

# Does Micro Finance Reduce Poverty among Women Entrepreneurs in South-South Nigeria? Evidence from Propensity Score Matching Technique

Innocent A. Ifelunini, *PhD*<sup>1\*</sup> Elizabeth C. Wosowei<sup>2</sup>

1. Centre for Demographic & Allied Research (CEDAR), Department of Economics, University of Nigeria, Nsukka, 410002, Enugu State, Nigeria.
2. Department of Economics, University of Nigeria, Nsukka, Enugu State Nigeria  
\* E-mail of the corresponding author: [ifelunini@yahoo.co.uk](mailto:ifelunini@yahoo.co.uk)

## Abstract

This paper examined the role of microfinance services on poverty reduction among women entrepreneurs in South-south Nigeria. A composed sample of four hundred respondents randomly selected from eight local governments in Bayelsa and Delta States made up the sample while logit model, propensity score matching and instrumental variable methods were used to achieve the study objectives. The results of the study show that access to microfinance has a positive impact on the per capita expenditure of women entrepreneurs. Also, places of residence as well as the size of households have negative impact on per capita expenditure while education level has positive impact on per capita expenditure. The authors recommend that policies should be strengthened to make access to microfinance less difficult for women. Also, government should do well to provide enabling policies that create friendly environment for the microfinance institutions operating in Nigeria so as to reduce their operation cost and by implication reduce the cost of borrowing.

**Key words:** Microfinance, Women Entrepreneurs, Poverty reduction, Propensity Score Matching

## 1. Introduction

Women in Nigeria face multifaceted problems; the feminization of poverty and unemployment, lack of adequate financial resources, unequal opportunity and limited access to education and choices of professions etc. One of the identified key constraints facing the poor is lack of access to formal sector credit to enable them to take advantage of economic opportunities to increase their level of outputs, hence move out of poverty. The provision of credit has increasingly been regarded as an important tool for raising the income of rural population mainly by mobilizing resources to more productive uses especially for women who are regarded to be at the lowest rung of poverty ladder in Nigeria (Iheduru 2002). It has been widely acknowledged that microfinance is a viable option for poverty reduction. Microfinance which involves the provision of a variety of financial services to the poor based on market-driven and commercial approaches is a potential agent of socioeconomic transformation not just for the beneficiaries but also there is a positive spill over to the rest of the community. Microfinance to date has generally favoured microcredit, which is the provision of small loans to households who are perceived to be too poor to qualify for loans from formal financial institutions (Kiiru, 2007). Before the mid 1980s, economic indicators support the fact that 70-75% of Nigeria's population lives in rural areas. This teeming population was denied access to banking facilities (women form the bulk of this population as they were not favoured by the cultural practices inherent in these rural areas since they had no collateral that will enable them have access to these banking facilities).

### 1.1 Problem Statement

Although there has been increased access, measurable and discernible impact of microfinance in urban Nigeria due to the microfinance revolution, the level of impact in the rural sector is not known or discernible. Although the magic wand of microfinance as poverty reduction strategy in the rural areas has been acknowledged in some parts of the globe –Bangladesh, Bolivia, etc, there has not been any concerted effort at assessing the effects in rural Nigeria. In fact access to finance for economically active rural population, especially women entrepreneurs continues to be a major issue in Nigeria. The situation exists despite the pivotal role of women entrepreneurs in the nation's development. In order to facilitate the use of microfinance in accelerating the transformation of the socio-economic landscape of

Nigeria, it is important to understand the impact of microfinance services in Nigeria. This is because with the growing use of result-based management by government and donor agencies, determining whether goals have been attained and convincingly linking changes to specific programmes have become increasingly critical. It is equally important to note, however, that it will never be sufficient merely to establish facilities, whether buildings or institutions without ensuring that these facilities are utilized by its users to greatest extent possible (Jorge, 2002). It is against this backdrop that this study analyzes the impact of microfinance (microcredit) on poverty among women entrepreneurs in Nigeria using the South-south region as case study.

## 2. Literature Review

### 2.3 Microfinance and Poverty Reduction

The most-cited source of evidence on the impacts of microfinance is the early set of studies collected by Hulme and Mosley (1996). The findings of these studies are provocative: poor households do not benefit from microfinance; it is only non-poor borrowers (with incomes above poverty lines) who can do well with microfinance and enjoy sizable positive impacts. More troubling, according to Chowdhury (2009) is the finding that a vast majority of those with starting incomes below the poverty line actually ended up with less incremental income after getting micro-loans, as compared to a control group which did not get such loans.

Findings of the Hulme and Mosley studies imply that credit is only one factor in the generation of income or output. There are other complementary factors, crucial for making credit more productive. Among them, the most important is recipient's entrepreneurial skills. The findings of the MIT study by Banerjee *et al* (2009) also point to this factor. Most poor people do not have the basic education or experience to understand and manage even low level business activities. They are mostly risk-averse, often fearful of losing whatever little they have, and struggling to survive. This does not mean that they do not want to better themselves (e.g., as suggested by the so-called backward bending labour supply curve). Juanah (2005) in looking at the contribution of microfinance to rural poverty reduction asserts that a well coordinated, effective and efficient microfinance system in developing countries can contribute positively to the reduction of poverty among poor rural households. He argues that with easy access to finance, farmers will be able to acquire appropriate modern farming inputs such as high-yield variety seeds, fertilizers, insecticides, irrigation systems and extension services, which will subsequently lead to increased agricultural productivity.

Vonderlack/Shreiner (2001: 1) state that the recent shift in terms from micro-credit to microfinance reflects that savings services – and not just loans – may help to improve the well-being of the poor in general and women in particular and that borrowing is riskier than saving.

However, Mayoux (2002: 6), observes that an increasing body of evidence on microfinance in Africa and elsewhere, suggests that its contribution to poverty reduction and women's empowerment is generally less than expected.

On the issue of women, ADB asserts that microfinance institutions have also brought, particularly poor women into the formal financial system and enabled them to access credit and accumulate small savings in financial assets, reducing their household poverty. Finally, it must be observed that there is general agreement among researchers and practitioners that the poorest of the poor are yet to benefit from microfinance programs in most developing countries partly because most microfinance institutions do not offer products and services that are attractive to this category (www.adb.org 2000).

Asemelash (2003) in a study in Ethiopia found that microfinance provided to the poor has brought a positive impact on the life of the clients as compared to those who do not get access to these microfinance services. He showed that microfinance has brought a positive impact on income, asset building, and access to schools and medical facilities in the study area.

In the same vein, Alemu (2006) found out that the poor have smoothed their income in the study area. However, there was fungibility in the sense that clients were using the loan for unintended purposes. Rajendran and Raja (2010) also found that Microfinance and self help groups are effective in reducing poverty, empowering women, creating awareness and ensuring sustainability of environment which finally results in sustainable development of the nation.

Imai, Arun and Annim (2010), in their study show that loans for productive purposes were more important for poverty reduction in rural than urban areas and significant positive effect of Microfinance Institution productive loans on multidimensional welfare indicator. Green, Kirkpatrick and Murinde (2006), revealed that the causal linkages among financial policy, enterprise development and poverty reduction remain a key challenge given the commitment to achieve the MDGs by 2015. Appah, et al (2012), in their study found that microfinance alone cannot reduce the level of poverty in any given society except the government provides the basic infrastructural facilities such as good road, constant power supply, good transport system etc. They opined that complements of microfinance with other basic facilities will guaranty an effective and efficient role of microfinance as a poverty reduction instrument in contemporary society

### 3. Methodology

The study was carried out in South-south Nigeria using Bayelsa and Delta State as case study. Multistage random sampling technique was used in selecting respondents. In the first place, from the six States that make up South-south Nigeria, two states –Bayelsa and Delta were randomly selected. Also, three local governments each were randomly selected from the two states giving a total of six local governments for the study. These local governments include- Yenagoa, Ogbia, Sagbama and Southern Ijaw from Bayelsa while Isoko-South, Oshimili-South, Ndokwa-West and Ughelli-North were selected from Delta State. The data used for the study were from primary sources. Detailed and structured questionnaire was used to elicit information from respondents. The questionnaire covered all possible responses to the research objectives.

A randomly selected sample of beneficiaries from the selected local government areas formed the sample size (treatment group). Non-beneficiaries in the same locality with the beneficiaries served as the comparison group (counterfactuals). Using the non-beneficiaries as comparison group is appropriate since they reside in the same locality and they have the same socio-economic characteristics with the beneficiaries. This implies that they were similar to the treatment group in all relevant pre-intervention characteristics. Pradham and Rawlings (2002) observes that if the comparison group is similar to the treatment group in all relevant pre-intervention characteristics, a direct post-intervention comparison of the treatment and comparison groups provides an estimate of the impact of the intervention. A total of four hundred respondents (two hundred beneficiaries and two hundred non-beneficiaries of microfinance services) constituted the sample size.

#### 3.1 Instrumental Variable Technique

Instrumental variables (IV) are variables that matter to microfinance access but not to the income/expenditure level given microfinance access. Instrumental variable are correlated with the probability of treatment but uncorrelated with unobserved determinant of outcomes. IVs estimates are predicated entirely on the validity of the instrument and unobserved determinant of treatment effects can result in serious biases (Ravallion, 2001). The instrumental variables are first used to predict microfinance access, then one sees how the income/expenditure varies with the predicted value conditional on other characteristics. Therefore, there will be two stage equations, the first predicting microfinance access and the second predicting income/expenditure given microfinance access. The residual in the first equation predicting microfinance access will be included in the second equation thus treating microfinance access as exogenous.

$$\text{Log}(T_i) = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + u_i \text{ --- equation 1}$$

$$\text{Log}(U_i) = \alpha + \sum \beta_j X_{ij} + \varepsilon_i \text{ --- equation 2}$$

The T in equation (1) represents microfinance access;  $X_1$  and  $X_2$  are instruments. In practice, two stage least squares regression will be employed. Good instruments variables were generated during data collection.

### 3.2 Propensity Score Matching Approach

In this approach, we consider access to microfinance as a “treatment” so that we estimate an average treatment effect of access to microfinance service using propensity score matching approach. Propensity score matching in its simplest form involves predicting the probability of treatment on the basis of observed covariates for both the treatment and the control group samples (Rawlings and Schardy, 2002). The propensity score matching method summarizes the pre-treatment characteristics of each subject into a single index variable, the propensity score, which is then used to match similar individuals (Esquivel and Huerta-Pineda, 2007). In propensity score matching, one picks an ideal comparison group from a larger survey and then matches the comparison group to the treatment group on the basis of set of observed characteristics on the predicted probability of treatment given observed characteristics (“propensity score”) (Ravallion, 2001). The observed characteristics are those used in selecting individuals but not affected by the treatment. Thus in this study, the critical assumption that we are making in using this methodology is that the decision to be treated (to access microfinance), although not random, ultimately depends upon observable variables. Rosenbaum and Rubin (1983) show that if one can match on variable  $x$ , then one can match on probability of  $x$ . Therefore, for estimating the impact of microfinance services on income/expenditure and other indicators, two groups are identified, those with access to microfinance (denoted as  $T_i = 1$  for household  $i$  and those without ( $T_i = 0$ ). Those with access to microfinance (treated) are matched to those without (control group) on the basis of the propensity score: (probability of accessing microfinance (intervention) given observed characteristics)

$$p(x_i) = \text{prob}(T_i = 1 | x_i) \quad (0 < p(x_i) < 1)$$

where  $x_i$  is a vector of pre-intervention control variables. If the  $T_i$ 's are independent over all  $i$ , and the outcomes due to intervention access are independent of access to intervention given  $x_i$  then outcomes are also independent of access to intervention given  $p(x_i)$ , just as they would be if interventions were given randomly.

Propensity score matching is a better method of dealing with differences in observables. However, a few tests that have been done suggest that with good data, propensity score matching can greatly reduce the overall bias and outperforms regression-based methods (Ravallion, 2001).

Rosenbaum and Rubin (1983) established the following conditions in order to be able to estimate Average Treatment on the Treated (ATT) effect based on the propensity score:

#### Condition 1: The Balancing Hypothesis

$$R \perp X | p(X)$$

This means that for observations with the same propensity score, the distribution of pre-treatment characteristics must be the same across control and treated groups. That is, conditional on the propensity score, each individual has the same probability of assignment to treatment, as in a randomized experiment.

#### Condition 2: Unconfoundedness Given the Propensity Score:

$$Y_1, Y_0, \perp R | X \Rightarrow Y_1, Y_0, \perp R | p(X)$$

If assignment to treatment is unconfounded conditional on the variables pre-treatment, then assignment to treatment is unconfounded given the propensity score.

After computing the propensity score, the ATT effect ( $\tau$ ) is estimated as follows:

$$\begin{aligned}\tau &= E\{Y_{1i} - Y_{0i} \mid D_i = 1\} \\ \tau &= E\{E\{Y_{1i} - Y_{0i} \mid D_i = 1, p(X)\}\} \\ \tau &= E\{E\{Y_{1i} \mid D_i = 1, p(X_i)\} - E\{Y_{0i} \mid D_i = 0, p(X_i)\} \mid D_i = 1\}\end{aligned}$$

Where:  $Y_{1i}$  is the potential outcome if the individual is treated.

$Y_{0i}$  is the potential outcome if the individual is not treated.

Different matching methods are used in calculating the effect since the propensity score is a continuous variable. Some of the methods used include nearest neighbor matching, kernel matching, radius matching, local linear regression matching. The nearest neighbor matching was used in this study. The nearest neighbor consists of matching each treated individual to the nearest untreated individual, that is individuals with closest propensity scores are matched. The major issues in nearest neighbor matching are whether to match with or without replacement and number of nearest neighbors to use. Matching with replacement allows the untreated observation to form the counterfactual for more than one treated observation. Matching without replacement can yield very bad matches if the number of comparison ( $D=0$ ) observations comparable to the treated observations is small. Matching without replacement keeps variances low at the cost of potential bias while matching with replacement keeps bias low at the cost of larger variance. The other issue regards number of nearest neighbors to use. In single neighbor matching,  $w(i, j) \in \{1, 0\}$ . In  $k$  nearest neighbor matching,  $w(i, j) \in \{1/k, 0\}$ . In number of nearest neighbor, there is also a tradeoff between bias and variance. Matching one nearest neighbor minimizes bias as all matches are close matches while additional nearest neighbor increases the bias, as marginal observation are necessarily worse matches, but decreases the variance, because more information is being used to construct the counterfactual for each treated person.

We will employ nearest neighbor matching, matching five neighbors with replacement to estimate the ATT.

The ATT in the nearest neighbor is computed as follows:

$$\begin{aligned}\tau^{NN,M} &= \frac{1}{N^T} \sum_{i \in T} \left[ Y_i^T - \sum_{j \in C(i)} w_{ij} Y_j^C \right] \\ &= \frac{1}{N^T} \left[ \sum_{i \in T} Y_i^T - \sum_{i \in T} \sum_{j \in C(i)} w_{ij} Y_j^C \right] \\ &= \frac{1}{N^T} \sum_{i \in T} Y_i^T - \frac{1}{N^T} \sum_{j \in C} w_j Y_j^C\end{aligned}$$

where

$$w_{ij} = \frac{1}{N_i^C} \text{ if } j \in C(i) \text{ and } w_{ij} = 0 \text{ otherwise}$$

$$w_i = \sum_j w_{ij} \text{ and } C(i) = \min \|p_i - p_j\| \text{ for the nearest neighbor matching method}$$

The variables included in the propensity score matching are human capital and household variables. After matching and estimating the ATT, the ATT will then be applied to households that do not benefit from intervention in order to find out the decrease/increase in poverty and other indicators due to intervention; that is, to find out what poverty will

be assuming the households that do not benefit from intervention projects are allowed to benefit and receive benefits equal to the ATT. The procedure for propensity score matching is as follows:

- ❖ Pooling of two groups of individuals, that is the treatment and comparison group of those who receive microfinance services and those who do not receive microfinance services. After the pooling, a logit model of microfinance receiving and non- microfinance receiving as a function of some socio-economic variables will be estimated. The variables to be selected are those that were not affected by receiving microfinance services. Some of the socio-economic variables included age, household size, location, education level of household head and marital status. The equation is put thus:

$$P_i = \log \frac{P_1}{1 - P_1} = \log O_i = a_i + b_1 Age + b_2 Housesize + b_3 edu + b_4 loc + b_5 mar$$

- ❖ From the logit regression, a predicted value of the probability of microfinance access was created. These were the propensity scores. Each individual had a propensity score.
- ❖ For each microfinance receiving household, a non-microfinance receiving household that has the closest propensity score, as measured by the absolute difference in scores, referred to as nearest neighbor was obtained. For more precise estimate, the nearest five neighbors were used. Thus the nearest neighbour matching was used.
- ❖ The mean values of the outcome indicator (per capita expenditures) for the nearest neighbors were calculated. The difference between the mean and actual value for the microfinance receiving households (beneficiaries) is the estimate of the gain due to remittance
- ❖ The mean of individual gains is calculated to obtain the average overall gain – the average treatment effect on the treated (ATT).

## Empirical Results

### Socioeconomic characteristics of the respondents

A number of socio-economic attributes of the respondents were examined. The result in table 1 in the appendix shows the socioeconomic attributes of the respondents that were examined. The examined socio-economic attributes included age of the respondents, household size, highest education level, time of business (full or non-full time), location as well as the marital status.

The result in Table 1 shows that 3% of the beneficiaries are below the age of 25 years while 1% of the non-beneficiaries are below the age of 25 years. In the same vein, while 54% of the beneficiaries are between the age brackets of 25-30 years, 43% of the non-beneficiaries are between this age brackets. Also, 52% of the non-beneficiaries are between the age range of 31-40 years while 37% of the beneficiaries fall within this range. The result also shows that 6% of the beneficiaries are above 40 years while 4% of the non-beneficiaries are above 40 years. The result further shows that 26.7% of the beneficiaries had less than 5 people in their households while 21.7% of the non-beneficiaries had less than 5 people in the household. The result revealed that 66.7% of the beneficiaries had between 6-9 people in their households while 65.0% of the non-beneficiaries had similar number of people in their household. In the same vein, only 6.6% of the beneficiaries had minimum of 10 people in their households while 13.3% of the non-beneficiaries had same number in their households.

Of the number of beneficiaries of microfinance services, 25% had higher degree, 55% had WAEC and equivalent, 11.7 had primary school while 8.3 had no formal education. On the other hand, of the number of non-beneficiaries, 11.7% had higher degree, 53% had WAEC and its equivalent, 28.6% had primary school while 6.7% had no formal education. Evidence from the result showed that 65% of the beneficiaries are on full time business while 35% are not on full time business engagement. In the same vein, 80% of the non-beneficiaries are on full time business while 20% are not on full time business. As regards marital status, the result revealed that of the beneficiaries, 68.3% were married, 16.7% are single, 10% are widowed while 5% are on consensus marriage. On the other hand, of the non-beneficiaries, 76.7%

were married, 15% were single, 5% were widowed while 3.3% were on consensus marriage. The result further revealed that 70% of the beneficiaries are urban/semi-urban dwellers while 30% were rural dwellers. On the other hand, 23.3% of the non-beneficiaries were resident in the urban/semi-urban area while 76.7% of them were rural residents.

### ***Microfinance Services have no significant impact on the per capita expenditure of women entrepreneurs in South-south Nigeria***

In evaluating this hypothesis, propensity score matching technique was used. As earlier indicated in the methodology, the logistic regression was first used to in obtaining the probability of scores. Later on the probability scores were matched. For a more precise estimate, the nearest five neighbours of the beneficiaries and non-beneficiaries that had the closest propensity scores were matched. Respondents whose probabilities could not be matched were dropped. The mean value of the per capita expenditures for the nearest five neighbours was calculated. The difference between the mean and actual value for the beneficiaries was obtained as the estimate of the gain due to microfinance services. The result showing the average overall gain in expenditure per capita due to microfinance access (step 5 as described in the propensity score matching procedure) after the nearest neighbor matches of propensity scores obtained after the logit analysis is presented in Table 2. The result shows that the average treatment effect on the treated (ATT) that is average gain in expenditure per capita by beneficiaries of microfinance service, using nearest neighbor matches is N2290.12. This shows that the microfinance receiving households rather gained N2290.12 after matches. The t value (2.07) for test of difference between the expenditure per capita based on the gain between microfinance receiving and non-receiving households, as shown in Table 2 was greater than the tabular value of 1.96. This shows that there is a significant difference in impact on per capita expenditure between microfinance services receiving and non-receiving households. Hence, using propensity score matching, the findings suggest that microfinance services have significant positive impact on poverty as the gain in expenditure per capita due to microfinance access was positive and significant

Also, multiple regression was used in another equation to find out the variables that influenced expenditure per capita. The probability scores from the logistic regression for prediction of benefitting were used as independent variable. The R-Squared value was 0.69 (69%) indicating that the independent variables in the model explained 69% of the change in the per capita expenditure of women entrepreneurs in South-south. The adjusted R-Square was 0.67 (67%). The result of the multiple regressions is as presented in table 3

The result of the multiple logistic regression in Table 3 shows that the predicted probability of benefitting from microfinance services have positive and significant influence on the expenditure per capita of women entrepreneur in the South-south. This indicates that benefitting from the services of microfinance institutions has impact on expenditure per capita. Hence the per capita expenditure of households that have benefitted from microfinance services was significantly higher than that of non-beneficiary households. In addition, respondent's location/place of residence, education level, and household size significantly affected the per capita expenditure of respondents. While respondent's place of residence/location and household size affected the per capita expenditure negatively, the educational level had positive impact on per capita expenditure. This shows per capita expenditure reduces as one resides in the rural area while it increases as one resides in the semi-urban areas. Also, the result from the study shows that there is a negative relationship between household size and the per capita expenditure of respondents. On the other hand, the results of the study equally show that education level has positive relationship with per capita expenditure. This indicates that per capita expenditure increases with an improvement in the education level of the respondents. However, Age, time of business, and marital status did not show significant impact on the per capita expenditure of the respondents.

### ***Social and economic factors do not significantly affect the access to microfinance services by women entrepreneurs in South-south Nigeria***

In order to test this hypothesis, a regression analysis was carried out using the probability of access to microfinance services by women entrepreneur as the dependent variable while the socio-economic characteristics of the women entrepreneurs were used as the independent variables.

The result in table 4 shows that all the socio-economic variables included in the model significantly affected the access to microfinance services by women entrepreneurs in South-south. The result of the multiple regression shows that the respondents' place of residence/location, education level, age, household size, nature/time of business, all have positive significant impact on access to microfinance services by women entrepreneur. On the other hand, the result shows that marital status had negative but significant impact on access to microfinance services by women entrepreneurs.

The implication of the result is that those who were married had lesser opportunity of gaining access to microfinance services. The R-squared value of 0.69 (69%) shows that the independent variables included in the model explained 69% of the variations in the dependent variable.

### **Conclusion and Recommendations**

The study of the impact of microfinance services on poverty among women entrepreneurs in South-south Nigeria is very timely. Given the impact microfinance has made in other economies of the world like the Bangladesh, and the recent drive by the federal government of Nigeria towards using the small and medium scale industries as vehicles for economic development, microcredit scheme has become a major plank in federal government policy for accelerated growth of the economy. The program has dual intent; poverty reduction and economic growth. The findings showed that microfinance services can be used as tools for fighting poverty in Nigeria considering the fact that microfinance services had positive significant effect on poverty among women entrepreneurs in the study area. Policy to promote access to microfinance services can be promoted, for example, by making access to microcredit less difficult for women entrepreneur by reducing the interest rate charged. More licenses can be granted to microfinance operators while government should improve on the operating environment to ensure that operational costs are reduced. This could further lead to the reduction of interest charged the customers. Currently, microfinance institutions do not adhere to the interest rate stipulated for them because of the high cost of operation. Again, government should strengthen her regulatory framework to ensure full compliance by microfinance operators. This way the MFIs will contribute meaningfully to the fight against poverty. This is crucial as the country drives towards joining the league of big 20s (becoming one of the 20 biggest economies in the world come the year 2020 -**vision 20:2020**).

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**Appendix**

**Table 1: Socioeconomic Characteristics of Respondents**

Socioeconomic characteristics	Category	Beneficiaries	
			Non-beneficiaries
Age (years)	< 25	3.0	1.0
	25 –30	54.0	43.0
	31-40	37.0	52.0
	> 40	6.0	4.0
Size	< 5	26.7	21.7
	6- 9	66.7	65.0
	10 and above	6.6	13.3
Education	No formal	8.3	6.7
	Primary school	11.7	28.6
	WAEC/GCE/SSCE	55.0	53.0
	Higher Degree	25.0	11.7
Occupation	Full time business	65.0	80.0
	Non-full time business	35.0	20.0
Location	Urban/Semi-urban	70.0	23.3
	Rural	30.0	76.7
Marital Status	Married	68.3	76.7
	Single	16.7	15.0
	Consensus	5.0	3.3
	Widowed	10.0	5.0

**Source:** Survey data 2010

**Table 2: Result of the propensity score matching showing the overall gain (ATT) in expenditure per capita of microfinance Services receiving households**

No of treatment	No of controls	ATT	Standard error	t-value
192	174	2290.12	4687.18	2.07

Source: Calculations from field survey data, 2010

Note: The numbers of treated and controls refer to actual nearest neighbor matches. ATT refers to average treatment effect on the treated using nearest neighbor matches

**Table 3 Result of the determinant of per capita expenditure**

Independent Variables	B	Std. Error	t	Sig.
Constant	10011.283	1858.247	5.387	0.000
Location/residence	-499.185	721.885	-0.692	0.041
Marital status	131.294	364.504	0.360	0.719
Edu. level	954.999	430.119	-2.220	0.028
Age	18.790	19.769	0.950	0.344
Predicted probability	12435.654	6191.243	2.009	0.002
Household size	-196.497	133.168	-1.476	0.035
Time of business	-1665.871	1051.484	-1.584	0.116

Source: Field survey data, 2010

**Table 4: Socio-economic Determinants of access to microfinance services by women entrepreneur in South-south Nigeria**

Independent Variables	B	Std. Error	t	Sig.
Constant	0.316	0.012	25.469	0.000
Location/residence	0.131	0.005	25.116	0.000
Marital status	-0.097	0.003	-37.112	0.000
Edu. level	0.080	0.003	26.913	0.000
Age	0.354	0.017	20.824	0.000
Household size	0.092	0.004	21.773	0.000
Time of business	-0.014	0.000	-67.532	0.000

Source: Field survey data, 2010

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.783 <sup>a</sup>	.687	.668	.02401246

a. Predictors: (Constant), household size, Respondent's Marital status, Respondent's time of Business, respondent's place of residence, Respondent's highest educational qualification

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