



IMPACT OF MICRO-FINANCE ON WOMEN'S ECONOMIC EMPOWERMENT: A CASE STUDY IN GIMBO WOREDA, SOUTH NATION, NATIONALITIES AND PEOPLES REGION, ETHIOPIA

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Abstract:

In a subsistence agriculture and low income developing countries, microfinance provision to rural areas is taken as a mechanism to reduce poverty and to empower women economically. MFI have made important contributions to poor people particularly to women, by providing a financial service to those who are excluded from the formal financial sector. The study aims to assess the impact of microfinance on women economic empowerment with a case study of Omo Microfinance Institution in Gimbo woreda. By using multi-stage sampling method, the primary data was collected from a total of 200 rural women of which 115 of them are non-clients of Omo Microfinance Institution, which are used as control group. The control groups are future clients that are very similar to clients in their overall characteristics. The empirical analysis of this research was carried out both by descriptive statistics and regression analysis. The regression analysis part was used propensity score matching method of analysis. The estimated logistic regression result depict that women's involvement in major decision making is significantly affected by age, women's spouse level of education, number of family size, head of the house hold, being member of other MFI and amount of initial wealth. Women's level of education, marital status and ecology were variables that are insignificant in affecting women's economic empowerment. The propensity score matching estimation result reveals that OMFII has significant effect in increasing average yearly household income and personal cash saving of its client but it is insignificant in affecting positively women's access and ownership and control over assets. Thus, the program intervention has been resulted a positive impact on women's economic empowerment in the study area. Therefore, it is recommended that credit provision of OMFII should give priority in asset formation, access to resources, acquire asset and able to control over it.

Keywords:

Microfinance, Empowerment, Propensity Score Matching

1. Background of the Study

Gender discrimination, marginalization, unequal treatment and unequal access to resources between women and men hinder women's progress. Due to these inequalities women are still vulnerable to poverty and they are marginalized from different economic, social and political activities (Batliwal, 1994). Gender equality is a means to promote growth, reduce poverty and particularly to empower women (World Bank, 2001). In subsistence agriculture and low income developing countries, microfinance provision to rural areas is taken as a mechanism to handle poverty and to empower women's economically (Gebrat, 2013).

The term empowerment stands for a broad range of concepts and has different meaning in different contexts (Baden, 1997; Malhotra et al., 2002). Different authors define the word empowerment according to the need of their

work in different ways. Empowerment is the enhancement of assets and capabilities of diverse individuals and groups to engage, influence and hold accountable to the institutions which affect them (Bennett, 2002). Women's empowerment is a means to promote growth, reduce poverty and promote better governance (World Bank, 2001).

Economic empowerment is defined as women's access to savings and credit which gives them a greater economic role in decision making through their decision about savings and credit (Mayoux, 2005). Economic empowerment looks for guarantee of skills, capabilities, resources and access to secure and sustainable incomes and livelihoods as well as access to assets and resources (Luttrell, 2009).

Today, in many developing countries microfinance plays crucial role in alleviating poverty. It is a real development instrument for the improvement of the economic life of the poor, particularly women. Ethiopia is one of the poorest countries in the world and to address this challenge, the government is implementing different developmental programs like licensing the formal credit sector to reach the rural poor at the grass root level. Providing financial services to the poor particularly for women is central to economic empowerment.

The establishment of formal credit sector in Ethiopia dates back to 1995. Particularly, the licensing and supervision of microfinance institution proclamation of the government encouraged the spread of microfinance institutions in rural areas (Getaneh, 2005). The microfinance industry in Ethiopia has shown a significant qualitative and quantitative growth since its establishment. The formal base has been laid by the issuance of proclamation No. 40/96 which established the licensing and supervision of MFI as share companies in accordance with the commercial code of Ethiopia (Al-Bagdadi and Bruntrup, 2002).

Microfinance contributes to poverty reduction through increasing income, accumulations of capitals, and diversification of income sources for investment (Tesfay, 2003). In Ethiopia studies show that, microfinance programs benefited the poor in terms of increased income, employment creation, changing the saving habits of households and their expenditure pattern drastically increased on different goods and services (Haymanot, 2007; Balamurugan, 2012; Gebrat, 2013). As client of microfinance institutions, women's income was increased proportionally as men income increased (Geburu and Paul, 2011).

Omo MFI is one of the MFI established in Ethiopia in the South Nations Nationalities and Peoples Region (SNNPR) following the proclamation No. 40/1996 in 1997, which is intended to fill the shortage of formal financial institutions by meeting the needs of the poor households and small scale borrowers in income generating schemes. OMFI is operating in all zones and woredas of the region. According to Balamurugan (2012), OMFI serves more than 872,000 loan and saving clients.

Microfinance is one tool to empower women, though it is not given emphasis in the past. However, currently governments and various organizations have began to recognize microfinance as an important intervention in empowering the poor particularly women.

The impact of microfinance on women empowerment is still debatable. Though microfinance plays a great role, there is no agreement that microfinance programs have positive effects on economic status of women (Aghion and Morduch, 2005). Some empirical findings show that microfinance has positive impact on women's economic empowerment while others argue that microfinance has negative impact on women's empowerment.

Optimist advocators of microfinance argue that microfinance has positive impact in empowering women through an increase in household consumption expenditure, ability to make small and large purchase, control over assets, involvement in family decision making, mobility and freedom from family domination are listed as channels through which women could be empowered (Hashemi et al., 1996; Schuler et al., 1996; Pitt and Khandker, 1997; Kato and Kratzer, 2013; Awojobi 2014). Similarly, studies in Ethiopia depict that microfinance has significant impact on women's empowerment (Tesfay, 2003; Haymanot, 2007; Balamurugan, 2012; Ahmed, 2013).

On the contrary, other studies on microfinance show that microfinance has insignificant effect on women empowerment. They argue that women have little or no control over their loan and the loan is controlled by male relatives, a number of borrowers were to lose their property for repaying the loan. Thus opponents of microfinance argue that microfinance has negative impact on women empowerment (Vengroff and Creevey, 1994; Goetz and Gupta, 1996; ILO, 1998; Kulkami, 2011).

According to Tesfay (2003), in Ethiopia microfinance services have limited impact on entrepreneurial development, microenterprise sustaining and profitability. A study conducted by Yimer (2011) on rural microfinance and women empowerment indicates that one third of the respondents included in the study did not perceive meaning full changes in their life and the impact of microfinance is not same and alike to all matured women clients.

Thus, there is no uniformity among scholars and researchers on the impact of microfinance on women economic empowerment. Therefore, this study is conducted to fill the existing literature gaps where there are inconclusive findings by including additional variables on previous studies. On the other hand, the researcher couldn't find any research undertaken on the research question at hand in the study area. So, the finding of this study will help to visualize the impact of microfinance on women economic empowerment in the study area.

The general objective of this study is to analyze the economic impact of Omo microfinance institution in empowering women. The specific objectives of this study are:

- To assess the impact of microfinance on women's access to resources and their control over assets.
- To investigate the contribution of microfinance on women's participation in household decision making.
- To examine the effects of microfinance on women's income and on the saving habits of women.

2. Empirical Literature

Various studies within the country or across countries may find different results on the impact of microfinance in empowering women. Some studies argue that microfinance has significant role in empowering women while other argues that microfinance has no role in empowering women. Even if microfinance plays a great role, there is no agreement that microfinance programs have positive effects on economic status of women (Aghion and Morduch, 2005).

Microfinance credit provision by Grameen Bank and Bangladesh Rural Advancement Committee (BRAC) argues that microfinance has significant effect in empowering women through increased mobility, economic security, involvement in major decision making, ability to make large purchase, freedom from family domination, political and legal awareness, participation in public protests and political campaigning (Hashemi, et al., 1996). Impact participation by gender three group based credit programs, Grameen Bank, Bangladesh Rural Advancement Committee (BRAC) and Bangladesh Rural Development Board's (BRDB) on women and men in general find that significant effect on the well-being of the poor household but the effect is greater if women are the program participant (women annual household expenditure increased more than men) (Pitt and Khandker, 1997).

A study by Roxin et al (2010), on impact of microfinance in Sierra Leone revealed that MF had improved clients' business expansion, increased their income and expenditure. Their study depict that microcredit has considerable impact on economic empowerment but it has only initial impact on social empowerment. At the same time their finding reveals no impact on women political empowerment. Different scholars argue that, microfinance has no role in empowering women since women have little or no control over their loan and the loan is controlled by male relatives, a number of borrowers were to lose their property for repaying the loan (Vengroff and Creevey, 1994; Goetz and Gupta, 1996).

The study in Tigray region on the impact of microfinance on poor women shows that directly or indirectly, microfinance services provided by Dedebit credit and saving institution (DECSI) are contributing to the sustenance and improvement of the life of the poor women and their households. This study was conducted using multi-stage sampling with descriptive method of analysis. The evidence from this study depict that microfinance has positive impact in increasing income, diversifying sources and reducing variability of income. It also show that increased consumption, improved living condition in terms of house repairs and expansions, medical services and capital accumulation in the form of increased saving. This study critically depicts that women empowerment in terms of improved attitude and respect of their husband, increased self-confidence and self-image (Tefay, 2003).

A research conducted at Amhara credit and saving institution (ACSI) indicates that microfinance participant women are much better than non-participants in terms of household asset holding, yearly average off farm income, and involvement in decision making process in the household. The study was conducted using simple random sampling method with logit econometric method of analysis. Similarly, the estimation result of the logit model indicates out of 23 explanatory variables used 15 of them are significant (Gebrat, 2013). The study by Haymanot (2007), using descriptive statistics and binomial logit regression method of analysis reveals that microfinance has a positive impact on women economic empowerment in terms of increased participation of women in the household decision making, and improved living standard condition of its clients. Matured clients of ACSI have improved their household incomes, asset possession level, and saving habit; thereby positively affecting their ability to fully participate in household decision making.

A study by Yimer (2011), at ACSI using explanatory research method, show that in majority cases matured women clients have gone substantial change in many dimensions, to mention some indicators, like change in terms of skills essential for making and managing businesses, level of confidence and self-esteem and worth, personal cash assets, level of financial independence, income and diversifying income sources. But one third of the respondents included in the study did not perceive meaning full changes in their life. Therefore, the impact of microfinance is not same and alike to all matured women clients.

The study in SNNPR of OMFI by Balamurugan at Wondogent indicates that microfinance has significant effect on women empowerment. The descriptive statistics and regression analysis of the study was conducted using before and after method of analysis. OMFI contributes to social and economic empowerment of women in the study area. Women's hope and self-confidence improved through active participation in OMFI. Wondogent OMFI gives to women significant changes in terms of employment creation and income generation, saving habits and decision making. Therefore the study concludes that Wondogent OMFI affects women in terms of social and economic empowerment (Balamurugan, 2012).

3. Research Methodology

Primary data was collected by means of a structured questionnaire responded by OMFI matured clients (being clients 3 to 5 years), incoming clients (clients for 1 to 2 years), and non-clients (loan applicants but yet not given) in Gimbo woreda. At the same time, semi-structured interviews were held with clients to get additional information of respondents' opinions, perceptions and attitudes to verify information given by clients. An interview of different officials and experts was conducted at different levels.

This study was also used secondary data obtained from various sources like reports, manuals, abstracts etc. Mainly quantitative data was used.

3.1. Sampling Design and Technique

The survey was used cross-sectional data. Under this study, multi-stage and purposive sampling methods were used. At the first stage Gimbo woreda is selected because it has huge clients than others. The second stage was selecting tree clusters out of five clusters in the woreda and finally randomly selecting clients from the list file of the institution.

To determine the sample size, the researcher tried to consider information from prior studies in the same topic, the available budget at hand for the study and time frame to accomplish this study within the calendar were considered. Prior studies like Haymanot (2007), Balamurgan (2012) and Ahmed (2013) used their sample size 171, 120, and 123 respectively. In addition by taking into account my budget, time and its feasibility, for this study data was collected from 200 women. Of the total samples 115 of them are non-clients which are used as a control group for the study.

3.2. Method of Analysis

The empirical analysis of this research was employed both descriptive statistics and regression analysis. The descriptive statistics was used measure of dispersions (mean, SD, variance), percentages, tables and maps. The regression analysis was employed logit to estimate propensity score matching using STATA software.

Propensity Score Matching (PSM)

The justification for choice of PSM method over other impact analysis method like DID method was that, PSM method uses only cross-sectional data collected at point of time while DID method needs baseline data. Another justification for the use of PSM method was that, self selection bias can be best controlled or minimized by using PSM and PSM reduces dimensionality. In non-experimental data, PSM compares treatment effects across participant and matched non-participant units. PSM assumes selection bias is based on only observed characteristics (not account for unobserved factors). Because of the above reasons, PSM method is chosen for this study.

The PSM is defined as the conditional probability of receiving treatment (participant) given pre-treatment characteristics (Rosenbaum and Rubin, 1983).

$$p(X) = \text{pr}(D=1 / X) = E\{D / \mid X\}$$

Where $D = (1, 0)$ is the binary variable indicating whether a woman has empowered ($=1$) or not ($=0$) and X is a multidimensional vector of pre-treatment characteristics (observable characteristics) and $p(X)$ is the propensity score. ATT of an individual i can be expressed as:

$$ATT = E(W_{i1}/B=1) - E(W_{i0}/B=1)$$

The $E(W_{i0}/B=1)$ from the above equation is unobservable outcome known as counterfactual. In other words $E(W_{i0}/B=1)$ is the average outcome of treated individuals had they not received the treatment).

In estimating propensity scores, all variables that affect participation in microfinance are included. Therefore, the average treatment effect on those treated conditional on propensity score $p(x)$ is given as:

$$ATT = E(p(x)/B=1) - E(p(x)/B=0)$$

ATT is the difference between expected outcome values with and without treatment for those who actually participate in treatment.

ATT is average treatment effect on treated (i.e the effect of treatment) if the woman participate in microfinance ($B=1$) and otherwise ($B=0$).

According to Becker and Ichino (2002), the assumption of common support region falls between 0 and 1 (i.e. $0 < p(x) < 1$). This implies that the test of balancing propensity is performed only on the observations whose propensity score belongs to the common support region of the propensity of treated and control groups. Those individuals that lay outside the common support region would be excluded in treatment estimation and this improves the quality of matching to estimate ATT.

Estimation of the Propensity Scores

The probability of women clients to be empowered (women's involvement in major decision making), P_i is given as;

$$P_i = E(Y=1/X_i) = 1 / (1 + e^{-(\beta_1 + \beta_2 X_i)})$$

The logistic representation of women's involvement in major decision making is;

$$P_i = 1 / (1 + e^{-Z_i})$$

The probability of women's does not involve in major decision making is given as;

$$1 - P_i = 1 / (1 + e^{Z_i}) \dots \dots \dots (9)$$

$$p_i / (1 - p_i) = (1 + e^{Z_i}) / (1 + e^{-Z_i}) = e^{Z_i} \dots \dots \dots (10)$$

$p_i / (1 - p_i)$ = the odds ratio in favor of women's involvement in major decision making, i.e. ratio of the probabilities that women participate in major decision to the probabilities that not participate in decision making. Taking the natural logarithm;

$$L_i = \ln(p_i / (1 - p_i)) = Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n$$

By taking the error term in to consideration, the log odds ratio model becomes

$$Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + u_i \dots (12)$$

Where

- P_i is the probability of participating in a programme
- Z_i is a function of explanatory variables (X_i)
- X_i is the explanatory variables
- β_0 is an intercept
- $\beta_1, \beta_2, \dots, \beta_n$'s are slopes of the equation in the model
- L_i is log of the odds ratio which is linear in X_i 's and B 's
- U_i is the disturbance/error term

Here Z_i , takes two possible values i.e. $z=1$ women's are economically empowered means participates in major decision and $z=0$ if not.

4. Result And Discussion

This section presents both the descriptive and econometric result and findings of the study. The study examined the impact of OMFI on women's economic empowerment based on primary data collected from women clients and non-clients in the study area. The questionnaire was designed in line with the pre-determined objectives of the study and distributed to the sampled respondents. The information given in the questionnaire was checked with semi-structured interview from randomly selected sampled respondents.

From the total sampled respondents, the data was collected from 196 respondents. Of the total respondents 84 of them are clients of OMFI while remain 112 of them are non-clients. Non-clients are those respondents that came to the organization for loan after they fulfill the requirements but not yet given loan. Regarding the response rate of the questionnaire, 98.8% of client respondent returned the questionnaires while 97.3% of the control groups were

returned the questionnaire. Of the total respondents 2% of women were not willing to give information because some of them were on work and some others were not available at the time.

The t-test result of descriptive statics indicates that, the mean difference on asset ownership between client and non-clients is 0.0803571 and the p-value is 0.1233 which is insignificant at 10% significance level. This leads us to accept the null hypothesis that there is no difference between clients and non-clients in asset ownership. So, t-test analysis depict that OMF has limited impact on access and control over asset between program participants and non-participants. This is because of their unwise use of loan for consumption expenditures and their limited entrepreneurship on the use of loan.

The t-test result for average yearly household income depict that, the mean difference between clients and non-clients average yearly income is -59094.64 and the p-value is 0.0000 which is highly significant at 1% significance level. This leads to reject the null hypothesis that there is no difference between clients and non-clients average yearly household income. The implication is that clients of OMF earn better average yearly household income than non-clients. The result is consistent with the findings of (Tesfay, 2003; Haymanot, 2007; Roxin et al, 2010; Gebru and Paul, 2011; Balamurugan, 2012; Gebrat, 2013 and Ahmed, 2013; Kato and Kratzer, 2013).

Sampled respondents explained their saving experience before they were client of OMF as follows. Among 84 clients 92.77 % of respondents explained that they didn't have saving account at any institution before they join OMF. Only 7.23% of clients reported that they have saving account in CBE with their male partner. 80.52% of clients explained that they haven't knowhow or awareness about saving while 14.29% and 5.19% of the clients indicated that lack of money and distance of financial institutions affect them not to save.

On the other hand, 92.86% of non-clients explained that they haven't saving account at any institution. They said that we opened saving account after the selection or recruit of OMF agent in the near past for the purpose of loan. Only 7.14 % of non-clients have saving in the form of equb and account at CBE. 70.48% of non-clients explained that they haven't knowhow or awareness about saving while 12.38% and 17.14% of the clients indicated that lack of money and distance of financial institutions affect them not to save.

From the t-statistic test, the mean difference on personal cash saving between clients and non-clients is -0.698799 and the p-value is 0.0000 which is highly significant at 1% significance level. This leads us to reject the null hypothesis that there is no difference between clients and non-clients in personal cash savings. This implies that clients of OMF have better cash savings than non-clients. In general, OMF has improved clients saving habits than non-clients and this finding is consistent with (Haymanot, 2007 and Ahmed, 2013; Kato and Kratzer, 2013).

Estimation of Econometric Model

To estimate the effect of propensity scores, logit model is employed because there is no difference on result between logit and probit model (Caliendo and Kopeinig, 2005).

Before looking the econometric regression result, it is better to check the fitness of the model usually the problem of heteroscedascity and multicollinearity. Accordingly, the problem of heteroscedascity which is common in cross-sectional data was checked and solved by robustness of standard error before the estimation of the model.

Propensity Scores

From the total sample, propensity score matching estimation result discards three observations from clients but it doesn't discard any observation from non clients. As indicated from table 11 below, 112 of non-clients (untreated) are on common support region and 81 of the clients (treated) are on common support.

Table 4.11 Distribution of common support

psmatch2: Common support			
Treatment Assignment			
	Off suppor	On suppor	Total
Untreated	0	112	112
Treated	3	81	84
Total	3	193	196

Source: Own computation, 2016

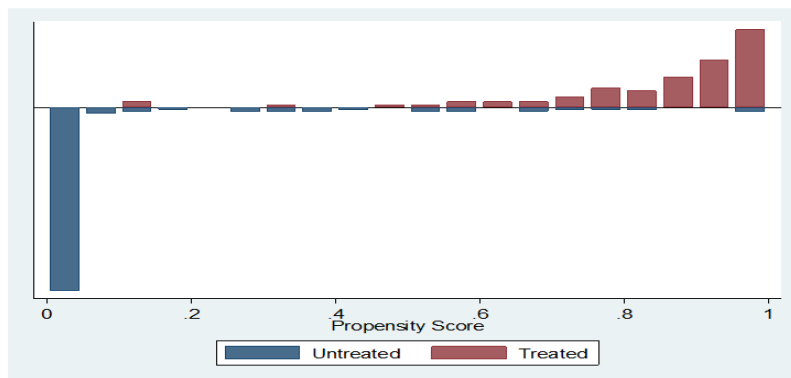


Fig 4.1 Presentation of common support region before matching
Source: Own computation, 2016

The minima and maxima criterion deletes all observations whose propensity score is smaller than the minimum and larger than the maximum propensity scores (Caliendo and Kopeing, 2005).

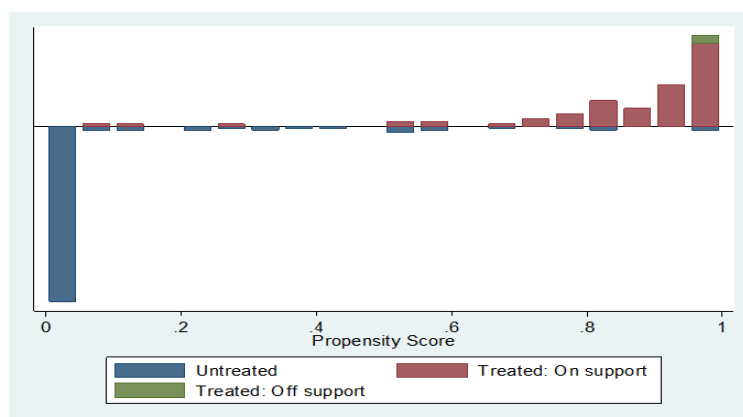


Fig 4.2 Presentation of common support region after matching
Source: Own computation, 2016

Accordingly, the result of estimated propensity score varies in between 0.000 to 0.998 with the mean of 0.103 for untreated and from 0.119 to 0.999 with the mean of 0.85 for the treated. That is, clients whose estimated propensity scores less than 0.119 and larger than 0.998 are not included in the matching exercise. That is [0.119, 0.999] and [0, 0.998] are propensity scores for treated and untreated respectively. Therefore, by minima and maxima criterion, taking the minimum propensity score from the treated and the maximum score from the untreated forms the common support region. Thus, the common support regions lie between [0.119, 0.998] which show none of observations was dropped from non-clients in the sample.

Table 4.12 Distribution of estimated propensity scores

	Observations	Mean	Std. Deviation	Minimum	Maximum
Untreated	112	0.103501	0.2233307	0.0000207	0.9981149
Treated	84	0.8531177	0.1776374	0.1190692	0.9997642
Total	196	0.4247653	0.424432	0.0000207	.9997642

Source: Own computation, 2016

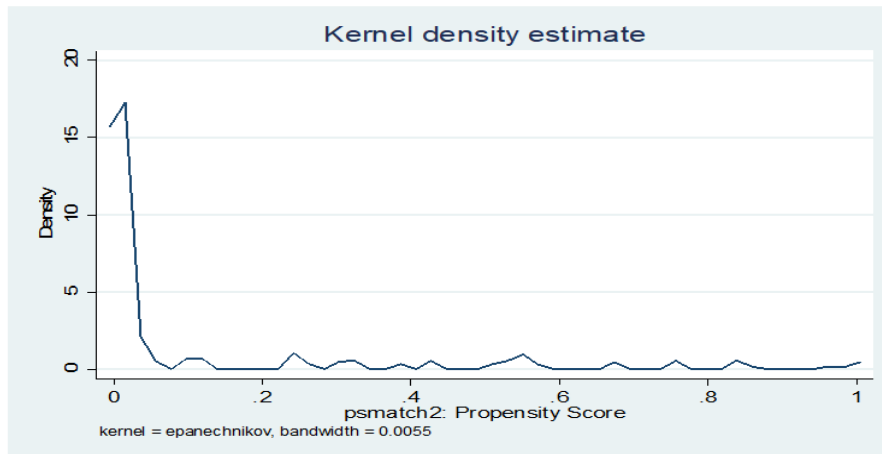


Fig 4.3 (a) Kernel density estimate for non-clients (i.e. most of non-clients are found in the left middle left partly)

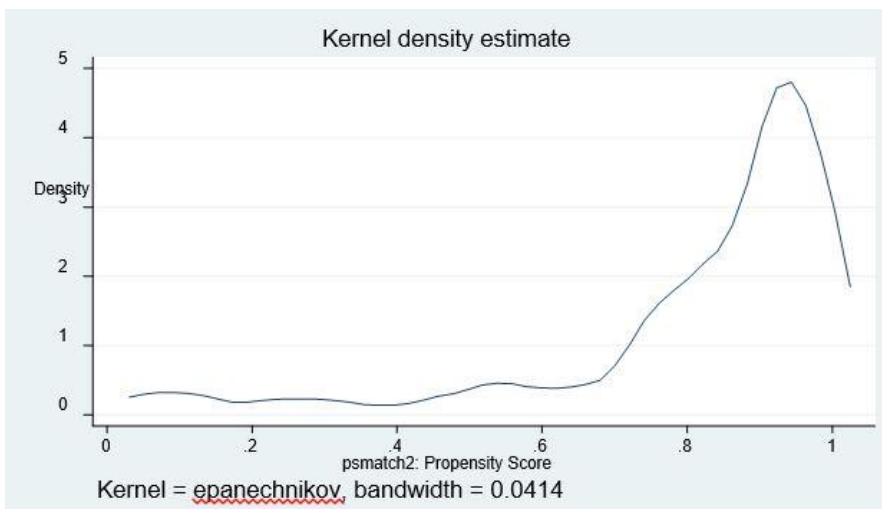


Fig 4.3 (b) Kernel density estimate for clients (i.e. most of clients are found in the right hand side middle left partly)

The above graphs depicts that there is wide area in which the propensity score of clients are similar to those non-clients.

Choosing Matching Algorithm

Different matching estimators can be used to match the treated and the untreated in the common support region. The question of choosing matching algorithm depends on the pseudo-R2, balancing test and number of matched observations (Dehejia and Wahba, 2002). So that for this data kernel 0.5 is chosen based on the above criteria i.e. low pseudo R2 (pseudo R2= 0.184), the balancing test that balances all explanatory variables (6 insignificant explanatory variables) after matching and the largest matched number of observations (193) are considered.

Table 4.13 Results of checking matching algorithms

Matching algorithm	Balancing test *	Pseudo R ²	Number of matched observation
Nearest neighbor (NN)			
NN (1)	2	0.344	193
NN (2)	2	0.331	193
NN (3)	3	0.263	193
NN (4)	4	0.236	193
Radius			
0.1	5	0.730	193
0.25	5	0.730	193
0.5	5	0.730	193
Kernel			
0.1	3	0.315	193
0.25	4	0.243	193
0.5	6	0.184	193

Source: Own computation, 2016

4.1. Testing the Balance of Propensity Score and Covariates

After matching, every covariates mean between the two groups in the matched sampled has been reduced and pseudo-R2 should be relatively low (Caliendo and Kopeinig, 2005). The major aim of propensity score estimation is to balance the distributions of relevant variables in both groups. Below from table 13 before matching age, women level of education (wle), number of household size (nhsize), being member of other microfinance institutions (bmofi), and amount of initial wealth (amtinw) were significantly different for the two groups of respondents. But after matching these significant variables were insignificant which indicates that the differences in covariates mean between the treated and untreated groups was eliminated and now the covariates between the groups is balanced.

Table 4.13 Propensity scores and covariates balancing

Variable	Mean			t-test	
	Unmatched	Treated	Control	t	p>t
_pscore	Unmatched	.86771	.09922	26.12	0.000
	Matched	.86288	.72158	4.40	0.000

Age	Unmatched	31.262	35.848	-2.82***	0.005
	Matched	31.494	37.751	-3.73	0.000
Marital status (Mrsta)	Unmatched	2.1905	2.1696	0.22	0.827
	Matched	2.1975	2.2011	-0.03	0.975
Women level of education (Wle)	Unmatched	1.3929	.60714	5.08***	0.000
	Matched	1.3951	1.1783	1.17	0.246
Spouse level of education (Sle)	Unmatched	1.9167	1.6518	1.63	0.105
	Matched	1.9383	2.0588	-0.77	0.442
No. household size (Nhsize)	Unmatched	4.8095	4.1696	2.26**	0.025
	Matched	4.7778	4.6985	0.23	0.820
Head of the family (Hhd)	Unmatched	1.7262	1.5536	2.11**	0.036
	Matched	1.716	1.5296	2.19	0.030
Being member of microfinance (Bmofi)	Unmatched	.9881	.15179	19.34***	0.000
	Matched	.98765	1.022	-0.66	0.512
Ecology (Eco)	Unmatched	.90476	.91071	-0.14	0.887
	Matched	.90123	.89853	0.06	0.955
Amount of initial wealth (Amtinw)	Unmatched	16145	8114.8	5.59***	0.000
	Matched	15015	10657	2.36	0.020

Source: Own computation, 2016

*** and ** show level of significance at 1% and 5% respectively (before matching).

The fairly low pseudo-R2 and the insignificant likelihood ratio tests supports the hypothesis that both treated and non-treated groups have similar distribution in covariates X after matching (i.e. there is complete balance in the characteristics in both groups). After this procedure, we can compare observed outcomes for participants with control groups that lie in the common support region.

Table 4.15 Ch-square test for the joint significance of variables

Sample	Pseudo R ²	LR chi2
Unmatched	0.720	192.80
Matched	0.184	41.24

Source: Own computation, 2016

The result of all the above tests indicate that the matching algorithm being chosen and used is comparatively best for this data and thus, now it is possible to estimate ATT for clients of OMFI.

Estimating Average Treatment Effect on Treated (ATT)

To meet the objectives of this study, this part evaluates the program's impact on the outcome variable (i.e. average yearly income, personal cash saving and asset ownership) for their significant effect on women clients (participant), after pre-intervention differences were controlled

Table 4.16 Average treatment effect on the treated

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Average income(ayhi)	ATT	8141.23457	3750.04694	4391.18762	1989.43316	2.21**
Personal cash saving (pcs)	ATT	3937.03704	1399.70352	2537.33352	905.841628	2.80**
Asset ownership (Ownast)	ATT	.888888889	.780704869	.10818402	.120760812	0.90

Source: Own computation, 2016; ** show the level of significance at 5%

Table 4.15 depict the estimation result of the outcome variables in which out of the three outcome variables two of them (i.e. average yearly income and personal cash saving) are statistically significant while one variable (asset ownership) is statistically insignificant but positive ATT.

Thus, the program intervention has resulted in a positive and statistically significant mean difference between the client and non-client women in terms of increase in income and cash saving. From the above table, the result of ATT is positive indicating that average yearly income, personal cash saving and owning asset has been improved because of microfinance program in the study area. Therefore, microfinance program in the study area has been improved women's economic empowerment as shown from table 4.15 and the mean difference value of the outcome variables between client and non-client women was positive.

4.2. Sensitivity Analysis

The sensitivity analysis was carried out on the estimated average treatment effect for the outcome variables and the matching estimator result depict that there is significant effect on the program participants. The sensitivity analysis result indicates that there was no unobserved variable that affect estimates of ATT or programme participants.

Thus, it can be concluded that the impact estimates of ATT are insensitive to unobserved selection bias and clearly indicates that OMFI has positive impact on its clients.

5. Conclusion and Recommendation

Being the general objective of this study, is to analyze the economic impact of Omo microfinance institution in empowering women, the findings of the study explicitly depict that, with its limitation, OMFI had a positive impact on women's economic empowerment in the study area revealed by both descriptive and econometric result.

As a policy indicator, the intervention of microfinance program is expected to improve and empower the living standard of the poor's particularly women at the grass root level and hence reduces poverty. As such the economic status of women and their level of participation in decision making will significantly improve.

The econometric result depict that ATT has statistically insignificant effect on women's accesses to resources and control over asset. Thus, it can be concluded that, OMFI has limited impact on women's accesses to resources and control over asset. Credit provision of OMFI should give priority in asset formation, access to resources, acquire asset and able to control it. Taking these actions reduces their level of poverty and empowers women's economic capacity. OMFI should take appropriate measures to ensure its organizational mandates, objectives and commit to benefit women from its services by providing training, advisory services and continuous follow-up to assist women's economic empowerment. Linkages with other governmental organizations like women and children offices and agricultural offices should be made to work cooperatively and address problems. Though, the impact of OMFI on women's average yearly income is significant, efforts should continue to increase access to resources and accumulation of assets that eventually help to wipeout or eliminate poverty and empower them.

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