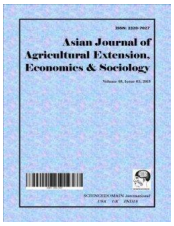

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Level and Determinants of Women Farmers Access to Informal Credit in Abia State, Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author CKO designed the study, wrote the protocol and first draft, anchored the field study, gathered the initial data and edited and corrected the peer reviewed manuscript(s). Authors SIO and COE handled the statistical analysis and literature search as well as read through the edited draft. All authors read and approved the final manuscript.

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ABSTRACT

The study analyzed level and determinants of women farmers access to informal credit in Abia state, Nigeria. The study described socio-economic characteristics of the women farmers who accessed microcredit from informal sources; ascertained level of access to informal micro-finance; and determined socio-economic factors that influenced access to informal micro-finance. Primary data were collected from two hundred and thirty three (233) women farmer informal credit beneficiaries using multi-stage random sampling technique. The data were analyzed using likert scoring and descriptive statistics, and probit regression estimation. As large as 60.94% of the women had farm size of between 0.1 and 1.0 hectares with a mean of 15 years farming experience. Majority 72.10% of the respondents had no contact with extension agents and cumulatively 85.84% of the women had formal education with 73.82% of them married. Also, 63.52% of them did not belong to any agricultural association. They had relatively higher level of access to loans from friends and relatives compared to other informal credit sources. Probit regression estimate showed that educational level, gross monthly income and membership of association exerted positive significant influences at varied critical levels. Other factors namely

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farming experience and farm size exerted negative significant influences at varied critical levels. Policies should be made to forge strong linkages between informal and formal financial institutions to ensure that agricultural loans are channeled from formal financial institutions to women farmers through recognized informal credit units. The synergy from such linkage will increase women farmers' productivity.

Keywords: Informal credit; access; productivity; women farmers.

1. INTRODUCTION

Women play major roles in farm production, product processing and marketing of food and cash crops as well as in livestock production [1]. In spite of these, women and households headed by women remain chronically poor members of rural communities [1,2,3,4]. This partly is on account of the fact that most female farmers have limited access to micro-credit which has deterred their productivity and income [5]. Improving access of women farmers to farm credit is central to rural development because it enables women to invest in and improve production in agriculture, small businesses and small-scale manufacturing all of which improve their living standard. Micro credit to women farmers empowers them to invest in agriculture and permit them to sustainably remain in farming. According to [6] the poor are poor not because they are lazy but because they have no access to credit.

Accessibility to formal credit facilities has been difficult for women farmers and people who are poor [7]. Their only respite has been with informal sources of farm credit. Increasing relevance and loan-giving capacity of informal financial institutions (IFIs) and credit units that provide credit services for women farmers on short notice with little or no restriction will no doubt sustain them in farm production [7]. Such informal credit has been shown to improve welfare of women farmers, smoothing their consumption and reduce their vulnerability to short term income shocks. [8] noted that informal credit is demanded by farmers for both productive investment (agricultural production and/or business) and consumption smoothening.

The informal financial sector from where women farmers obtain credit comprises essentially the Self-Help Groups (SHGs) and money lenders. The SHGs include – Rotating Savings and Credit Associations (ROSCAs) locally referred to as "*Isusu*" or "*Etotos*" or "*Akawo*" (Igbo), "*Esusu*" or *Bam* (Yoruba) or "*Asusu*" (Hausa). Other informal sources of credit are cooperative societies, age grades, work groups, town unions, religious associations, family or kith and kin associations. These groups, among others, have had developmental impacts in rural areas where they have extended loan facilities (micro credit) to their members without demanding physical collaterals except guarantors [9]. Most women farmers depend on the services of these informal financial units and groups for credit for funding agricultural activities and improve their livelihood [10].

In Nigeria, conventional financial institutions serve about 35 percent of the active population [11], with women farmers having the most limited access to such financial services. Informal Financial Institutions (IFIs) increasingly are steadily fixing this need for women and low income groups. Reliance of the vulnerable groups on informal financial institutions makes it pertinent to analyze potential and extent and nature of credit access they offer to prospective clients [7]. This study strives to provide information on level of access women farmers enjoy in acquiring credit from informal sources and factors that influence their access to loans from such financial units in rural communities. Specifically, the study provided insight on issues of informal financial market by: (i) describing socio-economic characteristics of women farmers who accessed microcredit from informal sources in Abia State, Nigeria; (ii) ascertaining level of women farmers' access to informal micro-finance in the study area and (iii) determining socio-economic factors that influenced access to informal micro-finance by women farmer borrowers in the study area.

2. RESEARCH METHODOLOGY

2.1 Area of Study

This study was carried out in Abia State of Nigeria. The State was created on 27th August 1991 out of the then Imo State and is located in South- East geo-political zone of Nigeria. Abia State has a land area of 7,677.20 square kilometers, with a total population of 2,833,999 persons [12]. Abia State is located between latitudes 5º47^{1}N and 6º12^{1} North of the Equator

and between longitudes 7º23^{1}E and 8º02^{1}East of the Greenwich Meridian [13]. It is bounded to the North and North-East by Anambra, Enugu and Ebonyi States respectively; to the south by Rivers State; to the East and South-East by Cross River and Akwa Ibom States respectively; and to the West by Imo state [14].

Abia State is an agrarian area that is richly endowed with land suitable for growing many tropical crops. The climate is essentially tropical humid on a mean elevation of 122 m with annual rainfall of 1500-2600 mm distributed evenly throughout the wet season (April to October). The diurnal temperature varies between 27ºC and 31.9ºC [15]. Administratively, the state is made up of seventeen (17) local Government Areas (LGAs) clustered in three Agricultural zones namely Aba, Umuahia, and Ohafia.

2.2 Sampling Technique and Data Collection

This study involved a survey that adopted a three-stage random sampling technique in selecting sampled communities. In the first stage, the three agricultural zones (Aba, Ohafia and Umuahia) were recognized as primary delineating units and were purposively selected. In the second stage, two LGAs were randomly selected from each of the three agricultural zones. This gave a total of six (6) LGAs namely *Obingwa, Osisioma, Bende, Ohafia, Ikwuano* and *Isiala-Ngwa* North. In the third stage, two communities were randomly selected from each of the six (6) selected LGAs, to give a total of twelve (12) communities namely *Osaa-Ukwu, Nenu, Osokwa, Mbutuoma, Ozuitem, Nkpa, Abirba, Ebem-Ohafia, Ariam, Oboro, Apu- na-Ekpu Umuoha* and *Ama- Asaa Nsulu*.

A list of Informal credit sources in the selected twelve communities was obtained with the help of enumerators many of who were natives. The informal credit sources were visited and lists of women microcredit beneficiaries generated from their registers. This served as the sampling frame of women farmer informal microfinance beneficiaries. Twenty female farmer beneficiaries of informal credit were randomly chosen from each of the twelve communities. This gave a sample of 240 women farmer informal credit beneficiaries who were used for the study. From the 240 respondents, a total number of 233 copies of questionnaire which were properly filled out, returned and were used for analysis. Primary data collected included women farmers' socio-economic variables of marital status, educational level, farming experience, access to credit from informal sources, interest charged, farm size, primary occupation, household asset endowment, gross monthly income, membership of farmers associations, and extension contact.

2.3 Method of Data Analysis

In order to realize the purpose of this study, a number of statistical tools were employed in analyzing the data. Objectives (i) and (ii) were analyzed using descriptive statistics of mean, frequency distribution tables and percentages while, objective (iv) was analyzed with probit multiple regression model.

2.4 Model Specification

To facilitate realization of objective ii, a five point Likert scoring was used in determining respondents' perceived level of access to informal microfinance as follows: (perception scores of accessibility was thus: very high = 5; high = 4; moderate = 3; low = 2 and very low = 1). The Likert scale score(s) is a method of ascribing quantitative values to qualitative perception to make them amenable to statistical analysis. The values of the responses were added and further divided by 5 to obtain a mean score of 3.0, regarded here as mean level of accessibility. Women farmers with accessibility score of 3.0 and above were considered to have had access to informal micro finance, while women farmers with accessibility score of less than 3.0 were regarded as having not had access to informal micro finance sources.

Thus mean accessibility score = $\overline{X}$

$$\overline{X} = \sum fx/N,$$

Mean of each item was computed by multiplying the frequency of positive response with its appropriate likert nominal value and the sum was divided by the sum of the number of the respondent to the items. This was summarized with the equation below:

$$\overline{X} = \sum fn/N.$$

Where

X = Mean score;
$\sum$ = Summation sign;
f = Frequency or number of respondents who responded positively;

n = Nominal Likert score;
N = Number of respondents.

In realizing objective (iii) probit multiple regression model was considered appropriate because access as a dependent variable (Y) takes one of only two possible values (access or no access) i.e.1 or 0 probability condition. The model was adopted as used by [16]:

$$Pi [y=1] = [Fzi] \quad (1)$$

Where

$$Zi = \beta 0 + \beta_1 X_1 + e$$

$$Y_i = \beta_1 + \beta_2 X_{2i} + \ldots\ldots\ldots + \beta_k X_{ki} + \mu \quad (2)$$

Yi* is unobserved but Yi = 0 if $y_i^* < 0$,1 if $Y_i^* \geq 0$
P (Yi = 1) = P (Yi* $\geq$0)

$$P (\mu i \geq -\beta_1 + \beta_2 X_{2i} \ldots\ldots\ldots\ldots\ldots -B_k X_{kL} \quad (3)$$

Where i = 1, 2, …233.
Where

- Y_i = Women farmers who had access to informal micro credit (dichotomized with mean likert nominal score; where ≥ 3.0 = access=1, < 3.0 = no access=0)
- β_1 = Unknown coefficient value of factors;
- X_1 = Farming experience (years);
- X_2 = Interest charged (Naira);
- X_3 = Farm size (hectares);
- X_4 = Educational level (Years);
- X_5 = Marital Status (Dummy variable; 1=married, 0=otherwise);
- X_6 = Primary occupation (Dummy variable; 1= farming, 0= otherwise);
- X_7 = Gross monthly income (Naira);
- X_8 = Membership to farmers association (Dummy variable; 1= member, 0= 0therwise);
- e = Error term.

3. RESULTS AND DISCUSSION

3.1 Socio-economic Characteristics of the Women Farmers

Distribution of women farmers according to their socio-economic characteristics was shown in Table 1. The table reveals that a good percentage (60.94%) of the women cultivated between 0.1 and 1.0 hectares of land. Cumulatively, 98.28% of the women farmers cultivated less than 3.1 hectares of farm land with a mean farm size of 0.8 hectare. This revealed the limited access of women farmers to land attributable to higher rent paid on land, cultural problem of land tenure system (women exclusion from inheriting land which prevents many of them from taking title of ownership), and land fragmentation prevalent in the study area. All these problems hindered them from having a contiguous land that can be cultivated with tractor and tractor drawn implements (mechanized agriculture) and impeded farm productivity [17,18].

Table 1 also showed that 42.49% of the respondents had farming experience of between 1 and 10 years. In descending proportions, 29.19%, 16.74%, 8.58% and 3.00% had farming experiences of between 11 and 20 years, 21 and 30 years, 31 and 40 years and 41 and 50 years respectively. The mean year of experience in farming was 15 years. This showed that most of the women farmers were highly experienced in the farming business. The more experienced a farmer was the better he or she could judiciously utilize borrowed funds [19].

Further Table 1 showed that majority (72.10%) of the women had no contact with extension agents, as only 27.90% of them reported having had contact with extension agents. This low extension contact could be on ground of inadequate motivation of extension agents/workers, non-provision of adequate transportation and communication facilities; insufficient extension personnel and inadequate monitoring of extension agents [20]. The result is consistent with [21] that in spite of a decade of World Bank's assistance in building up Nigeria's agricultural extension service, "women farmers still received minimal assistance and information from extension agency".

With regards to literacy level, 14.16% of the women had no formal education and 15.45% of them had primary school education. Cumulatively, 49.16% and 20.60% of them had attended secondary and tertiary institutions respectively. In summary, 85.84% of the women had formal education. High level of formal education suggests possession of high literacy level, which is an advantage in appreciating procurement of credit (informal microcredit) as literate borrowers have enhanced capacity to repay loans [22].

In terms of marital status, Table 1 showed that majority (73.82%) of the women farmers who accessed informal loan were married, with 14.59%, 11.16% and 0.43% of them being

single, widowed and divorced respectively. The married women were relatively considered as being more stable, easily identifiable and more credit worthy. According to [23] married farmers demanded more microcredit because they had pressing need to supplement their family's income for better livelihood.

Table 1 further showed that 63.52% of the women farmers did not belong to any agricultural association. This could be due to low knowledge derivable benefits of belonging to economic groups arising possibly due to poor extension contact in the area. It could also be attributed to misuse of association's fund and lack of trust on the leaders of farmer's association [24]. Membership to farmers association improves a farmer's social capital.

3.2 Level of Women Farmers' Access to Each Type of Informal Credit Source in Abia State

3.2.1 Friends and relatives

Table 2 shows that 54.08% of the women farmers had very high level of access to informal credit sources with only 4.29% of them having hindered access to loans from friends and relatives. Friends and relatives as a source of credit had total nominal Likert score of 971 with a mean of 4.17. This was greater than the threshold mean score of 3.0 showing that the women farmers in the area had unhindered access to this source of informal credit. This result is not surprising because in informal credit market, familiarity with a lender is a considerable advantage to secure credit.

3.2.2 Money lenders

Table 2 showed that a fairly good proportion (30.47%) of the women farmers had no access to this source of informal credit. The total likert nominal access score for this informal credit outlet was 618 with a mean of 2.65. This value was less than the threshold means score of 3.0. It means that the women farmers in the state had no access or had limited access to this source of informal credit. Money lenders unlike the other types of informal credit sources demand collateral or guarantor before granting loans to borrowers. Most women farmers in the area are denied access to credit by money lenders on grounds of their inability to provide acceptable collaterals or guarantors. Collaterals as demanded by this source of credit are tangible assets such as, land and estate properties. Women in the area possessed relatively low property rights and are lowly rated by providers of farm credit [25,26,27,28,29,30]. This fact coupled with high interest rate accounted for their having limited access to informal credit from money lenders.

3.2.3 Daily/weekly money deposit collectors (Akawo)

Table 2 also showed that 34.33% of the women farmers had access to informal credit, from collectors of periodic money deposits. However, 23.61%, 23.18% and 15.45% of the women had varying level of access to informal credit from this source described here as high, low and very high levels of access respectively. Quite a small proportion (3.43%) of the women had very low access to funds from daily/weekly deposit collectors. This source of credit had a total Likert nominal score of 756 and a mean of 3.25 for perceived access to credit from them. This implies that the women farmers in the study area had access to credit from daily/weekly money deposit collectors. According to study by [31] the daily/weekly contribution scheme is a form of savings strategy that is advantageous in the sense that the contributor can borrow from his accumulated savings even before the end of the planned cycle. This strategy makes savings easy since the amount contributed is usually small, though the contributions can accrue to a fairly bulky sum later.

3.2.4 Cooperative societies

Table 2 reveals that 35.62% of the women farmers had moderate access to credit from this source. Varying proportions: 23.18%, 17.17% and 12.45% of the women farmers had low, very low and high level access to small loans from cooperative societies respectively. Only 11.59% had very high access to funds from cooperative societies. This source of credit had a total Likert nominal perceived access score of 648 and a mean of 2.78. This implies that women farmers in the study area did not have unhindered access to credit from cooperative societies. This could be a result of prospective women borrowers not meeting up with the internal conditions for loans from the cooperative societies.

3.2.5 Rotating savings and credit associations (ROSCA)

Table 2 showed that a fairly good proportion (35.62%) of the women farmers had low level access to credit from ROSCAs. Varying

proportions: 30.90%, 17.59% and 11.16% had moderate, very high and high level access respectively to credit from ROSCA. This source of credit had a total Likert nominal access score of 702 with a mean of 3.01. This implies that the women farmers in the study area had access to informal credit from this source by participating and taking their turns for the loans/deposits. The *ROSCA* system is a savings mobilization arrangement which operates as a revolving scheme that continues until every member has benefited from the scheme [7].

3.3 Determinants of Women Farmers' Access to Informal Credit in Abia State

The probit regression estimates of factors that influenced access of rural women farmers to informal credit in Abia state, Nigeria was presented in Table 3. The model posted a log likelihood value of -115.5278, a pseudo R^2 value of 0.1218 and a goodness of fit chi-square value of 32.04. Overall, the model fitted 72.3% of the data correctly. The estimate of factors that influenced access of rural women farmers to informal credit showed that coefficients of educational level (0.0532), gross monthly income (6.41e-06) and membership of association (0.2127), exerted positive significant influences at 1.0%, 5.0%, and 10.0% alpha levels of probability respectively. The coefficient of educational level showed a statistically significant positive effect on women farmers' access to informal credit. The sign is in line with *a priori* expectation. It indicates that women farmers' access to informal credit increased with higher educational attainment. Formal Education and training enhanced women farmers' capabilities to understand and accept technological innovations in economic activities which led to increased and sustainable agricultural production. Informal credit lenders were familiar with the applicants and gave more loans to the more educated women farmers with greater potential to repay.

Table 1. Distribution of women farmers that accessed informal credit according to socio-economic characteristics in Abia State

Variables	Frequency	Percentage (%)
Farm size (Hectares)		
0.1 – 1.0	142	60.94
1.1 – 2.0	64	27.47
2.1 – 3.0	23	9.87
3.1 – 4.0	4	1.72
Mean = 0.8		
Farming experience (years)		
1 – 10	99	42.49
11 – 20	68	29.19
21 – 30	39	16.74
31 – 40	20	8.58
41 – 50	7	3.00
Mean = 15.34		
Extension contact		
Yes	65	27.90
No	168	72.10
Level of education attained		
No formal education	33	14.16
First school leaving certificate	36	15.45
Junior secondary school certificate	26	11.16
WASC, GCE, SSCE, NECO, NABTAB,	90	38.63
OND, NCE	24	10.30
HND, BSc, BA, Bed	22	9.44
MSc	2	0.86
Marital status		
Single	34	14.59
Married	172	73.82
Widowed	26	11.16
Divorced	1	0.43

Variables	Frequency	Percentage (%)
Membership status		
Member	85	36.48
Non member	148	63.52
Total	233	100.00

Source: Field Survey, 2014

Table 2. Estimation of level of women farmers access to sources of informal credit in Abia State

Level of access	Very high (5)	High (4)	Moderate (3)	Low (2)	Very low (1)	Total	Mean	Rank
Types of informal credit sources								
Friends/relatives	630 (54.08)	232 (24.89)	63 (9.01)	36 (7.73)	10 (4.29)	971	4.17	1
Money lenders	110 (9.44)	120 (12.88)	213 (30.47)	130 (27.90)	45 (19.31)	618	2.65	5
Daily/weekly money deposit collectors (Akawo)	180 (15.45)	220 (23.61)	240 (34.33)	108 (23.18)	8 (3.43)	756	3.25	2
Cooperative society	135 (11.59)	116 (12.45)	249 (35.62)	108 (23.18)	40 (17.17)	648	2.78	4
Rotating joint contribution scheme	205 (17.59)	104 (11.16)	216 (30.90)	166 (35.62)	11 (4.72)	702	3.01	3

Source: Field Survey, 2014, Decision Rule 3.0 and above = Access, Decision Rule < 3.0 = No access
Figures in parentheses are percentages.

Expectedly the coefficient of gross monthly income was statistically significant and had positive effect on women farmers' access to informal credit. This implied that women farmers with higher gross monthly income stood better chance and accessed more informal credit. The key variable observed by lenders before granting access to informal loan was income. Consistent with *a priori* expectation women farmers' chance of accessing informal credit increased as their gross income increased in the area. This is because borrowers with higher income levels had relatively better potential for repayment of their loans.

Membership of association was also statistically significant and positive in determining access to informal credit. This result is at variance with [32] who obtained a negative relationship between membership of farmers association and access to credit in Abia state.

Other factors: farm size (-0.1667) and farming experience (-0.1394) exerted negative significant influences at 5.0% and 10.0% alpha levels of probability, respectively.

The negative sign of this coefficient showed that access to informal credit in the study area decreased with increase in farm size, and years of farming experience. Although these results are not totally in tandem with *a priori* expectations they showed that relatively less experienced women farmers accessed more informal credit in the study area. The more experienced women farmers could not access more informal credit possibly on grounds of their acquired practical knowledge over time that have enabled them to manage their resources at levels that have enabled them to positively impact on their productivity and hence their reduced demand and access to informal microcredit. This result is in contrast with [33] who noted that more experienced farmers are considered better credit risk takers in the sense that they are rational decision makers and have established reputation in the community in the use of credit. With respect to farm size, the women farmers had reduced chances of access to informal credit as their farm sizes increased. Although, the sign of the coefficient differs from *a priori* expectation, it suggests efficiency in the use of land rather than expansion of cultivated areas to increase chances of accessing credit. By these revelations, hypothesis $H0_1$ was rejected in terms of farming experience, farm size, educational level, gross monthly income and women membership to associations.

Table 3. Binary probit regression estimates of factors affecting access of women farmers to informal credit in Abia State, Nigeria

Variables	Estimated coefficients	Standard errors	Z-ratios	P> Izl
Constant	0.0795	0.5455	0.15	0.884
Farming experience	-0.1394*	0.0087	-1.60	0.109
Interest charged	0.1419	0.0540	0.63	0.009
Farm size	-0.1667**	0.7440	-2.24	0.025
Education level	0.0532***	0.0183	2.91	0.004
Marital status	0.1821	0.1197	1.52	0.128
Primary occupation	0.0314	0.0972	0.32	0.747
Gross monthly income	6.41e-06**	5.34e-06	2.20	0.030
Membership of association	0.2127*	0.2137	1.60	0.319
Log likelihood	-115.5278			
Wald $chi^2(10)$	32.04			
Pseudo R^2	0.1218			
Cases predicted correctly (%)	72.3			

*Source: Field Survey, 2014, ***, **, * Significant at 1.0%, 5.0% and 10.0% levels respectively.*

4. CONCLUSION

Based on the empirical evidence emanating from this study, it is concluded that women farmers had unequal level of access to different sources of informal micro credit on basis of their differences in farming experience, farm size, educational level, gross monthly income and their membership of agricultural associations. There was relatively higher level of access to loans from friends and relatives compared to other informal credit sources. The women farmers had little or no collateral to access loans from money lenders. Their low gross monthly income limits their potential to save in savings based informal credit outlets.

5. RECOMMENDATIONS

This study therefore made the following recommendations:

(i) The government should make policies to increase synergistic linkage between informal and formal financial institutions to facilitate channeling of agricultural loans from formal financial institutions to women farmers through recognized informal credit units. The synergy from such linkage will increase women farmers' productivity.

(ii) Women farmers should be encouraged and educated by extension workers to belong to cooperative associations so as to enjoy benefits emanating from being members of agricultural association.

(iii) Women farmers should pool their financial resources and use same to buy or rent consolidated pieces of farm land for enhanced production and income as members of cooperative society.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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