Comparative Determinants of Productivity among Cassava Farmer-Beneficiaries and Non-Beneficiaries of Microfinance Institutions (MFIs) in Abia State Nigeria

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COMPARATIVE DETERMINANTS OF PRODUCTIVITY AMONG CASSAVA FARMER-BENEFICIARIES AND NON-BENEFICIARIES OF MICROFINANCE INSTITUTIONS (MFIs) IN ABIA STATE NIGERIA

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ABSTRACT

This study investigated the comparative determinants of productivity among cassava farmer-beneficiaries and non-beneficiaries of Microfinance Institution (MFIs) in Abia state, Nigeria. Specifically, the study identified and examined factors influencing productivity of cassava farmers who are beneficiaries and non-beneficiaries of Microfinance Institutions (MFIs). Multistage random sampling technique was implored in sorting out respondents who are beneficiaries and non-beneficiaries of MFIs spread across the 3 agricultural zones in the state. This provided the sample frame from which primary data were collected with the use of a pre tested and structured questionnaire. A total of 240 cassava farmers who are both beneficiaries (120) and non-beneficiaries (120) of MFIs were used in this study. The method of data analysis used is the ordinary least square (OLS) regression technique with the choice of Cobb Douglas as the lead equation most suited to explain productivity analysis and chow test for test of difference between means of factors. The result revealed that gender, age, household size and farming experience were directly related to productivity at varied 1.0%, 5.0% and 10.0% levels of significance for beneficiaries of MFIs while non-beneficiaries coefficient for gender, age, education, farm size, household size and farming experience were statistically significant at varied critical probability levels. The chow test however reveals that the calculated F-value given as 5.784 is significant at 1.0% levels, hence proved that MFIs beneficiaries are more productive than non-beneficiaries. It is therefore necessary for government policies to consider encouraging male cassava farmers, with good farming experience and moderate household members to ensure and maintain productivity.

KEYWORDS: Comparative Determinants; Productivity; Beneficiaries and non-beneficiaries; Microfinance Institution (MFIs); Cassava

INTRODUCTION

Cassava is one of Nigerians most important stable food. It is generally accepted and recognized as a good source of vital nutrients and energy for the body (FAO, 2003). Cassava has a good comparative production advantage over other staples which serve to encourage its cultivation even by resource poor farmers. Cassava production generally requires less labour per unit output than other stables. It is able to grow and give reasonable yield in low fertile soils (marginal lands). It is a good staple whose cultivation if encourage can provide the nationally required food security minimum of 2400 calories per ca-put per day (FAO, 2000).

Relatively, the productivity of cassava in Nigeria is on the lower side considering cases of higher productivity of cassava in the world this include Brazil (14.8 tons per hectare), Indonesia (12.94 tons per hectare) and Thailand (18.3 tons per hectare) (IITA, 2005). A major obstacle to the growth of cassava production in Nigeria is paucity of funds to strengthen cassava production (CBN, 2006). Funds are constrained by lack of direct source and marginal take off grants to sustain meaningful productivity in cassava farming. Farmers have limited access to microcredit. Access to credit refers to the right or opportunity to get, use, manage and control loans meant for meaningful farming.

It is important to acknowledge the level of involvement of Nigerian government in financing rural entrepreneurship especially agricultural production, however, robust economic growth cannot be achieved without putting in place well focused programmes to reduce poverty through empowering the people by increasing their access to factors of production, especially credit, this eventually will lead to higher productivity (Obike *et al*., 2011).

The latent capacity of cassava farmers for higher productivity would significantly be enhanced through the provision of microfinance services to enable them engage in economic activities and

to be more self-reliant, increase employment opportunities, enhance household income and create wealth. Microfinance provides services to peasants who are traditionally not served by the conventional financial institutions. Three features distinguish microfinance from other formal financial product: These are (i) The smallness of loan advanced and or savings collected (ii) The absence of asset based collateral and (iii) Simplicity of operations. Microfinance institutions (MFIs) provide credit to influence the type of technology adopted by farmers and even the rate of technology adoption. Small scale farmers in agricultural sector play a big role in providing food, income generation and employment creation. The application of technology is vital in enhancing growth and productivity. Credit is vital in the growth and development of any organization (Akiram *et al*., 2008). Both large and small scale farmers depend on financial organization for credit to raise capital. In order to ascertain the effect of credit in an organization, productivity comes to play.

Problem Statement

The declining share of agriculture to the GDP (from 90.0% before independence in 1960, 56.0% in 1960 – 1964, to 32.0% in 1996 – 1998) is partly a reflection of the relative productivity of the sector (CBN, 2003). In Nigeria, the production of food and fiber (which cassava is a major) has not increased at rates that meet the needs of the nation's increasing population. While food production increases at the rate of 2.5%, food demand increases at the rate of more than 3.5%. This is due to high rate of population growth (2.83%) and depressed productivity of the agricultural sector (CBN, 2004). A major indicator of depressed performance in agricultural sector in Nigeria is the food crisis experienced in the country in contemporary years, forcing the country to resorting to massive food importation at high prices (Ogundari and Ojo, 2007; Yusuf and Malomo, 2007)

Cassava farms just like the other crop farm in Nigeria are the small-scale types which are highly characterized by very low productivity. This crucial issue of low productivity is of grave concern despite all human and material resources devoted to agriculture. Among the major factors accountable for observed changes in food crop production in Nigeria according to Olayemi (1998), is the changing production technologies which effect variation in the yields and productivity.

Therefore, the cassava problem in Nigeria centers on the efficiency with which farmers use resources on their farms. It also borders on how the various factors that explain farm efficiency could be examined so as to improve cassava production in the country. This quest therefore raises research questions as to how productive are cassava farmers who accessed MFIs, what are the factors determining productivity of these farmer. This study thus investigated the comparative determinants of productivity among cassava farmer-beneficiaries and non-beneficiaries of MFIs in Abia state Nigeria. The study specifically identified and examined the factors influencing productivity of cassava farmer beneficiaries and non-beneficiaries.

Justification

Increase in productivity is directly related to production efficiency arising from not only the optimal combination of farm inputs but also from the state of credit availability (Amaza and Olayemi 2002; Amaza, *et al*., 2001). It is therefore necessary to ascertain the contribution of microfinance to productivity and efficiency of cassava farmers. Determining the productivity and efficiency of farmers according to Yusuf and Malomo, (2007), is very important from policy perspective. This is because in an economy where new improved technologies are lacking, this study can show the possibilities of raising productivity.

Microfinance can play important roles in reducing poverty amongst cassava farmers by promoting their productive use of farm inputs. This can be done by creating opportunities for raising agricultural productivity among small farmers. Microfinance is particularly relevant in increasing productivity of rural economy (CGAP, 2009). Results from studies like this will be of immense benefit to farmers, bank managers, Microfinance Institutions (MFIs), researchers, government and NGOs.

MATERIALS AND METHOD

Study Area

This study was carried out in Abia state Nigeria. Abia is a state located in the south eastern zone of Nigeria. The state was chosen for the study because of its agrarian disposition and endowment in food crop production including various tropical crops especially cassava. It has been observed that major clients of microfinance institutions (MFIs) are mostly cassava farmers (ABSADP, 2005). The climate is essentially tropically humid with average annual rainfall of 229.20mm distributed evenly throughout its wet season, which covers a period of seven months (April to October).Diurnal temperature varies between 27^0C and 31.9^0C. Its annual rainfall is 1500 – 2600mm on a mean elevation of 122m above sea level (NRCRI, 2008). Abia state is located between longitudes 7^0 23'E and 8^0 02'E then latitudes 5^0 47'N and 6^0 12'N (NRCRI, 2003).It is bounded by Enugu state on the north, Rivers state on the south, Akwa Ibom and Cross River states on the east and Imo state on the west. Abia state was created on the 22nd August 1991 out of the then Imo state and has its capital at Umuahia. The state covers a total land area of 7677.20 square kilometers, with a total population of 2,833,999 persons made up of 1,434,193 or 55.0% males and 1,399,806 or 45.0% females (NPC, 2006). The state has 17 Local Government

Areas(LGAs) clustered in three (3) agricultural zones namely Aba, Ohafia and Umuahia zones.The constituent LGAs of the zones are:

1. Ohafia Agricultural zone: Arochukwu,Bende, Isuikwuato, Ohafia aand Umuneochi LGAs
2. Umuahia Agricultural zone:Ikwuano, Isiala Ngwa North , Isiala Ngwa South, Umuahia North, Umuahia South and Osisioma Ngwa LGAs
3. Aba Agricultural zone:Aba North, Aba South, Obingwa, Ugwunagbo, Ukwa East and Ukwa west LGAs.

Sampling Technique

The study adopted multi-stage random sampling method in a survey from which respondents were selected. Firstly random sampling method was used in selecting two (2) Local Government Areas (LGAs) from each of the three (3) agricultural zones these include: From Ohafia zone (Ohafia and Bende LGAs); from Umuahia zone (Umuahia North and Isiala Ngwa South LGAs) and from Aba zone (Ukwa East and Ugwunagbo LGAs). This gave a total of six (6) Local Government Areas. Secondly, a list of all microfinance institutions (MFIs) was obtained from each local government offices. Each list was subjected to a simple random sampling to select 6 MFIs from each of the three agricultural zones. This gave a sample of 18 MFIs involved in this study. These MFIs are Ohafia MFIs, Arochukwu MFI, Abiriba MFI, Uzuakoli MFI, Umuneochi MFI and Abia state University MFI in Ohafia agricultural zone. From Umuahia agricultural zone the chosen MFIs include: Umuchukwu MFI, Chibueze MFI, Decency MFI, Ovuma MFI and LAPO MFI. Aba agricultural zone have the following MFIs: Ukwa MFI, Ecosal MFI, Easy gate MFI, Ugwu MFI, Swift MFI and Umuike MFI.

Thirdly, the lists of cassava farmers who are contemporary beneficiaries of MFIs were obtained from the chosen MFIs. This formed a frame for a simple random selection of 40 cassava farmer

beneficiaries from each agricultural zone. This eventually gave a sample size of 120 cassava farmer MFI beneficiaries. Non-beneficiaries were also listed with the assistance of Abia Agricultural Development Programme (ADP) staff in the various agricultural zones. This second list was subjected to a Simple Random Sampling (SRS) and equal numbers of forty (40) cassava farmer non- beneficiaries of MFIs were selected. Therefore, the random selection of the respondents from the composite sampling frames provided by the MFIs and ADP offices from each agricultural zone formed a sample frame of 240 cassava farmers (MFIs beneficiaries and non-beneficiaries) in the state. The non-beneficiaries were included in the analysis to serve as control group for meaningful comparison.

Data Collection

Data for this study was obtained using a pre-tested structured questionnaire. The researcher with the help of some eight (8) extension staff of the ADP administered the questionnaire in the 3 agricultural zones of the state. These 8 enumerators were indigenes of the area, trained and assisted in data collection.

Analytical Technique

Data from the survey was analyzed using descriptive and inferential statistics such as percentages and arithmetic means. The ordinary least square (OLS) regression technique was used. Four functional forms of linear, exponential, Cobb Douglas and semi log were tried and the best functional form was chosen based on certain econometric criteria (high R^2 value, number of significant variables, magnitude and *aprio ri* sign expectation of coefficient).

The model was specified implicitly thus:

$Y = f (X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, ei)$

Y = Productivity (output/farm size) kg/ha;

X1 = Gender of Household head (male =1, female=0);

X3 = Years of Schooling of Household Head;

X4 = Household Size;

X5 = Farm Size (ha);

X6 = Distance of the Farmers House to Source of Credit (km);

X7 = Number of Household Family Members participating in economic activities;

X8 = Yearly income earned by Households (Farm + off farm income) (N)

X9 = Ownership of House (owned House = 1, otherwise = 0)

X10 = Cassava farming experience of household head

X11 = Amount of loan repaid so far

ei = Stochastic variable.

Also Chow test for test of difference between means of factors was used i.e the Chow test – statistics.

$$F = \frac{RSSR - (RSS1 + RSS2) / K}{RSS1 + RSS2 / n - 2k}$$

This follows the F distribution with k and n-2k degrees of freedom

Where:

RSSR = the sum of square of residuals from a linear regression in which β_1 and β_2 are assumed to be the same.

SSR1 = the sum of square of residual from a linear regression of MFIs beneficiaries

SSR2 = the sum of square of residuals from a linear regression of non- beneficiaries of MFIs

K = Total numbers of beneficiaries and non-beneficiaries of microfinance in the sample.

To accomplish this feat, we ran regression for beneficiaries and non-beneficiaries of MFI and obtained residual sum of squares and sum of the two residual sums of squares for each category of farmers. Then we pooled the two groups together and regressed once to obtain the pooled residual sum of square. From the difference between the pooled residual sum of square and the residual sum of square we computed Chow's F- ratio.

RESULTS AND DISCUSSION

Table 1.0 showed that Cobb Douglas functional form was the lead equation and was used for data analysis. The functional form gave the highest (five) independent variables which were significant at 1.0%, 5.0% and 10.0% levels respectively with R^2 of 0.617 and F-ratio of 9.23.These variables include gender, age, household size, farm size and farming experience. This result further showed that gender had direct positive relationship with productivity of MFIs cassava farmer-beneficiaries significant at 5.0% level. This implies that an increase in the coefficient of gender will result to an increase in productivity of MFIs male beneficiaries. The male beneficiaries are proven to be more productive than their female counterparts. This agrees with *aprio ri* expectation and in consonance with Adereti (2005) who stated that male farmers have the potentials to be more productive than the female farmers in small scale agricultural production. The table also showed that the coefficient of age had direct negative relationship with productivity and was significant at 5.0% level. The implication of this is that an increase in the coefficient of age will result to a decrease in productivity of MFIs beneficiaries. Older farmers who benefitted from MFIs were less productive per unit of resource used. This finding is in agreement with the report of Nwaru (2004) that the ability of farmers to bear risk, be innovative and be able to do manual work in a productive capacity decrease with age. Household size coefficient indicated a negative relationship with productivity of MFIs beneficiaries at

10.0% level of significance. This implies that increase in household size led to decrease in productivity of MFIs beneficiaries. This finding agrees with the work carried out by Baumol et al.,(1992) and Akiram et al., (2008) where both agreed that most microcredit beneficiaries with large household size do spend most of the borrowed funds in financing consumption needs and thus reduce resource use. Farm size coefficient indicated a very negative relationship with productivity for MFIs beneficiaries at 1.0% level of significance. This implies that increasing farm size decreases the productivity of MFIs beneficiaries. This is predicated on the premises of virtually absence of economy of scale which characterized small scale farmers and contradicts earlier work carried out by Toluyemi (1996) which stipulates that farmers with large farm size have greater productivity than farmers with smaller farm size. Furthermore, the result showed that farming that experience was positive and was also significant at 5.0% level. This implies that the more experience a farmer gains in cassava farming amongst MFIs beneficiaries the m more productive the farmer becomes. This is in consonance with earlier work carried out by Morrison (1996) which postulated that improvement on previous production mistakes can be corrected with time as one gets more experience leading to realistic productive results.

The diagnostic statistics which showed R^2 of 0.617 implies that the regressed model explained 61.7% of the variation in productivity by the independent variables. The significant F-ratio indicated over all test of significant

Table 2.0 showed that Cobb Douglas function was selected as the lead equation for the regression of Non-beneficiaries of MFIs. The coefficient for gender, age, education, farm size, household size and farming experience were statistically significant at varied critical probability levels. Specifically, the coefficient of gender had a positive sign and significant at 5.0% level, this implies that the male non-beneficiaries of MFIs were more productive in cassava farming

than their female counterparts; this is however in consonance with *aprio ri* expectation. The table also showed that education, farm size and farming experience were highly significant at 1.0% level with positive sign implying that, increase in the coefficient for education will lead to increase in productivity in the same vain, increase in farm size and farming experience coefficients also showed the same positive sign. The implication of this is that productivity of these farmers increases with increase in the coefficients of farm size and farming experience.This result is in consonance with Nwagbo (1989).

However, variables like age and household size were significant at 1.0% level with negative signs implying that increase in these coefficients leads to decrease in productivity for non-beneficiaries of MFIs. This is in consonance with *aprio ri* expetation and agrees with Nwaru (2004) which states that old age and large household size negatively influence productivity. The diagnostic statistics with R^2 of 0.500 implies that the regression model explained 50.0% of variation in productivity of non-beneficiaries of MFIs. The significant F-ratio indicated overall test of significance.

Table 3.0 showed the pooled regression analysis results for productivity of MFIs beneficiaries and non-beneficiaries without dummies. This table revealed that variables like gender, education and farming experience had positive relationship with productivity significant at 5.0% level. The male cassava farmers were more productive than the female counterparts. Also increase in the coefficient of farming experience and education would lead to increase experience and education would lead to increase in productivity of cassava farmers. This is in consonance with *aprio ri* expectation and agrees with earlier work of Morrison (1996). In contrast age and farm size had negative relationship with productivity at 5.0% and 10.0% levels respectively. The implication

therefore is that increase in age farm size decreases productivity, this result agrees with *aprio ri* expectation and Nwaru (2004).

Table 4.0 showed the pooled regression results for productivity of beneficiaries and non-beneficiaries for productivity of MFIs with Dummy. The table showed that the following variables: gender and farming experience had positive relationship with productivity at 1.0% alpha levels respectively and negative relationship with productivity. This result is in consonance with *aprio ri* expectation and in agreement with literature that age and farm size of small scale farmers show positive relationship with productivity Nwagbo (1989). The coefficient of multiple determination R^2 of 0.593 shows that the model fitted the variables well and measured 59.27% variation in productivity as explained by the independent variables. A significant F-ratio of 11.26 showed the model had a high overall significance.

Table 5.0 showed the comparison of productivity of beneficiaries and non-beneficiaries of MFI cassava farmers in Abia state Nigeria using chow test. The calculated F-value exceeds the critical value, hence it could be concluded that there is a statistically significant difference in the productivity of both groups of cassava farmers. Therefore, we conclude that the beneficiaries of MFIs were more productive than the non-beneficiaries in the study area.

CONCLUSION AND RECOMMENDATION

The study examined the comparative determinants of productive among cassava beneficiaries and non-beneficiaries of Microfinance Institution (MFIs) in Abia state Nigeria. All the factors relative to productivity of cassava farmers include; gender, age, household size, farm size and farming experience. These significant variables influence productivity of both beneficiaries and non-beneficiaries of MFIs. However, the chow test of difference between means of factors

showed that beneficiaries of MFIs were more productive than the non-beneficiaries in the study areas. It is however expected that agricultural policies can target male cassava farmers with good farming experience and moderate household size by encouraging them with favourable government policies to ensure productivity in cassava farming.

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Table 1.0 Regression Estimates of Productivity for cassava farmer Beneficiaries of MFIs

Variable	Linear	Exponential	+Cobb Douglas	Semi Log
Intercept	23878.000***	10.304***	11.478***	48281.000***
	(8.380)	(43.970)	(8.970)	(3.330)
Gender	239.407	0.0436	0.082**	-42.935
	(0.260)	(0.580)	(2.290)	(-0.04)
Age	-122.006**	-0.010***	-0.285**	-4050.432*
	(-2.330)	(-2.40)	(-2.550)	(-1.890)
Education	78.630	0.008	0.069	682.499
	(0.770)	(0.980)	(1.030)	(0.900)
Household size	-360.995*	-0.031***	-0.217*	-2530.654
	(1.560)	(-2.820)	(-1.770)	(0.002)
Farm size	-11220***	-1.352***	-0.514***	-4619.202***
	(-6.500)	(-9.520)	(-7.900)	(-6.260)
Distance to source of credit	0.387	2.524E-05	0.011	117.391
	(0.520)	(0.410)	(0.240)	(0.330)
Number of Household members participating in economic activity	-256.600	-0.017	-0.029	-510.530
	(-0.510)	(-0.410)	(-0.030)	(-0.460)
Annual Income	-0.002	-8.833E-08	-0.074	1320.000*
	(-1.050)	(0.580)	(-1.080)	(-1.700)
Ownership of House	1745.904	-0.107	-0.056	-1131.675
	(-1.79)	(1.330)	(0.610)	(-1.090)
Farming experience	73.585	0.007	0.307***	1150.110
	(0.98)	(1.170)	(2.850)	(1.120)
Amount of loan repaid	-0.0427	-4.16E-06*	-0.100	-1044.099
	(-1.400)	(-1.660)	(-1.470)	(-1.350)
R^2	0.435	0.583	0.617	0.443
Adjusted R^2	0.374	0.538	0.561	0.378
F- cal	7.150***	12.940***	9.230***	6.860***

Source: *Field Survey, 2012*

Figures in parentheses are the t- ratios

*+ lead equation, *, **, and ***are significant at 10.0%, 5.0%, and 1.0% level respectively*

Table 2.0 Regression Estimates of Productivity for cassava farmer non-Beneficiaries of MFIs

Variable	Linear	Exponential	+Cobb Douglas	Semi Log
Intercept	1326.0000***	9.254***	7.839***	-21631.000
	(2.730)	(31.17)	(6.91)	(-1.19)
Gender	1539.440	0.104	0.998**	469.387
	(0.850)	(0.970)	(2.310)	(0.310)
Age	-83.664	0.006	-0.875***	-1917.563
	(-0.850)	(0.970)	(-3.960)	(0.550)
Education	136.425	(0.007)	0.069***	1084.687
	(0.73)	(0.640)	(2.660)	(1.030)
Household size	570.623*	0.022	-0.778***	-14814.000***
	(1.660)	(1.06)	(6.630)	(-7.880)
Farm size	-7938.597***	-0.430***	1.051***	20148.000***
	(-3.32)	(-3.03)	(4.070)	(4.860)
Distance to source of credit	0.121	1.235E-05	0.02794	152.748
	(0.600)	(1.030)	(0.840)	(0.290)
Number of Household members participating in economic activity	-956.485	-0.030	-0.0401	-1972.445
	(-1.470)	(-0.039)	(-0.500)	(-1.490)
Annual Income	0.006*	2.749E-07	0.055	925.282
	(1.500)	(1.16)	(1.100)	(1.15)
Ownership of House	-95.214	0.101	0.105	273.092
	(-0.060)	(1.000)	(1.170)	(0.190)
Farming experience	-10.181	0.001	0.094***	-1003.992
	(-0.0800	(0.160)	(3.210)	(-0.630)
Amount of loan repaid	0.012	8.423E-07	-0.004	642.688
	(0.610)	(0.710)	(-0.060)	(0.620)
R^2	0.177	0.164	0.500	0.4717
Adjusted R^2	0.093	0.079	0.436	0.415
F- cal	2.11**	1.930*	6.240***	8.36***

Source: *Field Survey, 2012*

Figures in parentheses are the t- ratios

*+ lead equation, *, **, and ***are significant at 10.0%, 5.0%, and 1.0% level respectively*

Table 3.0 Pooled Regression Estimates of Productivity for cassava farmer Beneficiaries and non-beneficiaries of MFI services without Dummy

Variable	Linear	Exponential	+Cobb Douglas	Semi Log
Intercept	16992.000***	9.660***	9.152***	1605.506
	(5.8000	(47.59)	(10.480)	(0.130)
Gender	834.726	0.087***	0.0610**	395787
	(0.820)	(4.100)	(2.220)	(0.410)
Age	- 86.200	-0.006*	-0.357**	-2027.827
	(-1.520)	(1.97)	(-2.320)	(-0.930)
Education	119.810	0.007	0.268**	610.667
	(1.090)	(0.850)	(2.370)	(0.86)
Household size	174.233	-0.002	-0.024	1132.680
	(0.810)	(-0.140)	(-0.270)	(0.870)
Farm size	-9368.935***	-0.797***	-0.433***	-6024.490***
	(-6.170)	(-7.57)	(-9.680)	(-9.540)
Distance to source of credit	0.156	1.502E-05	0.214	151.781
	(0.970)	(1.350)	(0.770)	(0.390)
Number of Household members participating in economic activity	-509.806	-0.005	-0.024	-1660.254*
	(-1.200)	(-0.170)	(-0.340)	(-1.720)
Annual Income	3.497E-05	-9.690	-0.031	-237.652
	(-0.002)	(-0.700)	(-0.730)	(-0.400)
Ownership of House	-948.776	-0.045	-0.686	-359.787
	(-0.940)	(-0.630)	(-0.030)	(-0.370)
Farming experience	26.817	4.176E-03***	0.007**	354.447
	(0.340)	(2.900)	(2.560)	(0.390)
Amount of loan repaid	0.019	1.36E-06	0.045	1262.286*
	(1.310)	(1.340)	(0.990)	(1.960)
R^2	0.184	0.543	0.530	0.324
Adjusted R^2	0.143	0.421	(0.495)	0.289
F- cal	4.54***	6.460***	9.420***	9.15***

Source: *Field Survey, 2012*

Figures in parentheses are the t- ratios

*+ lead equation, *, **, and ***are significant at 10.0%, 5.0%, and 1.0% level respectively*

Table 4.0 Pooled Regression Estimates of Productivity for cassava farmer Beneficiaries and non-beneficiaries of MFI services with Dummy

Variable	Linear	Exponential	+Cobb Douglas	Semi Log
Intercept	16100.000***	9.579***	9.333***	3282.433
	(5.560)	(48.540)	(11.190)	(0.280)
Gender	726.560	0.077	0.0494***	271.903
	(0.730)	(1.130)	(3.270)	(0.290)
Age	-97.792*	-0.007*	-0.201*	2466.086
	(1.750)	(-1.770)	(1.860)	(-1.150)
Education	90.931	0.004	0.085**	495.470
	(0.840)	(0.520)	(2.240)	(0.710)
Household size	234.253	0.003	0.022	1587.18
	(1.100)	(0.230)	(0.250)	(1.230)
Farm size	-9551.669***	-0.813***	0.426***	-5954.300***
	(-6.400)	(-7.980)	(-9.970)	(9.620)
Distance to source of credit	0.151	1.463E-05	0.033	262.315
	(0.960)	(1.360)	(1.220)	(0.680)
Number of Household members participating in economic activity	-653.733	-0.018	-0.053	-1959.258**
	(-1.560)	(-0.630)	(0.810)	(-2.060)
Annual Income	0.002	3.916	0.022	279.239
	(0.720)	(0.280)	(0.530)	(0.470)
Ownership of House	1806.931	-.0.0316	0.006	-279.239
	(-0.810)	(-0.460)	(0.100)	(-0.290)
Farming experience	17.666	4.112	0.060***	-388.465
	(0.230)	(0.080)	(3.160)	(-0.390)
Amount of loan repaid	0.006	1.996E-07	-0.0438	388.571
	(0.430)	(0.200)	(0.920)	(0.560)
Dummy	3110.428***	0.282***	0.324***	3189.481***
	(3.030)	(4.030)	(4.63)	(3.140)
R^2	0.216	0.294	0.593	0.355
Adjusted R^2	0.174	0.256	0.458	0.318
F- cal	5.080***	7.680***	11.260***	9.570

Source: *Field Survey, 2012*

Figures in parentheses are the t- ratios

*+ lead equation, *, **, and ***are significant at 10.0%, 5.0%, and 1.0% level respectively*

Table 5.0 Chow Test for Productivity of MFIs Beneficiaries and non-Beneficiaries for Cassava Production in Abia State Nigeria

Parameter	Regression Estimate
RSSR	47.109
RSS1	16.035
RSS2	20.200
K	11
N	234
F	5.784

Source: *Field Survey, 2012*