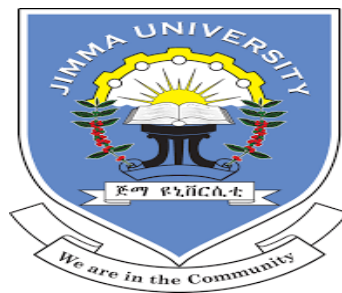


**IMPACT OF MICRFINANCE ON POVERTY
REDUCTION: CASES OF OMO
MICROFINANCE INSTITUTIONS IN
HOSSANA TOWN.**

**BY
BIRHANU HANKAMO**

**Thesis Submitted To School Of Graduate Studies Of
Jimma University In Partial Fulfillment Of The Award
Of The Degree Of Master Of Science In Economics
(Economic Policy Analysis).**



**JIMMA UNIVERISTY
COLLEGE OF BUSINESS AND ECONOMICS
MSC IN ECONOMICS (ECONOMIC POLICY ANALYSIS)**

MAY 30, 2016

JIMMA, ETHIOPIA

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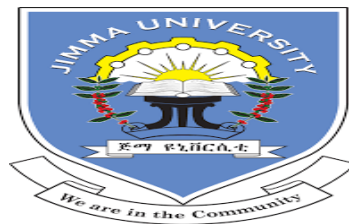
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MAY 30, 2016

JIMMA, ETHIOPIA

Approval sheet-1

This is to certify that the thesis entities “The impact of microfinance institutions in poverty reduction: n the case of Omo Microfinance Institution in Hossana town”, Sub mitted to Jimma University for the award of the Degree of Masters of Economic (in Economic Policy Analysis) and is a record of confide research work carried out by Mr. Birhanu Hankamo Kintamo, under our guidance and supervision

Therefore, we hereby declare that no part of this thesis has been submitted to any other University institutions for the award of any degree of diploma.

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Mr. Jibril H.	-----	-----

Approval sheet -2

We, the undersigned members of the board of examiners read this thesis entitled “The Impact of Microfinance in Poverty Reduction: In the Case of Omo Microfinance Institution in Hossana Town, Haddiya Zone” and evaluated the final open defense made by Birhanu Hankamo Accordingly, we examined the candidate and therefore we certify that it is suitable for submission for the MSc Degree in Economics (Economic Policy Analysis)

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DECLARATION

I, hereby declare that this thesis entitled “The impact of microfinance in poverty reduction: In case of Omo microfinance Institution in Hossana Town”, has been carried out by me under the guidance and supervision of Dr. Jemal Abafita and Mr. Jibril Haji.

The thesis is original and has not been submitted for the award of diploma any university or instructions.

Researcher’s name

Date

Signature

Birhanu Hankamo Kintamo

Abstract

*Poverty is a harsh and undesired phenomenon in mankind. Reducing, if possible eradicating poverty is unquestionable. Microfinance programs have been considered as one of the main instruments in poverty reduction in recent development agenda. It is a means to support the marginalized active poor of the society. The main objective of this study was to investigate empirically the impact of Omo microfinance institutions on **poverty reduction** at household level referencing Wachamo surrounding Omo microfinance institution. Mainly primary data was collected through structured questionnaire from 200 households by selecting 90 OMFI participants and 110 non-OMFI participants from two sub cities using random sampling methods. Propensity score matching (PSM) was used to assess the impact of OMFI on household income, expenditure, saving and asset accumulation value. The estimation **ATT** results from **PSM** output show that participation in OMFI had brought significant impact on household income, saving and aggregate expenditure and asset accumulation value. Further, **sensitivity analysis** test on estimated **ATT** result shows effect of MFIs was insensitive to unobservable selection bias; even the two group allowed to differ in their odds of being treated up to 220% in terms of unobserved in which implying that being pure effect of program intervention. Thereby, improving living standard of participant and as far as ATT result was the only effect of intervention, thus microfinance intervention reduce poverty at household level. It can be recommended that, importance of microfinance in poverty reduction is of immense benefit to the participant households in study areas. Therefore, there is the need to help sustain it and help its growth as its role to the development of the Hossana town and the country at large is very good.*

Key words: Microfinance, poverty reduction and PSM

Acknowledgements

First, I wish to thank God Almighty for giving me good health, strength and protection during the course of this thesis. Without such spiritual nourishment, it would have been impossible to achieve anything. Praise the Lord and next many people have helped me to accomplish this paper. I am great full to all who supported me to in this paper. I especially thank my advisors D/r Jamal A. & Mr. Jibril H. for their willingness to help me and provide technical support and constructive advices and comments. I also extend my deepest thanks to Mr. Yedeta Bekela (MSc.), lecturers at Jimma University, college of Agriculture and veterinary medicine. His comments, suggestions and advices have been very useful inputs that have improved the quality of my work.

My gratitude also goes to my classmate tesfaye Melaku, Tolosa soressa and Abeli Wudinehi for their comments and encouragement when I was in need of their assistance. I further extend my thanks to all staffs of Omo microfinance institution both in the main and sub-branch officers provided me the available information. It is also my pleasure to transfer my gratitude to my lovely wife, family and friends for their support in all matters. I never forget their contribution.

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Acronyms /Abbreviation

AEMFIs	Associations of Ethiopian Microfinance Institutions
AIMS	Assessing the Impact of Microfinance Services
ATE	Average treatment effect
ATT	Average Treatment on Treated
CSA	Central Statistical Agency
CGAP	Commutative Group to Assess on Poverty
IMF	International Monetary Fund
MF	Microfinance
MFI	Microfinance Institutions
MDGs	Millennium Development Goals
SDPRP	Sustainable Development and Poverty Reduction Strategy Program
WB	World Bank
WDR	World Development Report
UNDP	United Nation Development
USAID	United States Agency for International Development
MOFED	Ministry of Finance and Development
OMFIOPM	Omo microfinance operational manual
OCSSC's	Oromia Credit and Saving Shares Company
DESSI's	Dedebit Credit and Savings Institution
PSM	Propensity Score Matching
SEEP	Small Enterprise Education and Promotion

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Poverty remains a global problem of huge proportions of populations in world, which needs a great attention to reduce it. As of world development reports of 2000/2001, it haunts the lives of billions of people around the world. Besides of its broad, multifaceted and multidimensional concept it involved in the economical, social, political and environmental well-being of the people (WB, 2002). Beside Ethiopia is one of the poorest countries, poverty cases a multi-dimensional problem and it was identified as insufficient source of income, lack of asset, poor health status and poor education level (Bisrat, 2011). In fact that, lack of income followed by low living standard. For example low income result in reduction expenditure, poor health leads being lack of productive and lack of education followed by lack of skill in man power. According to World Bank (2004), poverty is the manifestation of developing world Eradicating or reducing it was the greatest single challenge in low and middle income countries.

Over the past two ten years, both Ethiopian government and international organizations have been launching various policies to achieve fast and sustainable economic growth so as to eradicate poverty. In the 1970s the biggest developments in microfinance occurred for the poor people. Microfinance movement has come a long way since Muhammad Yunus first provided financing scheme to the poor in Bangladesh (Aghion & Morduch, 2005). According to Wolday (2001), one of the policy or strategy that contributes to reduce poverty was microfinance and also it is an important tool in the poverty eradication programs.

In Ethiopia, the poverty reduction strategy is becoming the operational framework to translate the global Millennium Development Goals (MDGs) targets in to national action (UNDP, 2003). MDGs document recognizes microfinance as a powerful instrument to alleviate poverty and empower the poor. The formal microfinance industry began in Ethiopia in 1996 with the government's the Licensing and Supervision of Microfinance Institution Proclamation designed to encourage MFIs to extend credit to both the rural and urban poor of the country. Now a day there are 31 licensed MFIs reaching about credit clients and some saving clients in both urban and rural areas (Deribie et.al, 2013). The eradication of poverty continues to be a top political agenda in most developing countries. Though provision of financial services to poor people that have been excluded from the

formal financial sector for so long, microfinance aims at poverty alleviation. Micro-finance is an opportunity to the poor. It provides credits and savings services to the self-employed to enable them to start-up or expand small income generating activities.¹ Also in Ethiopia these institutions aimed at poverty alleviation by targeting specific groups particularly poor. The delivery of financial services is based on creating sustainable microfinance institutions using innovative methodologies and systems, which can deliver services to recover loan at lowest cost (Wolday, 2001).

After introduction of proclamations No. 40/1996, one of the MFI established in Ethiopia is Omo Micro Finance Institution S. C (OMFIs), as part of national food security programme by the regional government, and accordance with the licensing and supervision of micro financing institution. The scheme was launched as pilot in four district of the regional state. It was originally established as Nongovernmental organization in 1997 (Deribie et.al, 2013). Today it operates in all zones in the region with a mission to contribute its part in the effort to bring about accelerated and sustainable financial service to economically active poor people through efficient, effective and effective collaboration with government and non-government organization. Total Number of Woredas Covered so far is 52 Woredas in 9 branches. It provides financial services to active poor peoples in southern regional states both in urban and rural areas (OMFI, 2013).

Poverty in urban area is equally detrimental as that of rural areas due to population growth and rural-urban migration. People migrate to urban areas with the hope of searching good facilities such as pure water, electric city and the likes. This has led to the concentration of poverty in urban areas. Hossana is one of the largest urban centers in southern Ethiopia. The town for the most part came in to its present shape during the Italian Occupation. The town covers a total area of 3850.2 km². Commerce is the main economic activity in the town. The total population of the town is estimated to be 100,531 (HZoFED, 2006)². Like other urban areas in Hossana the shortages of housing supply for urban poor that resulted from stagnant urban economy. Although there is low income at house-hold level due to this there were low saving and low consumption level and also many of Hossana town dwellers living standards not far from hand to mouth.

Currently Omo microfinance institution with Wachamo surrounding sub-branches is operating in

¹ www.lifeinafrica.com/microfinace/ accessed in ,2016

² Haddiya zone finance and development office (2006) statistical abstract bulletin

Hossana town. The sub-branches operate in respective sub-city (kifela-ketama); omo microfinance institution operating in Govermeda sub-city, sechi-duna sub-city and addis sub-city. The institutions established with the major objective of poverty alleviation through provision of productive credit to the poor. Hence, this study mainly focused on investigating the impact of this institution in carrying out their real objective of accessing credit to marginalized urban poor and poverty reduction using household cross-sectional data from Hossana town.

1.2. Statement of the problem

Poverty is a broad, multifaceted and multidimensional concept that involves economical, social, political and environmental well-being of the people (WB, 2002). Developing countries were developed their own national poverty reduction strategies based on local needs and priorities (UNDP, 2003). In this respect, Ethiopia was one of the poorest countries were developed own national poverty reduction strategies (WB, 2004). According to (Wolday, 2001) microfinance institutions were one of the strategies that help to reduce poverty and also it is an important tool in the poverty eradication programs. However, formal MFIs started in Ethiopia since 1996, provides financial and non-financial service to low income peoples in both urban and rural with aim of poverty reduction (Deribie et.al, 2013).

Though, studies by Asmelash, 2003 and Mebratu, 2008 investigated empirically impact of microfinance institutions in poverty reduction. Their finding reveals that microfinance brought positive and significant impact on the living standard of its participant. Meanwhile, the studies report the current expenditure status of the participants, but give no ideas on the condition of those clients before joining the program. Although, according to Mebratu (2008) poverty in Ethiopia were problems in both rural and urban, but in urban increase in number due to rural-urban migration at least by the amount of the new comers whose needs are not accommodated, in addition to deepening poverty of the existing urban poor. The same author reports that, as more and more people come to the urban area and take their share from the insufficient opportunities available for the existing urban poor, availability of these opportunities minimizes. This increases the number of the urban poor at least by the amount of the new comers. In addition it deepens poverty or the existing urban poor (Mebratu, 2008).

Moreover, study by Bisrat (2011) demonstrates positive impact of microfinance on its participant but not estimates average effect of the intervention regarding to pre-intervention. Hence, this study help in reducing the output bias using matching algorisms and also help to see the only effect of

program intervention among the participant. Though, comprehensive impact assessment research has not yet been conducted to prove it. Very limited researches towards improving the financial sector have been observed (Wolday, 2003). Hence, OMFIs has not undertaken a favorable impact assessment study to evaluate whether or not its interventions leads to change by comparing the conditions without the intervention and more importantly in Haddiya zone even in SNNPR, where this study is to be conducted, study are almost nil. Thus, the study initiated to contribute same information to the existing knowledge on impact studies on OMFIs SNNPR specifically in Hossana town sub-branch. That is, the study was focused on the impact of OMFI on selected welfare of participant households with respect to non-participant households.

Research Questions

In a study of impact evaluation the study has the following research questions to be developed to solve the problems:

- What is the difference in living standard between participant and non-participant of omo microfinance institutions?
- What is the impact of omo micro-finance on poverty reduction at household level?

1.3. Objective Of The Study

1.3.1. General Objective

The Main objective of the study is to analyze the impact of microfinance on poverty reduction at household level with reference to Omo microfinance institution in Hossana town, south nation nationality and peoples region, Ethiopia.

1.3.2. Specific Objectives of the Study

- 1). To examine whether microfinance brought significant differences in livelihoods of participant compared to non-participant;
- 2). To assess the impact of omo micro-finance on poverty reduction at household level;
- 3). To forward policy implication and recommend possible solutions to concerning bodies

Hypothesis Testing

The main hypothesis of the study is micro-finance expected to significantly reduce poverty at household level.

1.4. Significance of the study

Institutionally Microfinance is lately emerging phenomenon which had not been given due attention in earlier development paradigm, particularly in Ethiopia. As a result, limited comprehensive impact assessment studies have been undertaken in this area. This study will help to formulate pragmatic approaches in scrutinizing whether microfinance schemes help to reduce poverty. As reducing poverty is top most agenda in Ethiopian Government and relatively huge resource is earmarked to the microfinance sector, there is a need to continuously assess its impact. This case study has attempted to address the lacuna of research on the impact of micro financing programs at household levels and its role in combating poverty. Thus, the study contributes same information to the existing knowledge on impact studies on OMFIs in SNNPR specifically in Hossana town sub-branch.

1.5. Scope and Limitation of Study

The scope of this study was restricted to assessing impact of microfinance in poverty reduction in cause of OMFI's participants and non-participants. The study was conducted in Hossana town, Haddiya zone of SNNRS in Ethiopia. The study subjects are limited to household beneficiaries and not on the lending institution. It only focuses on one MFI and very limited sample size.

The other limitation of the study the survey household methodology included the estimated impact demand on the variables used for matching and the quality and quality of available data. In addition, procedures to estimate any sample selection bias depends on observable variables and if there are vital unobservable variables in the model, the estimate results likely to be biased (Ravallion, 2008).

The data were obtained from two sub city service delivery posts at Hossana town that of Wachamo surrounding OMFI operates. The service delivery posts would be limited to selected Keble due to logistical limitations. Since the research conducting would be an academic research that should meet the deadline set by the University and this all reduce the freedoms of the researcher not expand the area as wishes.

1.6. Organization of the Paper

This research paper is organized into five chapters. The first chapter deals with background, statement of the problem, and objectives of the study, significance, limitation and scope. The second chapter dealt with theoretical and empirical literature and analytical framework of the study. Whereas, chapter three research methodology and Chapter four conclusion and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter presents relevant literature and concepts of microfinance and poverty. First provides theoretical literature, which consist of definition of microfinance and poverty and finally, it depicts about empirical evidence on related topics.

2.1. Theoretical Literature

2.1.1. Definition and Concepts

Before assessing the impact of any institution on poverty, it is important to understand the concept of poverty and its relative definitions. Global economy was characterized by the division of rich and poor. The haves lead a luxurious life while the have-nots suffer from lack of decent, healthful and productive life (Todaro, 1997). Hence, as reported by World Bank (1990) poverty is a shortage of having enough to eat, a low life expectancy, a high rate of infant mortality, low educational standard, low enrolment and opportunities, poor drinking water, inadequate health care, unfit housing conditions and lack of active participation in a decision making process.

Although, in developing countries almost half of populations were living below poverty line, the highest incidence of poverty is observed in sub-Saharan Africa (WB, 1991).

Once a person or community falls below a certain level of resourcefulness, a chain of events starts to occur that tends to perpetuate the situation; progressively lower levels of education and training leading to lack of employment opportunities, leading to low income and investments. This cycle continues until someone intervenes by providing worthwhile means (not handouts) for people to climb out of destitution, and by ensuring children's health and education³. The poor often lack adequate food, shelter, education, health and deprivations that keep them from leading the kind of life that everyone values (WDR, 2000/2001). In addition to this, poor face extreme vulnerability to ill health and economic dislocation. According to world development report the integrated components which connect or disconnect vicious circle of poverty are income, saving, investment and productivity. If circle the component has improved, the circle may be disconnected. Otherwise

³ <http://www.businessdictionary.com/definition/poverty-cycle.html#ixzz3qGFSe6Mp/> accessed in,2016

the circle of poverty continues (WDR, 2000/2001).

Poverty is mostly the manifestation of developing countries; Ethiopia is among the developing countries in the world facing severe poverty. It ranks 169th out of 175 countries (UNDP, 2003). Poverty remains a threat to the political, economic and social stability of the country.

In addition to this, the socio-economic situation of the country is characterized by low growth of income, inadequate social services, high population growth rate, economic inefficiency and high unemployment rate (Wolday, 2003). Most of the poor are women, children, the elderly, small-scale farmers and unskilled workers. These people lack the financial capacity to meet the minimum standards of living (AEMFI, 2005).

Access to institutional credit that contributes to an increase in investment and disconnects the vicious circle of poverty is very limited in Ethiopia. The majority of the poor get access to financial services through the informal channels (Wolday, 2003). However, Poverty alleviation has remained a very complex and critical concern among third world countries for a long time (Rao and Bavaiah, 2005). It has been at the top of the agenda for policy makers and development workers. Thus, a large number of governmental and non-governmental organizations and international funding agencies all over the world have been engaged in attacking poverty using several strategies and instruments (Rao and Bavaiah, 2005).

According to MOFED (2002), the two institutions reached to an agreement that country owned poverty reduction strategies be the basis for World Bank and IMF concessional lending and guide the use of resources freed by debt relief under the enhanced HIPIC initiative.

Thus, this was the genesis of poverty reduction strategy at the global level World leaders agreed to a set of time-bound and measurable goals and targets for combating poverty and hunger. This is called millennium Development Goals (MDG). Among eight specific crosscutting and interrelated Millennium Development Goals endorsed by all members of the United Nations the first goal was to reduce poverty⁴. However, first seven goals focused on the duties of poor countries to meet the goals (UNDP, 2003). Poverty is again severing problem in developing world.

Ethiopia is one of the developing countries, were developed a poverty reduction strategy paper (PRSP). Thus, PRSP is becoming the operational framework to translate the global MDG targets

⁴ Millennium Goals: #1--To reduce the proportion of people living in extreme poverty by half between 1990 and 2015

into national actions. This document is serving as a practical building block to address the poverty challenges (MOFED, 2002). In Ethiopia's development policies, strategies and programs adopted since 1992/93 have been concerned with how to bring sustainable and equitable development and then reduce poverty. With the above objectives, Ethiopia has formulated a Sustainable Development and Poverty Reduction Strategy Program (SDPRP) in 2002.

The government of Ethiopia has taken encouraging steps by privatizing the nationalized institutions and facilitating the establishment of new organizations. One of the outcomes is the liberalization of the financial sector and the establishment of legal framework that allows the emergence of microfinance institutions to serve poor households (Tsegaye, 2005). The government tries to solve the problem of financial access to the poor by promoting the microfinance institutions. Microfinance is seen as one of the most efficient instruments to promote economic development and to fight poverty in poorer countries (Deribie et.al, 2013). Hence, the introduction of microfinance will have a significant effect in reducing poverty at macro and micro levels (Wolday, 2003).

2.1.2. Overviews of Microfinance

Although the development of microcredit, as we know today, is relatively a recent phenomenon; studies show that it has been practiced (for example in Irish Loan Fund and FWR) for more than three centuries and also introduced into Asia (e.g. the people credit Bank) and Latin America in the 19th century (CGAP, 2003).

The failure of commercial banking to provide financial services to the poor coupled with disadvantages of using informal markets are major rationales for intervention in the market for financial services at the micro level (Ledgerwood, 1999). Consequently, microfinance emerged as an economic development approach intended to address the financial needs of the deprived groups in the society (Ledgerwood, 1999). Economics for microfinance demonstrate that origin of microfinance can be founded in many places, but the best known history is that Muhammad Yunus and the starting of Bangladesh's Gremmen Bank in 1996, Yunus started a series of experiments lending to poor households in the near village of Jobara⁵. According to Zaid (2008), microfinance emerged in Ethiopia since the cataclysmic drought of 1984/85 many NGOs and donors have endeavored to pump financial resources in to village economies without actually making out and prioritizing the actual felt needs of households. Microfinance is an economic development approach

⁵ de Aghion, Beatrice and J. Morduch (2005): The Economics of Microfinance, The MIT Press, Cambridge

that involves providing financial services, through institutions, to low-income clients, where the market fails to provide appropriate services (Otero, 1999 p.8). As reported by Narayana (2005) all microfinance institution in the world focus on providing credit service to rural and urban poor households which unemployed, underemployed and small entrepreneurs, their emphasize first, in developing income activities by providing critically needed credit facilities and technical support to the poor and then saving mobilization.

The delivery of financial services have been accepted as one of the poverty reduction tools in the development paradigm; because it helps the poor to increase income, improve educational and health status, improve housing condition, empowers the poor, provides confidence and social esteem if it is realized appropriately (Wolday, 2003). By so doing, credit helps the poor to diversify income sources, to smooth consumptions, to own both durable and non-durable asset. Moreover, credit would create economic power that power would generate into social power, left the poor from poverty (Robinson, 2001). In Ethiopia after the proclamation No.40/1996, there are 31 legally registered MFIs (Deribie et.al, 2013). One of the Microfinance institutions in Ethiopia is Omo microfinance institution S.C (OMFIs) licensed as per this proclamation were started its operations since 1997. Like others the institutions have goal of poverty reduction through provision financial and non-financial services to poor in both rural and urban area of south nation, nationality and people regional states.

2.1.3. Microfinance and Poverty Reduction

The term microfinance refers to small-scale financial services- primary credit and savings- provided to people who operate small enterprises, provide services, fish farm or herd, and to other individuals or groups at local level of developing countries both rural and urban areas (Robinson, 2001). Mostly the term microfinance refers to the provision of financial services to low-income clients; however some microfinance organizations also provide insurance and payments. In addition to financial intermediation⁶, many MFIs provide social intermediation services such as group formation, development of self-confidence, and training in financial literacy and management capabilities among members of a group. Thus the definition of microfinance extends to include both financial intermediation and social intermediation. Furthermore, microfinance is not simply banking; it is a

⁶ The process of saving, lending and borrowing is called financial intermediation, and the institutions that enables this to takes place by bringing savers and borrowers with different needs in space and time are called financial intermediaries.

development tool as well and as such, its activities also involve provision of small loans, typically for working capital; informal appraisal of borrowers and their investments; collateral substitute, such as group collateral or compulsory savings, secured savings products etc (Ledgerwood 1999). Wolday (2001) also defined microfinance based on its main characteristics: it's targeting of the poor, promoting small business, building capacity of the poor, extending small loans without collaterals, 18 combining credit with savings, and charging commercial interest rates. Saving services allow savers to store excess liquidity for future use and to obtain return on their investment. On the other hand, credit services involve the use of anticipated income from current investment or consumption.

Generally microfinance helps low income people reduce risk, improve management, raise productivity, obtain higher return on investment, increase their income, and improve the quality of their lives and those of their dependants (Robinson, 2001). Accordingly, microfinance programs have recently been considered as an important instrument to attain the poverty reduction objectives. Wolday (2001) argued that even though microfinance is not a panacea for poverty and development related challenges, it is nonetheless an important tool in the poverty reduction programs. Cognizant of the advantages it offers, development practitioners and donors have in recent years given considerable emphasis to microfinance activities as a tool to empower the poor and provide them with the financial means to increase access to social services and reduce poverty. This is so because having access to microfinance services means having access to productive resources through loan and saving products.

2.1.4. Impact Assessment and approaches

The methodology for impact studies consists of comparing household or individual-level outcomes between those with access to financial services (participant) and those without (non-participant) group, controlling for various other factors (i.e. complimentary) that simultaneously affect household welfare, namely levels of prior-owned human and physical capital (Morduch, 2001). Thus, impact studies interested on what extent can observed levels of household outcomes be attributed to credit and not to something else? This attribution problem has been and still remains to be the most challenging part of impact studies, and a great deal of effort has been placed on addressing it (Heckamen et al., 1998). It is true that, observing a household simultaneously with and without program participation is not possible in the real life. As a result, in the usual research setup welfare levels of participant household was compared with non-participant households (Heckamen

et.al., 1998). Again because no two households could be identical, this also creates a problem. Although econometric methods enable us to examine the effect of a change in one factor while keeping everything else the same, they can do so only to the extent that all household characteristics are readily observable and quantifiable (Heckamen et.al., 1998). As is clearly reported by Morduch (2001), selection bias can lead to overestimation of benefits by as much as 100 percent. Not only could this but it also lead to underestimation of benefits in cases where programs take special care to select clients that have some inherent but un-measurable weaknesses. There is a strong possibility that benefits attributed to credit could be overestimated if the non-observable attributes are not accounted for. Furthermore, if programs tend to be implemented in locations with better infrastructure, not accounting for this fact can again lead to the over estimating of benefits and quite to the opposite if they are placed in communities that are worse off (Morduch, 2001). Therefore, assessing impact needs a careful analysis of the outcomes attributed to the program and identification of control groups similar to the experiment group to minimize the attribution problem. Hence, this study will use the model developed by USAID's AIMS project for selection of control groups as well as experiment groups to minimize the attribution problems, though not to avoid it (Morduch, 2001). Although there was different methods were used in estimating impact of program intervention such as double difference or difference-in-differences (DID), Instrumental variables or statistical control (IV) and propensity score matching (PSM). Double difference or difference-in-differences method enables evaluators to compare a treatment and comparison group before and after a program by identifying potential participants and collecting data from them.

However, only a random subsample of these individuals is actually allowed to participate in a certain project. The identified participants who do not actually participate in the project form the counterfactual. This method can reduce the potential selection bias and the impact of other factors exogenous to the program on observable characteristics by analyzing the difference in outcome of treatment groups relative to the difference in outcome of control groups. It looks at the difference in indicators for the two groups at the end of the program relative to the difference in indicators at the beginning (Jalan and Ravallion, 1999 and Baker, 2000). While in instrumental variables or statistical control method one uses one or more variables that affect participation but not outcomes given participation. It is used to identify the exogenous variation in impact only due to the program, recognizing that the program is purposively placed rather than randomized. The instrumental

variables are used to predict program participation first and then analyze how the outcome indicator varies with the predicted values (Baker, 2000). Whereas the idea of PSM is to find a comparison group that is similar to the treatment group in all respects except the exclusion from the program. It is useful to evaluators with time constraints and do not have baseline data but use a single cross sectional data (Ravallion, 2005). The inherent problem in practice is usually how to define “similar”. Matching may be done on many characteristics and it is not clear whether a match has to be similar in all these characteristics, and (if not) what weight should be given to each characteristic (Caliendo and Kopeinig, 2005). The method of PSM balances the observed covariates between a participant and a control (comparison) group based on similarity of their predicted probabilities of receiving the treatment (propensity scores) and can justifiably claim to be the observational analog of a randomized experiment (Rosenbaum and Rubin, 1983).

The PSM summarizes the pretreatment characteristics of each subject into a single index variable and then using the propensity score (PS) to match similar individuals. By doing this, it solves the difficulties of matching the treated and the control subjects when there is a multidimensional vector of characteristics. It forms the probability of assignment to treatment conditional on pretreatment variables (Rosenbaum and Rubin, 1983). The reliability of matching estimates is based on several factors. First, participants and controls groups should have the same distribution of observed and unobserved characteristics. Second, the same questionnaire is administered to both groups. Third, treated and control groups should be selected from the same economic environment. Otherwise, the difference in mean impact of the two groups is biased estimate of the mean impact of the program (Jalan and Ravallion, 1999).

Like other methods, the PSM also has its own limitations. First, PSM is non-parametric. Hence, any functional form assumptions regarding the average differences in the outcome are not made. Second, PSM method cannot address the bias created by unobservable characteristics that might affect the outcomes (Ravallion, 2005). Third, PSM requires large amounts of data to maximize efficiency (Bernard *et al.*, 2010). Finally, one cannot be entirely sure that he/she has actually included all relevant covariates in the first stage of the matching model and effectively satisfied the conditional independence assumption. Despite these limitations, PSM is the best method to impact evaluators with time constraint and working in the absence of baseline data in that it can be applied with a single cross-section data.

2.2. Empirical Reviews

2.2.1. Studies in Other Countries

When one goes through the bulk of literature on the impact of microfinance, one can find quite different results, which are generally inconclusive. In some cases, microfinance is said to have brought positive impacts on the life of the clients and in other hand the finding was provocative. Having this, supporting positive impact theoretical predictions advocate that financial development contributes directly to poverty reduction: first, in a direct way through savings, insurance services and access to credits that can enhance the productivity of assets the poor by allowing them to invest in new technologies, or investing in education and health. Financial development can improve opportunities for the poor to have access to formal finance (Jalilian H. and Kirkpatrick C., 2001). Second, financial system enables the poor to access financial services, particularly credit and insurance risk, enhancing the productive assets of the poor, by improving productivity and increasing the potential to achieve sustainable gains (Jalilian H. and Kirkpatrick C., 2001).

Accordingly, one of the study by Walter and Makanga (2013), focused in PAWDEP kiambu district in Kenia targeting was women in their descriptive and linear regression analysis attempt to investigate the effect of microfinance institution in poverty reduction. The finding of study implies that the living standard of participant would be improved. Hence, household income of families with access to credit is significantly higher than for comparable households without access to credit. Similarly, in Indonesia a 12.9 per cent annual average rise in income from borrowers was observed while only 3 per cent rise was reported from non-borrowers (control group) (Remenyi, 2000). In this respect, the study conducted on Action Aid Agricultural loan provision in Gambia revealed that among 30 respondents who took the loan, the 29 reported that the loan received increased production, improved yield, more food, less need to borrow from elsewhere, and reduced length of the hungry season (Johnson and Rogaly, 1997).

Although, Johnson and Rogaly (1997) studied the impact of microfinance intervention in Union Regional de Apoyo Campesino (URAC) a MFI in Mexico and concluded that URAC's flexible savings facilities are appreciated by its members and used to support a wide range of livelihood needs including food purchases and emergency health care. Thus, the services have demonstrated their usefulness and relevance to members and enabled them both to protect and improve their livelihoods. In general the findings revealed that microfinance intervention has a positive impact

on the livelihoods of the households. Beside, impact improvement of income, reducing vulnerability and also impact were conclusive and positive in health, diet conditions and primary schooling (Morduch, 2001). And in other hand same studies were provocative. Scholars argue on MF services on its negative impacts.

Although micro-credit has claimed more and more of the aid budget, it may not always be the best way to help the poorest and the fervor for micro-credit may siphon funds from other projects that might help the poor more (Hulme,2000). Some studies concerning the role of MF in poverty reduction by the Gremmen Bank indicated that borrowers have been initially successful but in the long run face a downturn terms of ownership of asset and level of income, 69% of dropouts resulted from inability to pay their installments due to loss in business activity (Johnson and Rogaly, 1997). For instance, Hulme and Mosley (1996) while acknowledging the role of microfinance can have helping to poverty, concluded that “most contemporary schemes are less effective than they might be”. They stated that microfinance is not a panacea for poverty- alleviation and that in some cases the poorest people have been made worse-off by microfinance.

2.2.2. Studies in Ethiopia

Currently micro financing is one of the most powerful tools for combating poverty primarily by providing loan to the poor section of the society. In supporting positive impact of microfinance, delivery of financial services have been accepted as one of the poverty reduction tools in the development paradigm; because it helps the poor to increase income, improve educational and health status and improve housing condition(Wolday, 2003). In line to this, study Meehan (1999) on the impact of credit provision by DESCI in Tigray region revealed that the majority of respondents (83%) reported that an initial increase in households' income due to credit services. She concluded that the expansion of business opportunities and strategic planning for clients' economic activities could contribute to the scale and sustainability of the impact of loans on poverty levels.

Likewise, study by Dilayehu (2014) made another empirical investigation in Damot Gale Woreda, Wolaita Zone, SNNP region. In his work in the role of microfinance in accessing credit and poverty reduction referencing Omo microfinance institution, was tested by employing analytical approach such as frequency and percentage. The finding of the study reveals that borrower have significant increase in their income, asset holding and access to various social service. Similar impact study conducted in Jimma town with analysis of before-after test in living standard of participant

households. The finding of study reports that total monthly income of the household increased approximately by twenty percent after joining Oromia Credit and Saving Share Company (OCSSCo) (Bisrat, 2011).

In line to this, another study conducted in the Tigriay region on impact of credit on urban house-renting house-hold and rural landless household made investigation in the case of DESC I Borchgrevilket.al (2005). The finding of study reveal that DECSI's made greater improvements to participant in terms of their assets, income, consumption, food security, less vulnerability to shocks on its participant compared to non-participants and has a positive impact on poverty reduction. Similar study by Asmelash (2003), in assessing role of microfinance in poverty reduction in Tigriay region reports that DESC I has a positive impact on households overall income and income source diversification and also made similar conclusion that credit provision by DECSI has impact on poverty reduction among participant household.

As reviewed in some case studies on impact of microfinance interventions, MFIs have a positive impact on the livelihood of the marginalized poor. But the depth of impact is different in different countries and different MFIs due to different methods and methodology used. However, in conclusion governments and donors should know whether the poor gain more from small loans compared to other alternatives such as health care, education, agriculture, food aid. Most of the studies on impact of microfinance institutions (for example Dilayehu, 2014; Bisrat, 2011; Johnson and Rogaly, 1997) fail to control for what would have happened before programme intervention. In their empirical investigation the net contribution or impact of microfinance to poverty reduction should have not been properly and more accurately measured. This study is use in filling this information gap.

On top of these divergences of research findings, this study analyzes Omo microfinance scheme helps to reduce poverty and explore its impact on household living standards in practical aspect in SNNPR, Ethiopia. Specifically, it examines impact of microfinance on some basic household poverty indicator, annual income, total saving and fixed asset holdings. In general, the sector is dynamic and appropriate refinements are expected in the theoretical, methodological, empirical, and policy research methods and approaches. This study provides further empirical evidences on the poverty reducing effect of assess to microfinance and its impact on clients using cross-sectional data collected from participants and non-participant household.

2.3. Analytical framework

Impact assessment would be used to improve services, increasing impact on reducing poverty and microfinance institution's efficiency, to promote the delivery of good client services and accountability, and to provide accountability to donors and other external shareholders. Microfinance impact analysis is the process by which one determines the effect of microfinance on the living standard of the poor as an intervention (SEEP, 2000).

The impact evaluated in this study will be the one, which focuses on clients needs rather than on the organizations delivering the financial services. It shows how are the various groups using the services? And how does the intervention affect the life of the participant? If this so it is expected that intervention (loan taken) by participant will be putted into income generating activities. Accordingly reflect is in income smoothing, asset holding, saving and participant able to actively to participate in social service (Hulme, 2000).

The impact assessment methodology applied in this case will be the ones developed by USAID's AIMS project that seeks to assess impact at household levels. This approach is believed to produce a fuller picture of overall impacts of microfinance activities. Although, the approach is important in establishing standard of assessments to make a sound case that participation in microfinance has led the changes identified among participants and hence to label this change as program impacts.

The rationale for using household as units of impact assessment is that for an organization aiming at providing financial services to alleviate poverty, its end result is fully measurable only in direct relationship to the lives of human beings. At the household level, impact may be measured by net increase in household income, asset accumulation and expenditure status.

The aim of OMFIs is to reduce poverty by targeting poor people to improve the clients' welfare and standard of living. Therefore, this study applies the participant orientated approach which focuses on beneficiaries needs to assess the impact of OMFIs on the living standard of the participant (Tsehay and Mengistu, 2002).

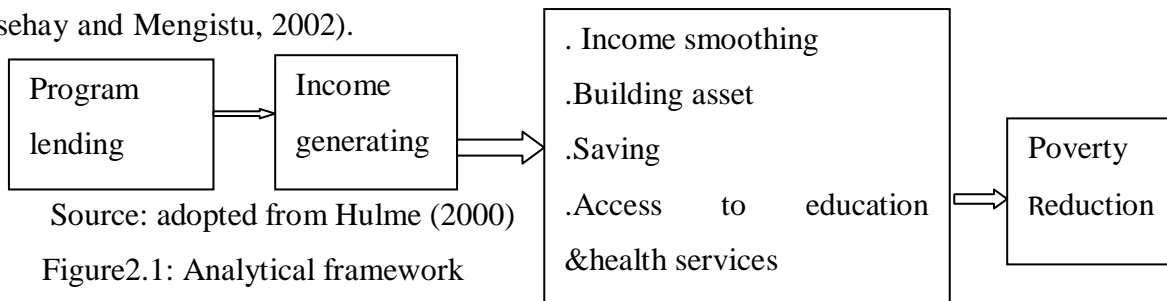


Figure2.1: Analytical framework

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter describes the overall methodology of the research. It is divided into four sections. In the first section, the OMFI in the study area is briefly described. The second section describes the location of the study area. The third section provides information on the sources and methods of data collection while the final section discusses the methods of data analysis.

3.1. Description of Study Area

Haddiya administrative Zone has a total area of 3850.2 km² and for administrative purpose; it is structured in to 10 Woredas namely; Lemo, East Badewacho, west Badewacho, Sorro, Shashego, Misha, Dunna, Gibe, Anelemo, and Gombora. Hassana (also spelled Hosaina or Hosa'ina; an older name is Wachamo) town is the administrative and trading centre of the zone. It is one of the 22 model towns that due emphasis is given by the regional state. It is also among the 19 towns selected as strategically center for development in the region. The town is located at a distance of 236 km south of Addis Ababa & 160 km west of Hawassa town. Besides, largest urban city in the southern Ethiopia, Hossana town is administrative and trading center of the zone with estimated population of 100,531, among whom 51011 (50.75%) are males and 49520 (49.25%) are females and population density of 40.5 people/sq km.

However, economic activities of the town mainly trade, but also small urban farming available in a town. In addition to the town was highly populated due to rural- urban migration from surrounding Woredas number of poor was high in number and this made number of low income household in a town and thereby increase poor in town regarding to basic necessity such as food and shelter (HZoFEDO, 2013/14). Hence, this study was conducted under this administrative and trading center of the zone. Figure 3.1 shows that town has three sub cities such as: addis sub city, Govermeda sub city and sechi-duna sub city. Except addis sub city with two Keble the other has three Keble each. Various financial institutions assist the economic activities in this town are both private and government owned Bank, working in Ethiopia have branches in Hossana. OMFI was one of financial institution that operating in this town where this study were under taken at house-hold data.

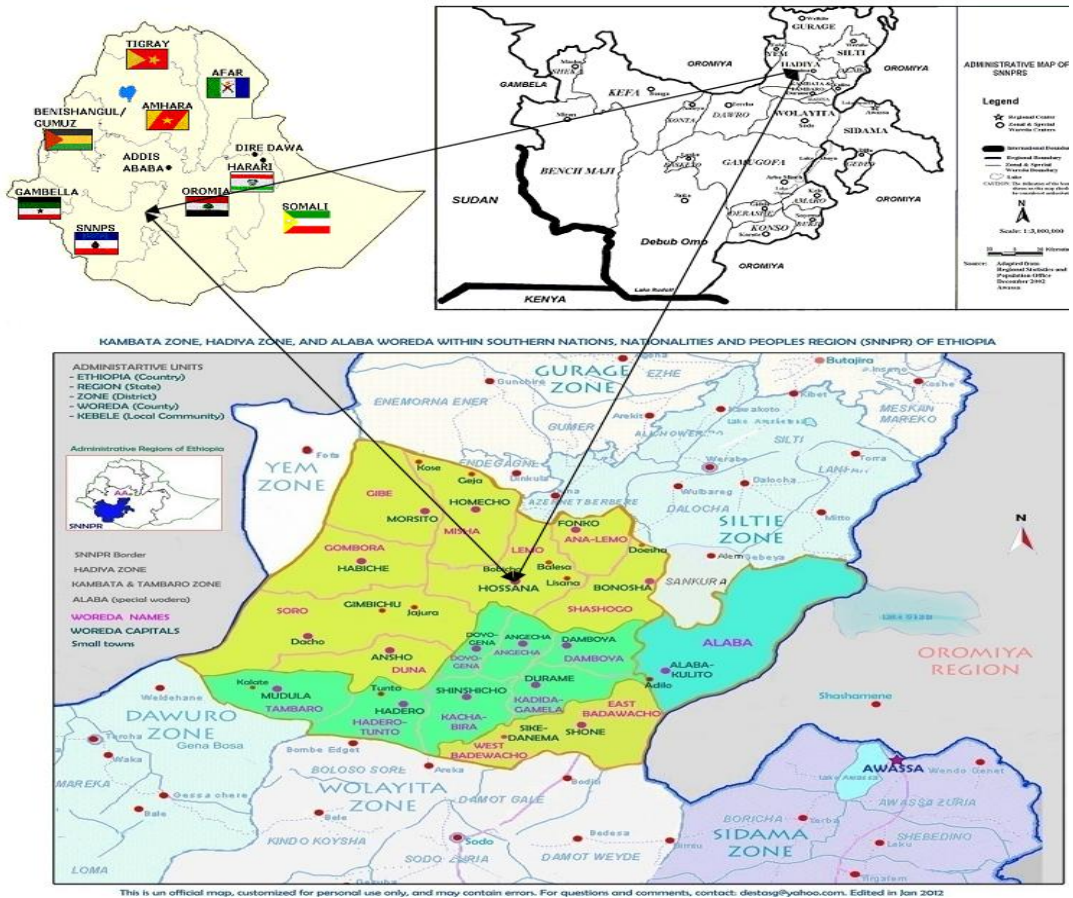


Figure 3.1: Map of the study area

3.2. Research Design

In this study the researcher used mainly quantitative approach. Use of this approach ensures that the data would have been collected simply and effectively interpreted and analyzed using the propensity score matching methods. In supporting quantitative approach and to increase the credibility of evaluation findings, qualitative approach were also used (Creswell, 2003).

3.3. Data Source and Collection Techniques

Source of data to this study were both primary and secondary data. Primary data collected using a structured questionnaire with the help of trained enumerators. The questionnaire includes personal information, socio demographic profile of household head, living standards and expenditure of household, sources of income and level of income of households, household asset and access to education facility access to medical facility related questions. Secondary were collected from different office of government in Hossana town. Questionnaire was

prepared in English and then was translated into local languages Hadiyissa and Amharic as relevance to respondent, the language spoken by the majority of population in study area.

3.4. Study Population

The target population to be estimated was households in town who are poor and according to this study, unit of analysis was both participants of omo microfinance institution and non-participants considered as poor and also found in training phase as being participant in near future (Bhattacharjee, 2012).

3.5. Sample Design and Sample Size Determination

A two stage sampling techniques was used in this study to collect primary data. Considering the objective of the study and representativeness of the sample, out of the three sub city of Hossana town two of them were selected randomly at first stage. Accordingly Sechi-duna and Govermeda sub city were selected. Second, from the sampled sub city (Kifela-Ketama) four Kebele were selected randomly, two of them from each of the sub city. The respective kebele were sechiduna and Arad from Sechi-Duna sub city and Bobicho and Jalonaramo from Govermeda sub city. Accordingly, data was collected from both participant household and non-participant household of OMFIs loan provisions using the same interview schedule at the same time. Thus, to determine the sample size researcher tried to consider information from prior study in the same topic, the available budget at hand for the study and time frame to accomplish the study with in the calendar. Prior studies like Bisrat (2011) and Asmelash (2003) used sample size of 120 and 240 respectively. Consequently, the total sample size, 200 household was randomly drawn from four kebele using simple random sampling procedure via sampling frame (90 household from direct participant and 110 from non-participant of Wachamo surrounding OMFIs loan service).

Table 3.1: Distribution of sample household by kebele

Sub-cities	Kebale	Total household		Sample household	
		Participant	Non-Participant	Participant	Non participant
Sechi-duna	Sechi duna	200	300	20	24
	Arada	379	299	39	40

Govermeda	Jalo-narama	110	200	11	20
	Bobicho	200	260	20	26
Sub total		889	959	90	110

Source own survey summery, 2016

3.6. Methods of Data Analysis and Estimation Techniques

3.6.1. Methods of Data Analysis

To measure the impact of OMFIs on living standard of household, propensity score matching (PSM) technique was employed. Furthermore, PSM technique enables researcher to extract matched households that look like participating households in all relevant pre-intervention characteristics from sample of non-participating households. The study attempted to estimate average impact of treatment on treated (ATT)⁷. The word “treatment” implies participation in the program, which is OMFIs loan taking is meant for the change on income, total saving, food and non-food expenditure and asset accumulation indicator. On other hand, “control” stands for non-participant households that used for comparison.

3.6.2. Model and model specification

The principal challenge in impact appraisal is fundamentally finding a valid counterfactual against which the treatment group is compared (Kondo et.al, 2008). To solve this appraisal problem, this study were used comparison group and employ statistical remedies to the inherent problem of casual inference. In doing so, the study can introduce a reduced form of model defining household expenditure equation and participation in microfinance as follows:

3.6.2.1. Estimation of Propensity Score

Estimation of propensity score is the first step in PSM technique. Rosenbaum and Rubin (1983) revealed that matching can be performed conditioning only on $P(X)$ rather than on X , where $P(X) = Prob(D = 1|X)$ is the probability of participating in the program conditional on X . According to these authors, if outcomes without the intervention are independent of participation given X , then they are also independent of participation given $P(X)$ which reduces

⁷ According to Bryson et al. (2002), ATT refers to mean impact of the program on individuals who actual participated.

a multi-dimensional matching problem to a single dimensional problem. Estimating the propensity score involves decision on two choices; what model to be used for the estimation and what variables should be included in this model. Regarding the decision of choosing the type of model to be used, for the binary treatment case, where researcher estimates the probability of participation versus non-participation, both logit and probit models often yield similar result. Besides of the complexity of estimation procedure of probit model than the logit model, logit is widely used (Caliendo and Kopeinig, 2005). To capture this advantage, the logit model was used for estimate propensity score in this study. According to Gujarati (2004), in estimating the logit model, the dependent variable was participation, which takes the value of 1 if a household participated in the program and 0 otherwise. The mathematical formulation of logit model is as follows:

$$P(x) = \frac{e^{zi}}{1+e^{zi}} \text{-----} (1)$$

Where P(x) is probability of participation

$$zi = \alpha_0 + \beta_i \sum_{i=1}^n \chi_i + u_i \text{-----} (2)$$

Where, $i = 1, 2, 3, \dots, 11$

α_0 = intercept

χ = explanatory variables (covariates)

β_i = regression coefficients to be estimated

u_i = a disturbance term, and the probability that a household belongs to non-program group is;

$$1 - p(x) = \frac{1}{1+e^{zi}} \text{-----} (3)$$

Then the odds ratio can be written as:

$$\frac{p(x)}{1-p(x)} = \frac{1+e^{zi}}{1+e^{-zi}} = e^{zi} \text{-----} (4)$$

The left side of equation (7) $\frac{p(x)}{1-p(x)}$ is simply the odds ratio in favor of participating in OMFI.

Its ratio of the probability that the household would participant in the OMFI to the probability that he/she would not participate in the OMFIs. Finally, by taking natural log of equation (7) the log of odd ratio can be written as:

$$Li = Ln \left(\frac{p(x)}{1-p(x)} \right) = Ln \left(e^{\alpha_0 + \beta_i \sum_{i=1}^n \chi_i + u_i} \right) = Zi = \alpha_0 + \beta_i \sum_{i=1}^n \chi_i + u_i \text{-----} (5)$$

The logit model via which the propensity score is generated was included that predictor variables that influence the selection procedure or participation in the program and the outcome of interest (Rosenbaum and Robin, 1983, Jalan, J. and M. Ravallion, 2003).

3.6.2.2. Choice and description of variable included in PSM model

This sub section describes explanatory variables and outcome variables included in the propensity score matching model based on theories and empirical evidences of MFIs. Accordingly, several variables including household characteristics, institutional and socio-economic factors are hypothesized to determine participant in MFIs and impact on poverty reduction. Regarding the choice of what variables should be included in the model, a matching strategy were built on the conditional independence assumption (CIA) that requires the outcome variables must be independent of treatment conditional on the propensity score and selection was based on households observable characteristics.

Hence, implementing matching method is based on choosing a set of variables X (covariates) that reasonably satisfy this condition (Caliendo and Kopeinig 2005). Basically, economic theories, better knowledge of previous researches and information on institutional settings are important guides to select appropriate covariates (Smith and Todd, 2005). On the basis of the various studies reviewed, it was hypothesized that both household participation in the OMIs and maximization of outcome were influenced by the combined effect of a number of factors. Explanatory variables composed of different demographic and socio-economic that affect participation in MFIs and living standard were identified and present as follows.

Table3.2 variable and variable description

Variable name	variable description	Variable type	Sign
Dependent variable	participation in MFIs (Yes=1, No=0)	Dummy	+
Covariates			
Head sex (X1)	Sex of household head(M=1,F=0)	Dummy	-/+
Head age(X2)	Age of household head	Continues	-/+
Head educ.level(X3)	Education level of head (primary=1,sec.=2, tertiary/12+=3)	Continues	+
Family size (X4)	Number of family member in household head	Continues	+

Table3.2 cont'd			
Marital status (X5)	Head Marital status(married=1,single=2,divorced=3,and	Continues	+
Numbdept(X6)	Number of dependent under household	Continues	-
Othercretsorce(X7)	Availability of other credit source(Yes=1, No=0)	Dummy	-
inclvIHhhead(X8)	Income level household (high=1, medium=2 and low=3)	Continues	-/+
Hhminginl12m(x9)	If any member of household sick last 12 month(yes=1,no=0)	Dummy	-
Lst12mfdshrt(X10)	If household member face food shortage last 12 month(Yes=1, No=0)	Dummy	+
Wrkforce (X11)	work helping age member in Household (Yes=1,No=0)	Dummy	+

Source: own definition of survey data, 2016

3.6.2.3. Choice of Matching Algorithm

Estimation of the propensity score is not enough to estimate the ATT of interest. This is due to the fact that propensity score is a continuous variable and the probability of observing two units with exactly the same propensity score is, in principle, zero. Various matching algorithms have been proposed in literature to overcome this problem. The most commonly applied matching estimators are Nearest Neighbor (NN) Matching, Radius Matching and Kernel matching. The methods differ from each other with respect to the way they select the control units that are matched to the treated, and with respect to the weights they attribute to the selected controls when estimating the counterfactual outcome of the treated. However, they all provide consistent estimates of the ATT under the CIA and the overlap condition (Caliendo and Kopeinig, 2008). The choice should be guided in part by what the distribution of scores in the comparison and treatment samples looks like.

3.6.2.3. Overlap and Common Support

Imposing of common support is the third important step in PSM because average treatment effect on treated and on population is only defined in the common support region. As reported by Caliendo and Kopeinig (2005), the common support region is the area within the minimum and maximum propensity scores of treated and comparison groups respectively and it is done

by cutting off those observations whose propensity scores are smaller than the minimum and greater than the maximum of treated and comparison groups respectively.

3.6.2.4. Testing the Matching Quality

Matching quality has to be checked if the matching procedure is able to balance the distribution of the relevant variables in both the control and treatment group, since conditioning is not on all covariates but on the propensity score. Accordingly, Caliendo and Kopeinig (2005), report that in method of covariate balance (quality of mean on score and all the covariate) such as standard bias, t-test, pseudo-R² and joint-significance between participant and non-participants household most commonly used.

3.6.2.5. Estimating ATT

In a counterfactual framework, the quantity of interest is the average treatment effect on the treated, defined by Rosembaum and Rubin (1983) as follows:

$$ATT = E(y_{i1} - y_{i0}) \text{-----} (6)$$

A fundamental problem in estimating the casual effect equation (6) is that we will observe only $y_{i1/D=1}$ or $y_{i0/D=1}$. While the post-intervention outcome is possible to observe, however, counterfactual ($y_{0i/D=1}$) outcome i.e. the effect of the treatment on the i^{th} household when an individual does not participate is not observable in the data and the evaluation problem is characterized by missing data (Rosembaum and Rubin, 1983).

Following the literature of program evaluation, let Y be total expenditure when the household i is subject to treatment ($D=1$) and Y the same variable when a household i is exposed to the control ($D=0$) (see for example Rosembaum and Rubin, 1983). The observed outcome is

$$Y_i = DY_{i1} + (1 - D)Y_{i0}; D = 0 \text{ or } 1 \text{-----} (7)$$

When ($D=1$) we observe Y_1 ; when ($D=0$) we observe Y_0 . Researcher goal is to identify the average effect of treatment on participant and participant households. It is defined as:

$$ATT = E(Y_{1i} - Y_{0i} / D = 1) = E(Y_{1i} / D = 1) - E(Y_{0i} / D = 1) \text{-----} (8)$$

The evaluation problem is that we can only observe $E(Y_{1i} / D = 1)$ however $E(Y_{0i} / D = 1)$; does not exist in the data, since it is not observed. A solution to this problem is to create the counterfactual, through matching treatment and control households. As discussed by Heckman et.al (1998), a critical assumption in the evaluation literature is that the no-treatment state approximates the no program state. For matching to be valid certain assumptions must hold. The primary assumption underlying matching estimators is the conditional independence

value and gross income of household j , Y_{ij0} is the expenditure on food and non-food item, asset accumulations value, total saving and total income of household of the i^{th} non-program attached to the j^{th} participants, NP is the total number of non-participant and P is the total number of participant household. A positive (negative) value of ATT suggests that households who have participated in OMFI's loan program have higher (lower) outcome variable than non-programs.

3.6.2.5. Sensitivity Analysis

Furthermore, final step in implementation of PSM is checking the sensitivity of the estimated result (Caliendo and Kopeining, 2005). However, a hidden bias arises if there are unobserved variables which affect assignment in to treatment and outcome variable simultaneously which nullify the CIA. This result in biased estimates of ATTs (Rosenbaum, 2002), since matching estimators are not robust against hidden biases, it is important to test the robustness results to departures from the identifying assumption. However, it is impossible to estimate the magnitude of selection bias with non-experimental data. Therefore, this problem can be addressed by sensitivity analysis (Caliendo and Kopening, 2005). To check the sensitivity of the estimated ATT with respect to deviation from the CIA, it is suggested that the use of Rosenbaum bounding approach is appropriate (Rosenbaum, 2002). Let us assume that the participation probability is given by $p_i = p(x_i, u_i) = p(D_i = 1/x_i, u_i) = F(\beta x_i + \gamma u_i)$, where x_i are the observed characteristics for individual i , u_i is the unobserved variable and γ is the effect of u_i on the participation decision. Clearly, if the study is free of hidden bias, γ will be zero and the participation probability will solely determined by, x_i . However, if there is hidden bias, two individuals with the same observed covariates x have different chance to receive treatment or (a case of this study participating in microfinance institution). Let us assume we have matched pair of individual i and j and further assumed that F is the logistic distribution. The odd that individual receives treatments are then given by $\frac{p_i}{(1-p_i)}$ and $\frac{p_j}{(1-p_j)}$ and the odd ratio given by:

$$\frac{\frac{p_i}{(1-p_i)}}{\frac{p_j}{(1-p_j)}} = \frac{p_i(1-p_j)}{p_j(1-p_i)} = \frac{e^{\beta x_i \sum_{i=1}^n x_i + \gamma u_i}}{e^{\beta x_j \sum_{i=1}^n x_j + \gamma u_j}} \dots\dots\dots (12)$$

If both units have identical observed covariates as implied by the matching procedure the x vector canceled and reduced to $e^{[\gamma(u_i - u_j)]}$. According to Rosenbaum (2002), the bounds of

two pair of matched individual will receive treatment written as $\frac{1}{e^\gamma} \leq \frac{p_i(1-p_j)}{p_j(1-p_i)} \leq e^\gamma$. Both matched individuals have the same probability of participating only if $e^\gamma=1$. Otherwise, individuals similar in covariate differ in their odds of receiving the treatment by as much as a factor of 2, in this sense, e^γ is a measure of the degree of departure from a study that is free of hidden bias.

CHAPTER FOUR

RESEARCH FINDING AND DISCUSSION

In the course of investigating whether participation in microfinance reduce poverty, the researcher present and discuss the impact of microfinance on basic household poverty indicator using cross-sectional data with respective with descriptive statistics such as percentage and two sample t-test, and econometric model propensity score matching used to estimate ATT for impact of intervention.

4.1. Descriptive Statistics

4.1.1. Demographics Characteristics of Household Head

As indicated by table4.1 below from the total 200 valid respondents 45% are participant, 55% are non-participants. From the total sample more than 99% of household head provided useful information. All the household head respondents are urban dwellers and the sample is composed of participant and non-participants of OMFIs. In participant the majority 52.22% heads are female. However, in both participant and non-participants for total survey majority about 58.50% are male headed households. About 15% and 85% of the respondents are figure head family member and head of the household respectively. Table 4.1 reveals that the average age of the household head 56.08 is nearly similar to both participant and non-participants of Wachamo surrounding Omo micro financing sub-branch 52.69 and 58.85 respectively implying households are found at productive age category of the society.

Similarly, table4.1 also reveals that marital status and education background of the household head to both participants and non-participants. Almost all of the household head respondents in both participant and non-participant are educated. Among these 43% primary complete, 33% secondary complete and reaming 23% is tertiary complete to all household head. However, the majority of 35.56% from participant and 37.78% from non-participants are below secondary school. On the other hand in both participant and non-participant 26.67% and 20.90% of household heads respectively are tertiary complete. With regarding to marital status among the household head 72.50% and 8.50% are married and single respectively the other are divorced and widowed. Compared to non-participant, OMFI participant households had smaller family

size. Similarly, non-participants had greater availability to other credit access than OMFI participant.

Table4.1 demographic characteristics of household head

Variable	Category	Total (N=200) %	Non-participant	Participant (N=90)%
Hhhead age	Average age	56.50	58.85	52.69
Marital status	Married	72.00	74.55	70.00
	Single	8.50	6.36	11.11
	Divorced	10.00	10.09	8.89
	Widowed	9.00	8.18	10.00
Head education level	Primary	43	37.78	35.56
	Secondary	33	35.55	37.54
	Tertiary	23	26.67	26.90
head Sex	Male	58.50	67.2	47.78
	Female	41.50	32.73	52.22
Family size	3-4	56.50	48.18	66.67
	5-6	37.00	44.55	27.78
	7+	6.50	7.27	5.56
Other credit source	Yes	53.64	42.00	27.78
	No	58.00	72.22	46.36
Work force in household	1-2	76.36	76.67	76.50
	3-4	23.64	22.2	23.00
	5+		1.11	0.50
Dependent in household	1-2	96.36	98.89	97.50
	5+	3.64	1.11	2.50

Source: survey summery, 2016

4.1.2. Economic Activities of Household Head

Regarding to household head occupation 30.50% crafts and laborer, 42.00% trade, 11.50% government employee, 2% urban farmer (fettering and poultry) and remaining 14% are professional technical. Similarly, about 32.00% of the household heads are engaged in service (for example in food processing). Accordingly, 30.91% and 33.33% of non-participants and participants are engaged in service work (for example food processing) respectively.

Table4.2: The main occupation and engaged activity of household head

Variable	Categories	Non-participant of	OMFI participant(N=90)%	Total (N=200) %
Occupation	Crafts , laborer	29.09%	32.22%	30.50%
	Trade	40.91%	43.33%	42.00%
	g/employee	17.27%	4.44%	11.50%
	farmers	1.82%	17.78%	14.00%
	Proff.technical	10.91%	26.67%	26.50%
Engaged activities by head	Small business	26.36%	26.67%	26.50%
	Manufacturing	25.45%	31.11%	28.00%
	Service	30.91%	33.33%	32.00%
	Agriculture	0.91%	3.33%	2.00%
	Other	16.36%	5.56%	11.50%

Source: survey summery, 2016

As can be seen from table4.2 above, MFI referencing OMFI at Hossana town tried to address a larger stratified group of people who are engaged in different economic activities. However, the majority of household head engaged in service work (for example in food processing) and small business (for example petty trade) and as such they took the loans for these two major activities.

4.1.3. Impact estimation

Lack of finance is one of the major bottlenecks that constrained the poor from engaging in meaningful and gainful activities. In response to this, the recent shift in development paradigm focused on the provision of microfinance services to the poor in order to protect them from adversities of poverty. The expectation is that access to microfinance helps to smooth household income and asset ownership. From table 4.3 below Pair t-test show that average annual income and asset value to the participant and non-participant household are (16110.18, 1165.66) and (3631.84, 3638.455) respectively.

However, loan provision by omo microfinance institution specifically Wachamo surrounding OMFI sub-branch made difference on average annual income of participant compared to non-participant was significant at 1% level of significance. While, not brought impact on asset value were significant at 10% level of significance. In study area program intervention has no impact on asset value is implying that household uses income generate with provision loan to consumption purpose specifically in food consumption.

It is assumed that people with better income may have a capacity to spend more. On the other hand, although poor people have a need to expend in order to live a luxurious life, they have no income to spend. From Table 4.3 below pair t-test result show investment on human capital (mainly on education of children who attained school) average 544.23 and 565.67 for microfinance participants and non-participants respectively were in favor of non-participant at 1% level of significance. OMFIs with Wachamo sub-branch does not brought impact on participant child school fee implying that in Ethiopia specifically in study area there is availability of public school. In fact that expenditure exaggerated regarding to child education. Whereas, household expenditure in medical care is higher for participant compared to non-participant on average 554.46 and 510.09 respectively also there was significant mean difference at 10% level of significance. Also finding from table 4.3 revealed that microfinance specifically OMFI at Hossana town enable participant to get medical facilities compared to non-participants.

In view of mean result of expenditures on food and aggregate (food and non-food) for participant, non-participant and to total sample are; (1468.71, 3112.1), (1202.76, 2696.86) and (1322.44, 2883.72) there mean difference also significant at 10% and 5% level of significance

respectively were in favor of participants. Regarding to birr saved by household head without birr holding in fixed asset for participant, non-participants and total sample are 16110.2, 701.66 and 3340.37 respectively there mean difference were significant at 1% level of significance and also in favor of participants. Regarding to daily meal condition of household on average higher for OMF participant compared to non-participant was significant at 1% level of significance.

Table4.3: Pair Sample t-test

Impact on	Total	participant OMF(N=90)	Non- participant OMF(110)	Difference [Mean(0)- mean(1)]	T-value
	Average	Average	Average		
Child school fee	556.03	544.23	565.67	21.44	0.625
medical care	530.06	554.46	510.09	-44.37	-1.74**
Expenditure on food	1322.44	1468.71	1202.76	-265.96	-1.74*
Total expenditure	2883.72	3112.1	2696.86	-415.24	-2.46*
Daily meal condition	2.74	2.97	2.56	-.392	-4.54***
Total income	7635.49	16110.18	1165.66	-14944.51	-22.1***
Asset value	3992.44	3631.84	3632.46	0.76	0.061
Total saving	3340.37	16110.2	701.66	-15408	-4.66***

***, ** and * means statistically significant at 1%, 5% and 10% significance level respectively.

Source: own survey estimation, 2016

In general researcher discerns small difference between microfinance participant and non-participant; until knew researcher cannot strongly detect whether differences are statistically significant or not among matched household livelihoods. Formally, more rigorous and advanced analysis is needed. Hence, enumerator introduces the propensity score matching methods to estimate outcome.

4.2. Econometrics Estimation Result

This section describes the econometric analysis and explains the entire process to arrive at the impact of the program using propensity score matching model which includes estimation of propensity scores, matching methods used, common support region, matching program participant and non-participant household, choosing matching algorithm, balancing test and finally sensitivity test estimated on ATT result.

4.2.1. Estimation of Propensity Scores

This part presents the results of the logistic regression model employed to estimate propensity score for matching treatment household with control households. As specified chapter three, the dependent variable in this model is binary indicating whether the household was a participant in the OMFI loan which takes a value of 1 and 0 otherwise. STATA 13 computing software using the propensity scores matching algorithm, `psmatch2` was used for the estimation purpose. Before estimating propensity score researcher tests econometric assumptions using appropriate techniques. First, the presence of strong Multicollinearity among explanatory variables was tested using variance inflation factors (VIF) (see appendix VI). Second, the presence of heteroscedasticity problem was tested using Breusch-Pagen test and the existence of heteroscedasticity was rejected as ($p= 0.1849$) see from appendix VI.

The maximum likelihood estimate of the logistic regression model result shows that program participation status has been significantly influenced by six variables (table4.3) sex of household head, if last 12month there was food shortage in household member, number of dependent in household head, head education level, age of household head and if any credit source other than OMFI affect probability of participating in microfinance loan program. Being higher age household determine participation negatively this is consistent at 10% level of significance and also having high number of dependents in a household and head sex prior to the intervention of OMFI was found to have negative and significant influence on participation in OMFI both at 1% level of significances, respectively. Such strong negative relationship between more dependent in household head and participation in OMFI specifically Wachamo surrounding branch might be due to the fact that more number of dependent in a household is associated with old age household head and lower chance of being participant of program compared to small number of dependent and medium age in household head.

Table4.4: logit regression result

Trt	Coef.	Str.Err.	Z-value	p-value
Age	-.0671	.0202	-3.54***	0.000
Lst12mfdshrt	.671	.365	1.84*	0.066
Hhfsize	.3525	.684	.052	0.607
Hhingl12m	.7145	.363	1.97	0.049
Martstus	-.0358	.177	-.20	0.839
Numbdept	-1.175	.703	-1.67*	0.095
Numbwrkforce	.1942	.644	0.30	0.763
Head sex	-.6269	.364	-1.72*	0.085
Hheadeduclvl	.5329	.217	2.46**	0.014
Othercreditsource	-1.258	.3762	-3.35***	0.001
Inclvelofhh	.3617	.4143	0.87	0.383
-cons	3.877	1.604	2.42**	0.016

Number of obs=200 LRchi2(11) =78.00 Prob >chi2=0.0000
likelihood = -98.630053 pseudo R2 = 0.2834

***, **and * means that statistically significant at 1%, 5% and 10% level of significance

Similarly, the inverse relationship between other credit source and participation in program might be because household head that have other credit source are less likely to take loan from OMFIs. This was implying that household head who has other credit source does not like to participates in Wachamo surrounding omo microfinance sub-branch. The pseudo-R2 value of the estimated model result is 0.2834 which is fairly low. This low pseudo- R2 value indicates that the allocation of the program has been fairly random (Pradhan and Rawlings, 2002). The result, therefore, suggests that treatment households do not have diverse characteristics over all and hence obtaining a good match between treatment and control households becomes easier.

On the other hand education level of the household head and participation in program has positive relationship were implying that household head education increase with one level for example from primary to secondary or secondary to tertiary participation in microfinance also increased by probability of .5329. The distribution of the propensity score for each household

included in the treated and control groups was computed based on the above participation model to identify the existence of a common support. Figure 4.1 below depicts the distribution of the household with respect to the estimated propensity scores. The figure 4.1 shows that most of the treated households were found in the middle and partly in the right side near to middle while most of control households are found in the left side of the distribution. It also reveals that there is wide area in which the propensity score of both the treatment and the control groups are similar.

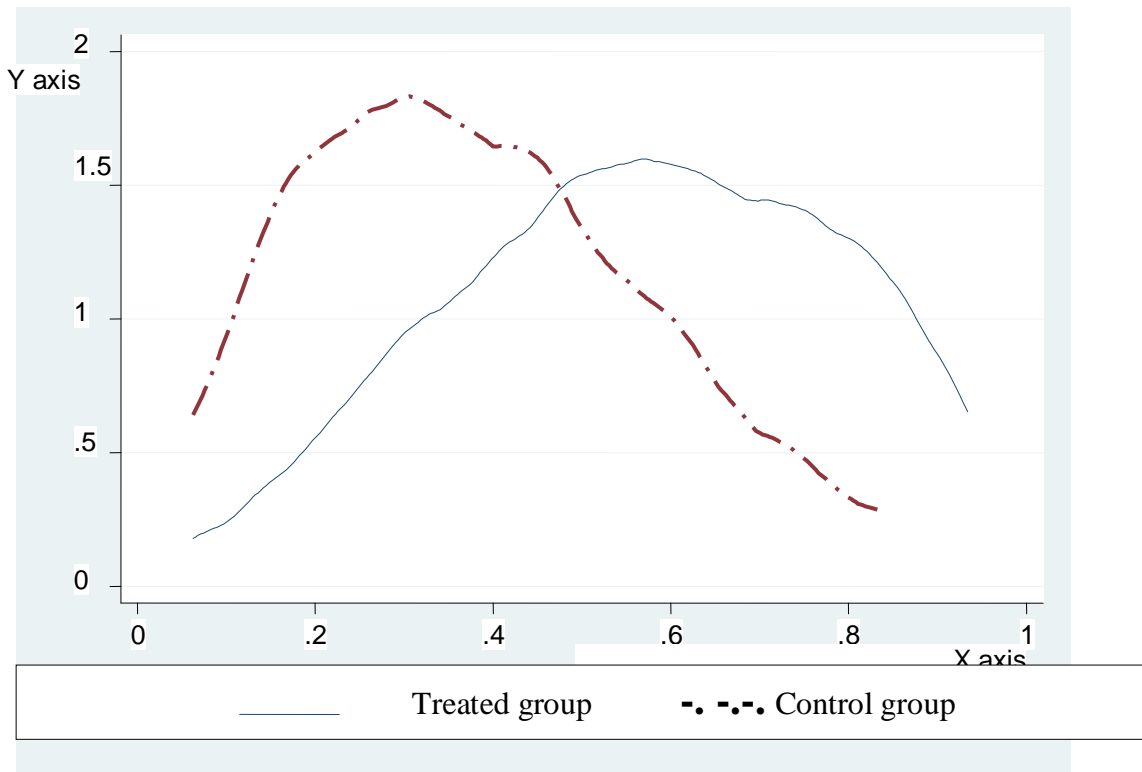


Figure 4.1: Kernel density of propensity score distribution

4.2.2. Matching Program and Non Program Households

The important tasks that must be carried out before conducting the matching work itself are first estimating the predicted values of program participation (propensity score) for all the sample households of both program and control groups (which was done in the previous section) is a primary activity. Second, imposing a common support condition on the propensity score distributions of household with and without the program is another important task. Third, discarding observations whose predicted propensity scores fall outside the range of the common support region is the next work. In setting the common support conditions the minima

and maxima comparison was made. The basic criterion for determining the common support is to delete all observations whose propensity score is smaller than the minimum of the program and larger than the maximum in the opposite group (Caliendo and Kopeinig, 2008).

As shown in Table4.4 below (appendix IV) the estimated propensity scores vary between 0.0584247 and 0.9739493 (mean=0.625366) for OMFI participant households and between 0.0142306 and .8783146 (mean=0.3065264) for non OMFI participant (control) households. The common support region would therefore, lies between 0.0584247 and 0.8783146 which means households whose estimated propensity scores are less than 0.0584247 and larger than 0.8783146 are not considered for the matching purpose. As a result of this restriction, 24 households (14 participants and 10 non Participants) were discarded (see appendix II).

Table4.4. Distribution of estimated propensity scores:

Group	Observation	Mean	Std. Dev	Min	Max
All household	200	.45	.2817292	.014230	.9739493
Treated group	90	.625366	.2481691	.058424	.9739493
Control group	110	.3065264	.2201286	.014230	.8783146

Source: own estimation result, 2016

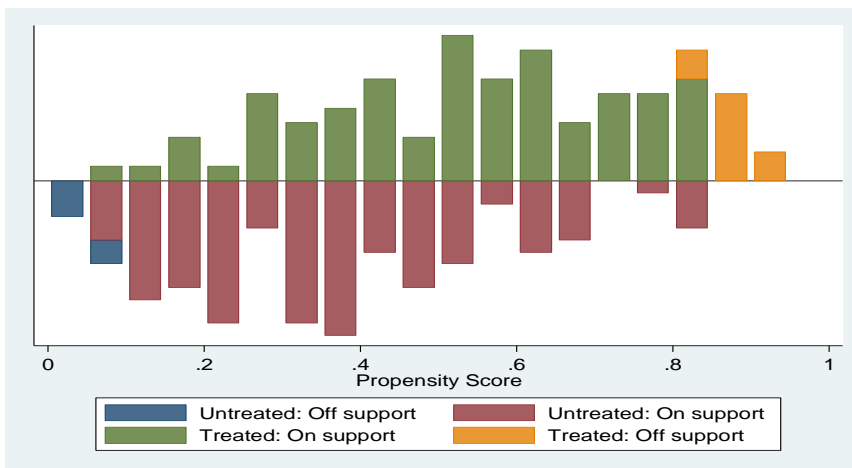


Figure4.2. Kernel density of propensity scores of non participant households

Figure4.2 shows the distribution of estimated propensity scores before and after the imposition of the common support condition for participant and non-participant households, respectively.

4.2.3. Choice of Matching Algorithm

In all matching method, the treated group comprises 76 observations. Whereas, the number of control group comprises 100 observation in all matching methods. Different alternatives of matching estimators were conducted to match the treatment program and control households fall in the common support region. The decision on the final choice of an appropriate matching estimator was based on three different criteria as suggested by Dehejia and Wahba (2007). First, equal means test (referred to as the balancing test) which suggests that a matching estimator which balances all explanatory variables (i.e., results in insignificant mean differences between the two groups) after matching is preferred. Second, looking into pseudo- R^2 value, the smallest value is preferable. Third, a matching estimator that results in the largest number of matched sample size is preferred.

To sum up, a matching estimator that balances all explanatory variables, with lowest pseudo- R^2 value and produces a large matched sample size is preferable. Table4.5 presents the estimated results of tests of matching quality based on the three performance criteria. Looking into the result of the matching quality, kernel matching of bandwidth (0.25) was found to be the best for the data at hand to researcher. Appendix II also shows that bandwidth (0.25) was found to be the best for output to outcome indicators variables. Hence, the estimation results and discussion for this study are the direct outcomes of the kernel matching algorithm with a bandwidth (0.25).

Table4.5. Matching performance of different estimators

Matching estimator	Performance criteria		
	Balancing test*	Psedo- R^2	Matching sample size
Nearest neighbor			
NN(1)	11	0.031	176
NN(2)	11	0.030	176
NN(3)	11	0.033	176
NN(4)	11	0.032	176
Radius matching			

0.1	4	0.284	176
0.25	5	0.284	176
0.5	7	0.284	176
Kernel matching			
Band width 0.1	11	0.035	176
Band width 0.25	11	0.026	176
Band width 0.5	11	0.068	176

*Number of explanatory variables with no statistically significant mean differences between the matched groups of program and non-program households.

4.2.4. Testing Balance of Propensity Score and Covariate

Once the best performing matching algorithm is chosen, the next task is to check the balancing of propensity score and covariate using different procedures by applying the selected matching algorithm bandwidth (0.25) matching in case of this study. It should be clear that the main intention of estimating propensity score is not to get a precise prediction of selection into treatment. Rather, to balance the distributions of relevant variables in both groups.

Table4.6. propensity score and covariate balance

Variable	Unmatched	Mean		%bias	%reduct Bias	t-test	
	Matched	Treated	Control			T	p>t
_pscore	U	.62536	.30653	135.9		9.62	0.000
	M	.57088	.53955	13.4	90.2	0.82	0.413
Age	U	52.689	58.836	-67.1	89.4	-4.79	0.000
	M	55.053	55.703	-7.1		-0.48	0.630
Hhfsize	U	4.3111	4.6455	-27.9	48.1	-1.96	0.052
	M	4.3289	4.5025	-14.5		-0.92	0.360
Numbdept	U	2.2222	2.6364	-42.4	64.2	-2.97	0.003
	M	2.2632	2.4115	-15.2		-0.95	0.343
lst12mfdshrt	U	.72222	.48182	50.4	78.2	3.53	0.001
	M	.69737	.7497	-11.0		-0.72	0.474
hhing112m	U	.62222	.53636	17.4	97.7	1.22	0.224
	M	.60526	.60727	-0.4		-0.03	0.980

Numbwrkforce	U	2.0444	1.9636	10.2	70.6	0.72	0.473
	M	2.0263	2.05	-3.0		-0.18	0.855
Martstus	U	1.5889	1.5455	4.3	56.4	0.30	0.761
	M	1.4868	1.4679	1.9		0.12	0.902
Hhheadsex	U	.43333	.68182	-51.4	93.1	-3.63	0.000
	M	.46053	.47774	-3.6		-0.21	0.833
Hhheadeduclvl	U	1.8111	1.4455	46.0	93.3	3.24	0.001
	M	1.75	1.7254	3.1		0.18	0.861
Inclvelofhh	U	1.1889	1.1455	8.8	74.2	0.62	0.533
	M	1.1842	1.1954	-2.3		-0.14	0.890
Othersorcoring	U	.27778	.53636	-54.3	92.1	-3.80	0.000
	M	.31579	.33619	-4.3		-0.27	0.790

Source: own survey 2016

The balancing powers of the estimations are ensured by different testing methods. Reduction in the mean standardized bias between the matched and unmatched households, equality of means using t-test and chi-square test for joint significance of the variables used are employed here. The fifth and sixth columns of Table4.6 above show the standardized bias before and after matching, and the total bias reduction obtained by the matching procedure, respectively. The standardized difference in covariates before matching is in the range of 4.3% and 67.1% in absolute value whereas the remaining standardized difference of covariates for almost all covariates lies between 0.4% and 15.2% after matching. This is fairly below the critical level of 20% suggested by Rosenbaum and Rubin (1985). Hence, the process of matching creates a high degree of covariate balance between the treatment and control samples that are ready to use in the estimation procedure. Similarly, T-values also reveal that all covariates became insignificant after matching while six of them were significant before matching.

As indicated in Table4.7 the values of pseudo-R2 are very low. This low pseudo-R2 value and the insignificant likelihood ratio tests support the hypothesis that both groups have the same distribution in the covariates after matching. These results indicate that the matching procedure is able to balance the characteristics in the treated and the matched comparison groups. Hence, these results can be used to assess the impact of OMFI among groups of households having similar observed characteristics. This enables researcher to compare observed outcomes for

treatments with those of a control groups sharing a common support.

Table4.7. Chi-square test for the joint significance of variables

Sample	PseudoR ²	LRchi ²	p>chi ²
U	0.261	71.91	0.000
M	0.014	2.92	0.996

Source: psmatch2 result, 2016

All of the above tests suggest that the matching algorithm researcher has chosen is relatively the best for the data at hand. Consequently, researcher proceeds to estimating the average treatment effect on the treated (ATT) for the sample households.

4.2.5. Estimated Result of ATT

Using the aforementioned pre-treatment variables in table 4.6 above propensity score would have been derived using logit regression. With this functional specification the balancing hypotheses are satisfied. Furthermore as reported by Becker and Ichino (2002), ‘unconfoundedness’ assumption was satisfied. Now, researcher offer estimation of average treatment effect on the treated (ATT) of some impact indicator variables. Namely, household’s consumption expenditures, total annual income, asset value and total saving using the propensity score matching methods discussed in chapter three. The researcher focuses on expenditure on children education, household medical expenditure and food expenditure, total annual income, total saving and total asset values. Based on whether a household has ever taken loan from OMFI table4.9 provides ATT for different expenditure, asset value annual income and total saving estimated via matching of treated and control observations.

Table4.9: Estimation of ATT using propensity score matching

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Average annual income	Unmatched	16110.178	701.654	15408.523	698.969	22.
	ATT	16007.671	652.742	15354.928	842.236	18.
	ATU	705.8	15575.5	14869.351		
	ATE			15079.032		

Household	Unmatched	2800.6	2256.3	544.3	156.256	3.4
annual total	ATT	2673.421	2149.57	523.855	106.951	4.9
expenditure	ATU	2243.01	2575.25	332.238		
	ATE			414.982		
Average	Unmatched	1547.38	1187.57	359.805	151.227	2.4
expenditure	ATT	1385.05	1069.64	315.437	86.204	3.7
on food	ATU	1168.7	1294.80	126.096		
consumption	ATE			207.857		
Average	Unmatched	546.61	556.946	-10.334	33.650	-0.3
expenditure	ATT	552.69	560.096	-7.399	45.967	-0.1
on children	ATU	563.94	538.279	-25.660		
school fee	ATE			-17.775		
Household	Unmatched	584.98	503.055	81.845	26.646	3.1
expenditure	ATT	603.38	514.568	88.814	34.405	2.6
On medical	ATU	503.77	612.065	108.295		
care	ATE			99.884		
Home	Unmatched	3896.68	3667.59	229.076	299.156	0.8
asset	ATT	3757.11	3764.19	-7.085	387.802	-0.02
Values in	ATU	3648.23	3614.87	-. 33.358		
birr	ATE			-22.014		
Total	Unmatched	8036.38	2790.23	5246.151	912.997	5.75
saving	ATT	8086.70	3402.52	4684.037	1183.58	3.96
	ATU	2980.65	7266.30	4285.649		
	ATE			4457.680		

Source: own survey data estimation, 2016

In assessing impact of microfinance institution in Hossana town the first objective of this study is examining impact of OMFI in living standard of household. Assuming that, household income, saving, consumption expenditure and asset holding value are a critical indicator of household welfare. Household with higher income levels have more choice, can better meet their basic need, and enjoy broader opportunities. Thus, one of the objectives of Wachamo surrounding OMFI sub-branch is to reverse the age-old circle of “low income, low saving” in to an expanding system of ” high income and high saving ” through provision of credit with

regard to necessary support from the donor in Hossana town. Hence, the impact of microfinance on the income of the participant may be evident in the mean annual income, in trend of income, and income source of respondent household.

This survey collected information on the household annual income, total saving and trend of income and saving in last 12 months. The estimation result presented in Table 4.9 above provides supportive evidence for the effect of the program on participant households' total income and saving more likely than non-participant household implying that OMFI loan provision has brought significant impact on total income and saving of participants this finding was consistent with (Bisrat, 2011; Morduch, 1998; Wolday, 2003; Johnson and Rogaly, 1997 and Borchgrevilket.al, 2005). Similarly, OMFI with Wachamo surrounding branch brought a significant impact on both food and medical expenditure of household head showing positive ATT value. This finding was consistent with descriptive statistics part in this paper and all most all reviewed literatures included in this study (for example see Bisrat, 2011; Morduch, 1998; Wolday, 2003; Johnson and Rogaly, 1997 and Borchgrevilket.al, 2005).

Although in fact that ownership of durable asset is regarded as indicator of improvement in the households' welfare. Accordingly, Psmatch2 result of ATT estimation from table 4.9 above shows that improvement in quality of life of participation less likely than non-participant household and OMF intervention has not brought impact on investment in household on selected durable asset such as radio, TV, chair and refrigerator so on. This finding was inconsistent with the finding of (Borchgrevilket.al, 2005, Bisrat, 2011).

On other hand, however, microfinance intervention has been expected to have positive impact on participant child school enrollment. From psmatch2 result in table 4.9 below, OMFI in Hossana town does not brought any impact regarding to expenditure on child education to participant households compared to non-participant. This is might be education in Ethiopia was public, specifically in study areas also public schools were available and implying that children in both group of households got schooling with common expenses regarding to exercise book, pens, and pencil school uniform and the like.

Moreover, access to microfinance institution leads to an enhancement in the quality of life of participants', an increase in their self confidence, and helped them to diversify their livelihood security strategies and thereby increase in household income and saving. Accordingly,

psmatch2 estimation (ATT) result from table4.9 above (appendix II) show that OMFIs specifically Wachamo surrounding omo microfinance brought significant difference to participant compared to non-participants. This finding was also consistence with finding of most of the literature reviewed in this study (for example sees Borchgrevilket.al, 2005; Bisrat, 2011; Dilayehu, 2014). From ATT result from table4.9 above microfinance specifically Wachamo surrounding OMFI made difference to its participant households regarding to total saving, total income, expenditure in food and medical care compared to non-participants household by this the third objective were fulfilled implying that omo microfinance has impact in poverty reduction at household level.

4.2.6. Sensitivity Test

In order to check for unobservable biases, using Rosenbaum Bounding approach sensitivity analysis was performed on the computed outcome variable. Appendix VII present the critical level of $e^{\gamma} = 1$ (first row of appendix VII), over which the causal inference of significant microfinance intervention effect must be questioned. The first column of the table 4.10 shows those outcome variables which bear statistical difference between participant and non-participant household in impact estimate in below. The rest of the values which corresponds to each row of the significant outcome variables are p-critical values (or row of the significance level -Sig+) at different critical value of e^{γ} . The result shows that inference for the effect of microfinance intervention does not change, even though the participant and non-participant households were allowed to differ in their odds of being treated up to 220% ($e^{\gamma} = 2.2$) in terms of unobserved covariates(see to more explanation chapter three section 3.6.7). Thus, it is possible to conclude that impact estimates (ATT) result from table4.9 above are insensitive to unobserved selection bias, being pure effect of program intervention.

Table4.10 result of sensitivity analysis

Outcomes	$e^{\gamma} = 1.9$	$e^{\gamma} = 2$	$e^{\gamma} = 2.1$	$e^{\gamma} = 2.2$
Total expenditure	0.000019	0.000036	0.000065	0.00011
Total saving	0.000048	0.000089	0.000156	0.00026
Total income	0.004469	0.002396	0.001269	0.000665
Source own survey estimation, 2016				

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1. Conclusions

This study examined the impact of microfinance on poverty reduction in Hossana town, SNNPR, Ethiopia. The study was based on primary data obtained from 200 randomly selected sample households consisting 90 OMFI program participants and 110 non-participant household using structural questionnaire. General profile of the household head' shows that majority are female in productive age group and married. Regarding to family size on average there was two to four member and majority engaged in service work, followed by petty trade. In order to estimate the impact of microfinance in poverty reduction PSM is used to create a comparable pair of treatment-control households due to absence of baseline data. Although, different processes of matching quality tests were applied such as t-tests, reduction in standardized bias and chi-square tests before calculating ATT.

From table4.9 ATT result this study conclude that participation in MFIs specifically Omo MFIs at Hossana town had brought positive and significant impact regarding to average yearly income, total saving, aggregate expenditure of participant household compared to non-participants. Further, sensitivity analysis test on estimated ATT shows that effect of MFIs does not change even though the participant and non-participant households were allowed to differ in their odds of being treated up to 220% ($e^{\gamma} = 2.2$) in terms of unobserved covariates. Hence, ATT result in table4.9 was insensitive to unobservable selection bias, being pure effect of program intervention. Thereby, improving living standard of participant and as far as ATT result was the only effect of intervention, thus microfinance intervention reduce poverty at household level.

5.2. Recommendation

The empirical results reported in this thesis led us to forward the following recommendations:

- This study found that OMFI had not brought any significant impact on participant children school fee in the study area. Thus, study with large number of data in different location is needed to further justification of why MFIs specifically OMFI at Hossana town not brought positive and significant impact regarding to asset accumulation and child school fee;
- The positive impact of MFIs micro financing scheme in improving income, aggregate expenditure and total saving implying that OMFI is important in reducing poverty and enhancing social welfare at Hossana town. Therefore, all necessary support should be provided to the industry from the government and other funding organizations in order to improve their performance and outreach as well as to improve the magnitude and type of impacts towards poverty alleviation.
- Hence, the importance of microfinance in poverty reduction is of immense benefit to the participant households in Hossana town. There is, therefore the need to help sustain it and help its growth as its role to the development of the Hossana town and the country at large is very good.

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APPENEDIX

Appendix I: Questionnaires to household head

JIMMMA UNIVERSTY

College of Business and economics: Department of Economics

Introduction

My name is Birhanu, Hankamo from Jimma University Economics Department. I am working a M.sc. thesis entitled in the impact of Microfinance Institutions in reducing poverty.

I am interviewing people here in order to find out about the Impact of omo microfinance Institutions on poverty Reduction in Hossana town. Your response to this questionnaire will serve as source of information to the research paper to be done for thesis purpose. Any response you provide here is strictly confidential and will be used exclusively for the research purpose. Your honesty in responding the right answer is vital for the research outcome to be reliable. This survey will take 30 minutes to ask the questions.

Part one

GENERAL INFORMATION: During your response to question provided please circle your choice from number provided.

Respondents address: kifele-ketama: sechi-duna 1 Govermeda 0

REGION -----Town ----- KEBELE -----

PART TWO

BASIC INFORMATION ABOUT RESPONDENTS

B1. Sex: Male 1 Female 0

B2. Age -----

B3. Have you attend formal schooling? Yes 1 No 0

B4. If your answer to B3 is yes, what is your level education? Primary complete 1 secondary complete 2 trustier complete 3

B5. Marital status: married 1 single 2 divorced 3 widowed 4

B6. Family size -----

B7. How many dependent (age <15 and >65) do you have in number -----

B8. How many work force (age >15 & <64) do you have -----

B9. Are you household head? Yes 1(if your answer is yes skip to B11) No 0

B10. If your answer to B9 is No what is your relationship to head of the household?
 Wife, husband or partner 1 Son or daughter 2 son in law or daughter in law 3 other
 specify -----

B11. What is your occupation? Crafts men, laborers 1 trader 2 government employee
 3 Farmer 4 professional- technical 5 other----- 6

PART THREE

SOURCE OF INCOME AND LEVEL OF INCOME OF THE HOUSEHOLD

C1. Did you have a source of income for your household? YES 1 NO 0

C2. What is your primary source of income? OMFIs 1 relative and friend 2 private borrower 3
 Bank 4 ikub and Iddir 5 other -----

C3. What is your secondary source of income? OMFIs 1 Banks 2 remittance 3 private
 borrowers 4 friends and relative 5 other specify-----

C4. Please tell me your average monthly income from the following sources?

Sources	Monthly salary	Petty trade	Home rent	Daily work/laborer	Business profit	Total income
Birr/gain						

C5. During the last twelve months how was your over all income?

1 Increased 2 Decreased 3 Stayed the same 4

C6. where you save from your small amount you have?

Bank 1 OMFIs 2 in my pocket 3 to relative 4 idir/ikubi 5 other-----

C7. What is your total saving amount in birr-----

Part four

Household asset and wealth condition

D1. Did you have a house? YES 1 NO 0 (if NO please skip this part and go to part five)

D2. If your answer to D1 is yes; how do you get ownership to house?

Gifted from families 1 bought it from other 2 other specify it -----

D3. If your answer to D1 is yes; what is the condition of the house?

Sari bet 1 korkoro bet 2 sari bet and korkoro bet other -----

D4. If you have a house what is its market value? Specify in birr-----

D5. Last 12 months, is there any improvements or additions made to your home that costs more than birr 100? YES 1 NO 0

D6. If your answer to D5 is yes; which one have you done? (You can choose more than one answer)

House repair (roof, floor, wall) 1 House expansion 2 Improved water or sanitation system 3
Lighting/electricity 4 others specify-----

D7. In following table please set the value of assets in birr if you are the owner to it.

Asset type	No. of asset in type	In birr value
Refrigerator		
Sofa		
Gold & jewelry		
TV		
Chair		
Table		
Shelf		
Bed		
Total in birr value		

PART FIVE

E. LIVING STANDARD AND EXPENDITURE OF HOUSEHOLDS

E1. What was the average monthly expenditure of your household in birr? -----

E2. Who was the bearer (source) of expenditure in your household the loan?

Yourself (head of household) 1 other family member 2

You and other family members 3 Relatives 4 others (Please specify) -----

E3. How many times does your household eat meals in a day?

Once 1 Twice 2 Three times 3 More than three times 4

E4. Do you think that your monthly expenditure was increased? Yes 1 No 0

E5. If your answer to E4 yes, do you think that the nutritional status of your family improved because of the loan you received? Yes 1 No 0

E6. If your answer to E4 is No; what is the reason mention it-----

E7. During last 12 months what was your household diet condition looks like?
Worsened 1 Stayed the same 2 Improved 3

E8. During the last twelve months was there ever a time when it was necessary for your household to eat less because of either lack of food or lack of money to buy food? Yes 1 No 0

E9. If answer to E8 is yes, how long did this period last in month-----

E9. If your answer to E8 is how the household solve the problem (shortage)?

Borrowed from friends 1 Borrowed money or food at cost 2 Sold personal property 3

By migrating to seek employment 4 other -----

E10. What is your average food expenditure in birr? -----

E11. What is your average non-food expenditure? -----

E12. During last 12 months your food & non-food expenditure?

Increased 1 stayed the same 2 decreased 3

PART SIX

F. ACCESS TO EDUCATIONAL FACILITIES

F1. Do you have children and other school aged household members? YES 1 NO 0 (if NO skip this part and please go to part seven)

F2. If yes, how many of them have attended to school in number -----

F3. What is your average expenditure to education of children per year in birr? -----

F4. During last 12 months what do you think expenses to school attending children?

Increased 1 decreased 2 stayed the same 3

F5. If your answer to G4 is increased; do you think that income improvement attributed to OMFI increase assesses to education in household? Yes 1 NO 0

F6. If your answer to G5 is No; what is the reason?

New school building in the area 1 Income improvement in the household not attributed to OMFIs 2 Increase the awareness of the household towards education 3

Other specify-----

PART seven

MEDICAL FACILITIES

G1. Is there any household member sick or injured during the last twelve months? Yes 1 No 0
(if No skip this part and please go to H)

G2. Is there any household member sick or injured get medical treatment during the last twelve months? Yes 1 No 0

G3. If your answer to G2 is yes; where did you get the money you paid for medical treatment?
From my business profit 1 from my voluntary saving 2 Borrowed from relatives
3 Borrowed from other sources at cost 4

G4. During last H2 months what do think over all medical facility? Increased 1 stayed the same 2 decreased 3

G5. What is your average medical expenditure in birr for the last 12 months? -----

PART EIGHT (OMFIs beneficiaries only)

Are you participants of omo microfinance institution? Yes 1 No 0 (if yes continue from H1, if No pass to I)

H1. Have you taken loan from OMFIs? Yes 1 No 0

H2. If your answer to I1 is yes; how much was your first loan in birr -----

H3. If your answer to I1 is No; what are the other credit access other than OMFIs? Banks 1
Relatives 2 friends 3 Iddir 4 Individual money lenders 5 others---

H4. Do you spend the entire loan for running your business according to loan agreement?
Yes 1 No 0

H5. If your answer to I4 is No; for what purpose you spent? (Multiple answers are possible)

For food consumption 1 for clothing 2 for health care 3 to buy fixed asset

Other specify-----

H6. How did you get the loan? By forming group 1 individually 0

H7.what is the activity you engaged? Small business 1 manufacturing 2 service 3
agriculture 4 others mention -----

H8. Did you participate in saving program of OMFIs? YES 1 NO 0

H9. If your answer to H8 is yes, what type of saving?

Compulsory 1 Voluntary 2 both compulsory and voluntary 3 Others-----

H10.How much was your compulsory saving? Amount in birr-----

H11. How much was your voluntary saving? Amount in birr-----

H12. If your answer to H8 is yes why you save?

Repay credit 1 per-questionnaire 2 to pay bile 3 to child school fee 4 Other-----

H13. What do you think about your voluntary saving of last 12 months?

Increased 1 decreased 2 stayed the same 3

H14. Have you got any training from OMFI? Yes 1 No 0

H15. If your answer to H15 is yes, is it satisfactory? Yes 1 No 0

H16. In general effect of loan in your likelihood (Indicate your choice by (√) mark)

Effect of loan;	Increased Significantly (1)	Increased Slightly(2)	Stayed the same (3)	Decrease d (4)
Level of income				
Educational facilities				
Medical facilities				
Housing condition				
Total consumption				
Diet/mile conditions				
Capacity to save				

Thank you to your participation!

Appendix II: Sample household in common support region.

psmatch2: Treatment assignment	psmatch2: Common support		Total
	Off suppo	On suppor	
Untreated	10	100	110
Treated	14	76	90
Total	24	176	200

Appendix III logistic regression

```
. logit $ylist $xlist
```

```
Iteration 0: log likelihood = -137.62776
Iteration 1: log likelihood = -98.872298
Iteration 2: log likelihood = -98.630464
Iteration 3: log likelihood = -98.630053
Iteration 4: log likelihood = -98.630053
```

```
Logistic regression
```

```
Number of obs = 200
LR chi2(11) = 78.00
Prob > chi2 = 0.0000
Pseudo R2 = 0.2834
```

```
Log likelihood = -98.630053
```

trt	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
age	-.0715981	.020204	-3.54	0.000	-.1111973 - .031999
hhfsize	.487837	.619812	0.79	0.431	-.7269721 1.702646
numbdept	-1.148868	.6193385	-1.85	0.064	-2.362749 .0650128
lst12mfdshrt	.6708711	.3645106	1.84	0.066	-.0435566 1.385299
hhingl12m	-.4044367	.3693587	-1.09	0.274	-1.128367 .3194931
numbwrkforce	.0715896	.5999886	0.12	0.905	-1.104367 1.247546
martstus	.0876062	.1863847	0.47	0.638	-.2777011 .4529136
hhheadsex	-1.176986	.3670268	-3.21	0.001	-1.896345 -.4576267
hhheadeduclvl	.5329404	.2167091	2.46	0.014	.1081984 .9576824
inclvelofhh	.3617091	.4142965	0.87	0.383	-.4502971 1.173715
othersorcoring	-1.258327	.3761605	-3.35	0.001	-1.995588 -.5210661
_cons	3.87694	1.604375	2.42	0.016	.7324227 7.021458

Appendix IV: psmatch2 propensity score

psmatch2: Propensity Score

Percentiles		Smallest		
1%	.0178443	.0142306		
5%	.0564545	.0175683		
10%	.0898235	.0181204	Obs	200
25%	.2095049	.0303371	Sum of Wgt.	200
50%			Mean	.45
		Largest	Std. Dev.	.2817292
75%	.7083287	.94201		
90%	.8565249	.9468175	Variance	.0793714
95%	.8938904	.9670182	Skewness	.2404615
99%	.9569178	.9739493	Kurtosis	1.754045

Appendix V: correlation matrix to covariates

```
. correlate $xlist
(obs=200)
```

	age	hhfsize	lst12~rt	hmtthe~y	hhin~12m	numbwr~e	martstus	hhhead~x	hhhead~l	inclve~h	others~g
age	1.0000										
hhfsize	-0.0170	1.0000									
lst12mfdshrt	-0.1139	-0.0876	1.0000								
hmttheatdaly	-0.1977	-0.0407	0.0934	1.0000							
hhingl12m	-0.0937	0.0215	-0.0464	-0.0035	1.0000						
numbwrkforce	-0.0054	0.5623	0.0258	-0.0697	0.0898	1.0000					
martstus	-0.0359	-0.2112	0.0034	0.0590	-0.0041	-0.2227	1.0000				
hhheadsex	0.1150	0.1051	-0.0464	-0.0826	-0.1424	0.1283	-0.0446	1.0000			
hhheadeduc~l	-0.1518	-0.1295	0.0629	0.2023	0.0182	-0.1644	-0.0737	-0.0814	1.0000		
inclvelofhh	-0.0003	0.2517	0.0736	-0.1943	0.0039	0.1693	-0.0477	0.0454	-0.0143	1.0000	
othersorcb~g	0.0471	0.0371	-0.1763	-0.0686	0.0843	0.1287	-0.0250	0.0638	-0.0904	-0.0179	1.0000

Appendix VI: Multicollinearity test and heteroscedasticity for variable included in PSM model

. vif

Variable	VIF	1/VIF
hhfsize	7.34	0.136242
numbdept	5.00	0.199960
numbwrkforce	3.41	0.293441
martstus	1.09	0.915197
hhheadeduc~1	1.09	0.917375
inclvelofhh	1.08	0.923294
hhheadsex	1.08	0.923295
lst12mfdshrt	1.07	0.933056
othersorcb~g	1.06	0.940779
age	1.06	0.942571
hhingl12m	1.05	0.949712
Mean VIF	2.21	

. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
 Ho: Constant variance
 Variables: fitted values of trt
 chi2(1) = 1.76
 Prob > chi2 = 0.1849

Appendix VII psmatch2: Output of Rosenbaum bound

Rosenbaum bounds for Rho (N = 76 matched pairs)

Gamma	sig+	sig-	t-hat+	t-hat-	CI+	CI-
1	.44646	.44646	72.2377	72.2377	-642.738	890.025
1.1	.58953	.309996	-124.078	214.799	-747.94	1009.53
1.2	.71099	.204226	-249.795	366.017	-859.656	1156.74
1.3	.805303	.128763	-350.125	540.863	-956.085	1261.42
1.4	.873646	.078265	-424.319	662.615	-1028.77	1356
1.5	.920545	.046137	-496.055	733.129	-1122.32	1457.68
1.6	.951351	.026508	-568.223	803.426	-1215.34	1602.12
1.7	.970881	.014903	-646.429	890.425	-1297.36	1721.8
1.8	.982904	.008226	-701.21	945.053	-1382.33	1771.67
1.9	.990128	.004469	-757.789	1021.3	-1446.7	1881.86
2	.994381	.002396	-819.171	1109.27	-1497.37	1978.89
2.1	.996841	.001269	-877.192	1179.93	-1537.81	2063.69
2.2	.998243	.000665	-920.342	1230.43	-1579.55	2220.85
2.3	.999032	.000346	-962.244	1286.83	-1623.82	2343.13

2.4	.999471	.000178	-1006.73	1322.88	-1674.92	2431.43
2.5	.999713	.000091	-1054.66	1374.05	-1708.35	2517.54
2.6	.999846	.000046	-1098.08	1430.6	-1750.02	2585.34
2.7	.999917	.000024	-1136.98	1466.81	-1787.3	2685.87
2.8	.999956	.000012	-1188.51	1530.95	-1829	2810.87
2.9	.999977	5.9e-06	-1231.13	1627.94	-1861.52	2865.35
3	.999988	3.0e-06	-1265.64	1692.56	-1894.84	2930.51

Gamma	sig+	sig-	t-hat+	t-hat-	CI+	CI-
1	6.9e-10	6.9e-10	2730.81	2730.81	1849.1	3920
1.1	5.9e-09	6.6e-11	2572.87	2896.9	1704.91	4174.75
1.2	3.5e-08	6.3e-12	2437.43	3096.66	1600.43	4500.18
1.3	1.6e-07	6.0e-13	2319.91	3266.24	1478.25	4773.43
1.4	5.8e-07	5.7e-14	2202.74	3491.87	1385.81	5033.35
1.5	1.8e-06	5.4e-15	2061.36	3645.44	1283.64	5296.13
1.6	4.7e-06	5.6e-16	1956.69	3789.98	1179.9	5529.18
1.7	.000011	0	1846.57	3925.27	1094.18	5804.14
1.8	.000024	0	1776.86	4064.84	1009.41	6023.38
1.9	.000048	0	1688.56	4189.94	924.889	6244.53
2	.000089	0	1634.8	4407.6	830.274	6422.74
2.1	.000156	0	1569.97	4542.62	743.334	6659.98
2.2	.00026	0	1519.9	4693.95	697.162	6916.72
2.3	.000413	0	1446.87	4821.74	637.296	7139.8
2.4	.000631	0	1412.44	4955.34	577.089	7309.77
2.5	.000931	0	1368.01	5083.07	516.958	7520.49
2.6	.001332	0	1298	5205.55	476.327	7813.67
2.7	.001855	0	1271.01	5344.74	441.4	8039.72
2.8	.002522	0	1209.99	5437.62	393.315	8224.99
2.9	.003356	0	1167.91	5580.63	361.407	8463.8
3	.004377	0	1121.71	5729.47	325.375	8655.48

Gamma	sig+	sig-	t-hat+	t-hat-	CI+	CI-
1	1.9e-10	1.9e-10	524.427	524.427	394.119	646.727
1.1	1.7e-09	1.6e-11	495.77	545.323	368.204	675.515
1.2	1.1e-08	1.5e-12	475.206	566.979	345.638	701.79
1.3	5.1e-08	1.3e-13	458.996	582.25	325.044	721.164
1.4	2.0e-07	1.1e-14	441.183	600.492	306.733	736.924
1.5	6.2e-07	1.0e-15	425.43	618.542	292.252	753.69
1.6	1.7e-06	1.1e-16	409.071	635.463	281.716	766.532
1.7	4.2e-06	0	393.796	646.836	267.942	783.347
1.8	9.4e-06	0	381.628	663.041	247.929	799.671
1.9	.000019	0	366.526	680.471	235.817	815.956
2	.000036	0	353.468	690.869	219.677	825.737
2.1	.000065	0	343.185	705.477	201.095	842.819
2.2	.00011	0	330.052	714.793	186.409	858.03
2.3	.000179	0	321.658	725.4	175.967	870.207
2.4	.000278	0	310.936	733.354	161.804	886.051
2.5	.000418	0	304.804	742.13	154.467	894.37
2.6	.000608	0	297.221	748.019	143.12	907.454
2.7	.000859	0	290.656	756.75	133.989	916.914
2.8	.001186	0	284.105	761.7	127.78	931.513
2.9	.001599	0	280.394	771.054	118.624	940.277
3	.002114	0	272.17	776.835	111.939	951.635

*Gamma log odds of differential assignment due to unobserved factors

sig+ upper bound significance level

sig- lower bound significance level

t-hat+ upper bound Hodges-Lehmann point estimate

t-hat- lower bound Hodges-Lehmann point estimate

CI+ upper bound confidence interval (a= .95)

CI- lower bound confidence interval (a= .95)
