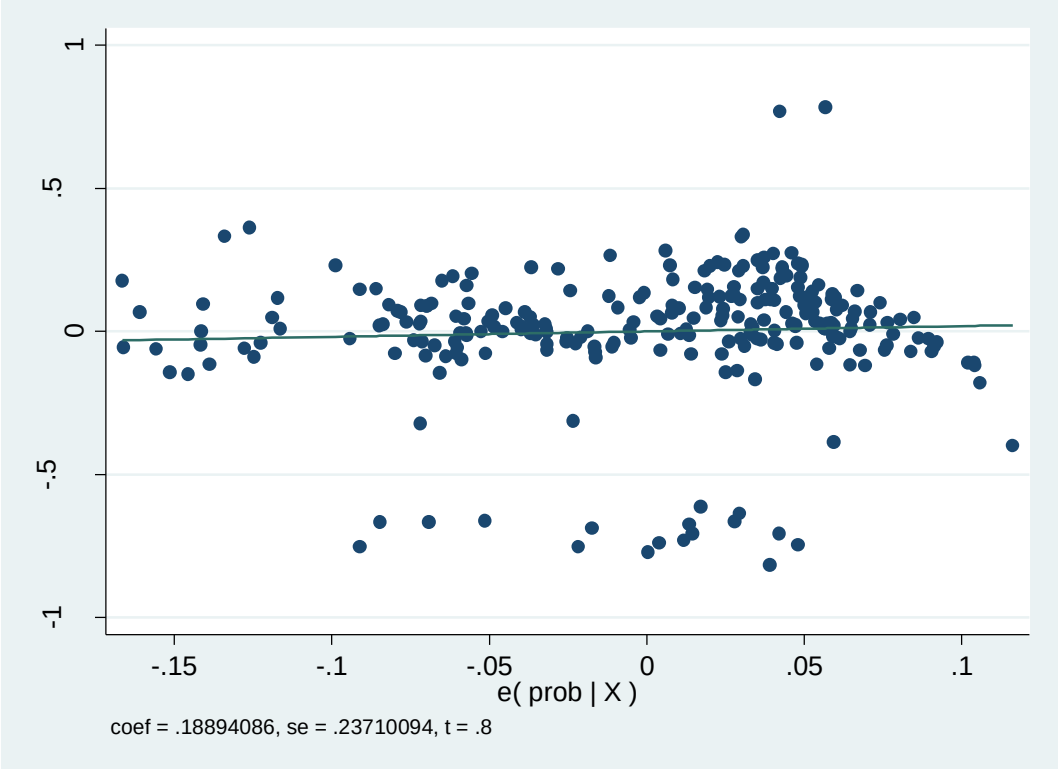
Sheep/goat(young)----------0.06

Chicken……0.013

Appendix 3.Pre-pilot test for reliability and validity of data measurement

. alpha WEE age educ fs y ass s exp buspr empop
Test scale = mean(unstandardized items)
Reversed items: age lclyr
Average interitem covariance: 5355157
Number of items in the scale: 13
Scale reliability coefficient: 0.8126

Appendix 4. graphical representation of fitness of model error term with fit line


1
.5
0
-.5
-1
-.15
-.1
-.05
0
.05
.1
e(prob | X)
coef = .18894086, se = .23710094, t = .8

Appndix.5.chi2 estimation for dummy variables

A.Test Statistics

			AGE	EDUC	FS	MARSTAT
Chi-Square			143.949[a]	5.765[c]	239.051[d]	83.902[a]
df			3	4	10	3
Asymp. Sig.			.000	.217	.000	.000
Monte Carlo Sig.	Sig.		.000[b]	.200[b]	.000[b]	.000[b]
	95% Confidence Interval	Lower Bound	.000	.151	.000	.000
		Upper Bound	.012	.249	.012	.012

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 63.8.

b. Based on 255 sampled tables with starting seed 2000000.

c. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 51.0.

d. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 23.2.

B.MARSTAT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	single	86	33.7	33.7	33.7
	married	108	42.4	42.4	76.1
	widowed	49	19.2	19.2	95.3
	divorce	12	4.7	4.7	100.0
	Total	255	100.0	100.0	