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## A Decipherment of Loan Approval Intensity for smallholder Female farmers and Their Determinants by Microfinance Banks in South-East Nigeria

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### Abstract

*Microfinance banks in Nigeria have developed tremendously in the recent times. Despite the fact that it is universally considered as an essential development tool for peasant farmers in breaking the vicious cycle of poverty, the intensity of loan approvals for smallholder farmers remains an issue of debate for Agricultural policy makers. This paper presents a methodological framework for measuring the*

*sampling procedures in the selection of 180 respondents for the study. Data collected were analysed using the loan approval intensity model (LAI) and the the ordinary least square multiple regression model. The results showed that the mean loan approval intensity for the female smallholder farmers is 48.9% which suggests that for every 100 loan applications made by the smallholder female farmers, only forty-nine (49) applications were approved and finally we observed from the results that farming experience, marital status, years of schooling, proximity to microfinance banks, household size, interest amount, and annual income are the significant determinants of loan approval intensity of female smallholder farmers.*

**Key words:** Women, Loans, Farmers, Loan approval intensity, Credit, Microfinance Banks

### 1. Introduction

Agricultural loan is the key requisite for an amplified agricultural output for agribusiness all over the world (Mmasa, 2017). In Nigeria sub Saharan Africa, Agriculture plays an essential part in Nation building due to the fact most of the population depends on agriculture-based activities and by products for their livelihoods. According to Bello, Balogun, Afodu, Akinboye, Ndubusi-Ogbonna, & Shobo, (2016); Ukoha, (2020) and Ukoha, Mejeha, Nwaru, Ibeagwa, & Maduiké, (2020), Agriculture is imperative for the positive transformation and economic development). More than 70% of smallholder farmers in Nigeria depend on agriculture as a source of livelihood thereby making it very important for Nigeria's quest to achieve a number of the objectives within the Sustainable Development Goals SDGs (Ukoha, et al 2020).

According to Mmasa & Mhagama (2017), Notwithstanding the current position of the agricultural sector to the country's economy, the sector is inhibited by hitches such as high transaction costs, weather fluctuations (drought or floods), biotic stress and other external shocks, notably food price instabilities thereby resulting to unsatisfactory proceeds as related to the production costs, poor access to information, innovations, value added initiatives, better varieties and access to agricultural credit among others. These had triggered a stationary growth of agriculture sector in the last decades. Globally, credit to agriculture is perceived as a fundamental device for advancing rural improvement particularly among poor farmers that establish a significant level of the cultivating populace (Nwaru, 2004; Mejeha and Ifenkwe, 2007; Nwaru, 2011). Microfinance Banks (MFBs) give credits to low pay people (Samareen and Zaidi, 2012). Like each advance, they should be repaid. Thus, the MFBs must survey their customer's budgetary exercises just as the dangers of their activities because loaning is risky, and yet productive. Agricultural finance models suggest that farm credit is not only obliged by the restrictions of self-finance, but also by improbability concerning the time lag between when the credit is needed and when it is received (Ukoha, Orebiyi, Eze, Henri-Ukoha, and Nwaiwu 2013).

Nigerian women are actively instrumental in crop production, farm product processing, marketing of food and cash crops as well as in fishery and livestock production. Women fulfill a large number of roles in agricultural dependent households: from housework, to farming, to side activities on and off the family farm (Varangis, 2015). Agricultural loans extended to women farmers are fundamental in the abolition of their financial constrictions to invest in agricultural undertakings, increasing output and modernizing farm techniques. Normally, Agricultural loan approvals for women farmers by banks are imperative for enhancement of value and size of farm yields so, that it can upsurge their net income, breaking the vicious circle of poverty and circumventing rural to urban migration (Kohansal, Ghorbani and Mansoori, 2008).

According to Gana, Tsado, Kenchi and Olaleye (2009), Smallholder women farmers are confronted with colossal snags in acquiring agricultural loans and credit facilities some of which includes late disbursement of agricultural loans, non-fulfillment of security collateral obligation, diversion of loans by the financial institutions for non-agricultural commitments and failure of the bank to locate smallholder women farmers at the rural areas.

Financial institutions in Nigeria are known for delays in the processing of loan application in some cases the loan applications may be approved but it makes no sense when an application takes so long to be approved especially if the project to be implemented is time sensitive. A farmer's loan application that gets denied is one of the reasons why agricultural transactions fail. When a farmer's loan application is denied it's in most cases the fault of the farmer or the lender. The reality is that there can be issues with the bank appraisal. This is not very healthy for the Nigerian agricultural sector especially when farmers need credit for immediate agricultural projects and the loans are denied or approved much later. It is very important to investigate the various factors which influence the intensity of credit approval so as to reduce losses in the agricultural sector. This study tends to bridge the gap by providing information about the drivers of smallholder women farmers loan approval intensity in South-Eastern Nigeria due to the fact that an efficient utilization of agricultural credit is necessary to enhance the agricultural sector's productivity and hence the national economy (Yasir *et al.*, 2012).

## **2. Material and Methods**

This study was conducted in the South-East Agro-ecological zone of Nigeria. The South-east zone comprises five states namely: Abia, Anambra, Ebonyi, Enugu and Imo States. The states are within the South-east rainforest zone of Nigeria. The area has a population of 21,955,334 and this comprise of Abia

State 3,727,347 people, Imo State 5,408,756, Anambra State 5,527,809 people, Enugu state 4,411,119 people while Ebonyi State has 2,880,303 people (NPC, 2017).

A multi-stage sampling technique involving purposive and random sampling procedures were adopted in the selection of respondents for the study. Two states out of the five states in the south-east were purposively selected namely Imo and Enugu States based on the predominance of smallholder female farmers and also the presence of large number of microfinance banks in these states. In the second stage, 10 microfinance banks (MFB) from each state were purposively selected due to their lending activities to smallholder female farmers namely: Enugu State- Lapo MFB, Umuchinemere MFB, Ifeanyichukwu MFB, Kenechukwu MFB, Nsukka MFB, Oha MFB, Aris MFB, Coal camp MFB, Good Shepard MFB and Isu-ozu MFB. In Imo State 10 MFBs were also selected namely: All workers MFB, Lapo MFB, Oche MFB, Osina MFB, Merit MFB, Ogbe-Ahiara MFB, Chikum MFB, Vantage MFB Amaifeke MFB and Orsu MFB. In the third stage 9 female loan applicants were randomly selected from a list of loan applicants from the banks listed above making a total of 180 female applicants.

Data were collected from primary sources. The primary data were collected using focus group discussions, questionnaire, alongside personal observation and interviews of farmers. The variables of interest included the farmers age, gender, educational level, proximity to bank, marital status, off farm income, farming experience, credit history, monthly income, loans from other banks, relationship with bank, farm size, loan tenure, household size, account holder, amount of credit applied for, amount received, and farmers discouragement among others.

### 3. Methods of Data Analysis

#### 3.1 Loan approval intensity for female smallholder farmers, and their determinants

The loan approval intensity for female smallholder farmers, and their determinants, was achieved using the loan approval intensity model (LAI). The loan approval intensity was determined by the formula,

$$LAI_i = \frac{NLA}{TNLA} \times \frac{100}{1} \tag{1}$$

Where;

LAI= Loan approval intensity for the  $i^{th}$  female smallholder farmer

NLA= Number of loan applications approved by the MFB for the female smallholder farmer

TNLA= Total number of loan applications made by the female smallholder farmer

The determinants of the loan approval intensity of female smallholder farmers were ascertained using the ordinary least square multiple regression model, as:

$$Y_A = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}) \tag{2}$$

Where, in equation (2),

$Y_A$  = Loan approval intensity (%)

$X_1$  = Farming experience (years)

$X_2$  = Age of farmers (years)

$X$  = Relationship with bank (number of years an applicant has operated an account with the (MBF)

$X_4$  = Marital status (D: 1=Married, 0= Otherwise)

$X_5$  = Number of years spent in school (years)

- X<sub>6</sub> = Proximity to MFB (km)
- X<sub>7</sub> = Household size (Number of Persons eating from the same catering arrangement)
- X<sub>8</sub> = Interest amount (Naira)
- X<sub>9</sub> = Farm size (ha)
- X<sub>10</sub> = Annual farm income (N)

## 4. Result and Discussion

### 4.1. Socio-Economic Characteristics of Respondents

#### 4.1.1 Socioeconomic characteristics of the female farmers

The socioeconomic characteristics of the smallholder female farmers that applied for credit in the study area are presented in Table 1.

Variables	Frequency	%
<b>Age of respondents (years)</b>		
11 – 20	2	1.1
21 – 30	60	33.3
31 – 40	84	46.7
41 – 50	20	11.1
51 – 60	14	7.8
Total	180	100.0
Mean	33.5	
<b>Marital status</b>		
Single	54	30.0
Married	114	63.3
Divorced	8	4.4
Widowed	4	2.2
Total	180	100.0
<b>Educational qualification</b>		
No formal education	30	16.7
Primary	59	32.8
Secondary	48	26.7
Tertiary	43	23.9
Total	180	100.0
<b>Household size</b>		
1 – 3	97	53.9
4 – 6	77	42.8
7 – 9	6	3.3
Total	180	100.0
Mean		5
<b>Farming Experience (years)</b>		
1 – 5	40	22.2
6 – 10	57	31.7
11 – 15	59	32.8
16 – 20	24	13.3
Total	180	100.0
Mean	9.86	
<b>Farm size (ha)</b>		
0.1 - 1.0	67	37.2

1.1 - 2.0	99	55.0
2.1 - 3.0	12	6.7
3.1 - 4.0	2	1.1
4.1 - 5.0	-	-
Total	180	100.0
Mean	1.27	
<b>Membership of cooperatives</b>		
Yes	106	58.9
No	74	41.1
Total	180	100.0

**Table 1: Socioeconomic characteristics of the smallholder female farmers**

*Source: Computed by the researcher from field survey data, 2020*

The result in Table 1 also shows that the female respondents had an average age of about 34 years. About 80% of the respondents were between 21 and 40 years, an indication of a vast young population of female farmers who would be enterprising and inclined to take loans for productive purposes or for expansion of existing operations. Younger farmers would be more inclined to borrow for their economic activities as they are better endowed with strength and zest which are essential for a successful farming business, these female respondents would be fit mentally and physically to perform their economic activities which would also see them utilizing the loan they borrowed efficiently and profitably.

Majority of female respondents (about 63 %) were married. This implies that female respondents were settled and should therefore be better positioned to undertake their economic activities profitably responsibly and in such a manner as to make access to credit necessary. Ominikari, Onumadu and Nnamerenwa (2017), posited that being married confers some amount of stability to an individual in a household and put them in a better position to practice their occupation more profitable for the business sustenance and for solving family needs. This result agrees with Onunka (2011) who reported similar result for African eggplant in producers Abia State.

The result also shows that most of the respondents (32.8%) had primary education. However, 83.3% of female respondents had formal education. This result suggests that a large number of the respondents were educated and therefore understand the requirements for accessing credit from the bank. Education is a virtue that is required for a successful business operation; thus, these educated respondents have acquired relevant skills that would be useful in operating their own firms and to know how to utilize loans to enhance their business performance.

Nnamerenwa, Jessie, & Nwatu, (2017) posited that education serves as an important criterion for loan approval and thus, gives an edge to any individual with educational qualification over another with no educational qualification. Also, education will predispose individuals to be better positioned to utilize their resources optimally.

The result in the Table 1 further shows that 54% of females had household size of not more than three (3) persons. This implies that majority of the respondents had small household size, much is smaller than even the national average of six (6) persons. This fairly low household size may be advantageous for these respondents as the amount spent on household expenditure would be moderate and therefore making provision for the judicious use of any credit acquired. However, the observed household size is a disadvantage to family labour supply which will force the respondents to spend more on hired labour that may negatively influence their optimal utilization of credit obtained to increase their farm output. Family

labour is most essential in any household business as it helps to reduce the cost of labour. Small household size may further be seen as a disincentive to adoption of better farming strategies for greater farm output.

The result shows that 32.8% of respondents had farming experience of between 11 – 15 years. The mean years of farming experience was 9.9 for respondents. This implies that majority of the respondents may be considered fairly recent entrants into farming. The more the number of years an investor may have been in business, the more he may have gained practical and managerial experience to handle the issues of productivity growth and profit. Nwaru (2004) noted that improvement in productivity is based on the experience in business which is determined by the number of years of operation. The mean age may have some implications as it pertains to applying for credit by the respondents. Most lenders usually consider this group of respondents rather inexperienced and therefore may hesitate in extending credit facilities to them. This finding is consistent with Nnamerenwa *et al.*, (2017) who posited that new entrants into farming business in Nigeria may find it difficult to access credit facilities from formal financial institutions. This they said is due to their years of farming experience which is vital in adopting better farming technologies and in combining resources in a manner that will reduce production cost and increase profits earned. Unless this is curbed through policy directives, many young farmers will find it difficult to expand their farming business through formal credit utilization.

The average farm size is 1.27 hectares for respondents. This implies that the respondents had small farm sizes. The average farm size for smallholder farmers in the country is put at between 2.0 hectares. The average farm size of the respondents is not higher than the national farm size average for smallholder farmers and indicates that most farmers are still at subsistence level in southeast Nigeria. The small farm size prevalent in the study area is as a result of land fragmentation necessitated by land ownership structure, intensive farming and conversion of agricultural lands into housing, road construction and other non-agricultural development projects. It is worthy to note that land ownership through heritage is one of the reasons for the series of farm land fragmentation occurring in southeast Nigeria. Therefore, the respondents may need credit for expansion purposes or to increase productivity through the purchase of improved inputs.

The result in Table 1 further shows that 59% of females were members of cooperative societies in the study area. This finding suggests that the respondents would enjoy the benefits of cooperative membership which would include collective bargaining, economies of scale and easy access to credit facilities. Membership to a cooperative society allows such members to have access to better farming information and credit as well as to enjoy economies of scale. The finding is consistent with that of Simonyan and Obiakor (2012) who observed that membership to cooperative society affords farmers the opportunity of sharing information on modern production techniques, purchasing inputs in bulk as well as exchanging labour, so by not joining these associations the farmers may not enjoy all these opportunities thereby reducing their productivity and their participation in market.

#### 4.2. Loan approval intensity for smallholder female farmers

The distribution of the smallholder female farmers by loan approval intensity is presented in Table 2.

Loan approval intensity (%)	Female smallholder farmers	
	Frequency	%
11 - 20	4	2.2
21 – 30	7	3.9
31 – 40	11	6.1
41 – 50	60	33.3

51 – 60	98	54.4
Total	180	100.0
Mean	48.9	

**Table 2: Loan approval intensity of female smallholder farmers along gender line**

*Source: Computed by the researcher from field survey data, 2019*

From Table 2, the mean loan approval intensity for the female smallholder farmers is 48.9%. This finding suggests that for every 100 loan applications made by the smallholder female farmers, only forty-nine (49) applications were approved. Majority (54.4%) of the female farmers had at most (60%) of their loan applications approved by Microfinance banks in southeast Nigeria. The result however shows moderate levels of loan approval relative to the number of female loan applicants. This may suggest that women are being encouraged to borrow loans for their farming business. It could probably be that Microfinance banks sees women as not going to have the mind to default and would also be easy to access during loan recovery. The understanding that women are dominating farming business recently while men are seriously engaging in non-agricultural business for survival (Ominikari, Onumadu and Nnamerenwa, 2017) could also justify the moderate loan approval intensity enjoyed by women.

### 4.3 Determinants of loan approval intensity for female smallholder farmers

The result of the ordinary least square (OLS) multiple regression used to estimate the determinant of the loan approval intensity for female smallholder farmers is presented in Table 3. The Semi-log function was chosen as the lead equation based on the values of the coefficient of multiple determination ( $R^2$ ), F-statistic, the number of significant variables and the signs on the variables as they conform to a priori expectations. The result in Table 2 shows that the  $R^2$  of 0.827 is high and indicates that about 82.7% of variability in loan approval intensity of smallholder female farmers in south east Nigeria is caused by the specified explanatory variables.

Variable	Linear	Exponential	Double-log	Semi-log+
Constant	121.236 (7.501)***	1.0441 (22.996)***	-3.840 (-8.115)***	112896.81 (11.606)***
Farming experience	1.018 (3.588)***	0.022 (2.996)***	0.8600 (9.912)***	1651.20 (-3.079)***
Age of farmers	-5.321 (-0.930)	-1.83E-07 (-2.166)**	-0.001 (-0.225)	1009.32 (0.276)
Relationship with bank	2.125 (2.043)**	0.020 (2.255)**	-0.0001 (-0.013)	-1026.12 (-0.380)
Marital status	3.010 (12.098)***	0.014 (11.455)***	-0.0518 (-2.784)***	1357.01 (2.533)***
Years spent schooling	-3.001 (-0.727)	-0.006 (-0.317)	0.0128 (3.264)***	1007.10 (2.629)**
Proximity to MFB	1.005 (2.553)**	0.075 (2.536)**	0.0263 (1.905)*	2113.02 (2.716)***
Household size	0.482 (0.055)	0.013 (0.517)	0.0120 (2.429)**	1307.09 (2.326)**
Interest amount	0.260 (0.360)	9.45E-08 (0.887)	-0.0290 (-5.573)***	1246.21 (6.777)***
Farm size	6.230 (3.501)***	-1.0441 (-2.996)***	0.151 (1.346)	1000.37 (1.571)
Annual income	1.479 (2.394)**	1.27E-06 (1.110)	0.399 (0.973)	1493.09 (2.373)**
$R^2$	0.728	0.749	0.782	0.827

Adj. R <sup>2</sup>	0.705	0.725	0.760	0.801
F-statistic	66.323***	69.312***	72.421***	82.724***

**Table 3: Regression result on the determinants loan approval intensity for female smallholder farmers in the study area**

*Source: Field Survey Data, 2019*

\*\*\*significant at 1%; \*\* significant at 5% and \*significant at 10%. + = means lead equation. Values in parenthesis are t- ratio.

The results show that farming experience, marital status, years of schooling, proximity to microfinance banks, household size, interest amount, and annual income are the significant determinants of loan approval intensity of female smallholder farmers.

Farming experience is significant and positively related to the loan approval intensity of female smallholder farmers. This indicates that female farmers with little or no farming experience have a higher likelihood of loan denial than farmers with more farming experience. The reason is because; farmers with more farming experience are likely to have higher probability of making a successful loan request (Cressy, 1996).

Marital status was significant and positively related to the loan approval intensity of female smallholder farmers. This indicated that loan applications of female smallholder farmers have a higher probability of being approved. This may probably due to the fact that marriage confers some level of responsibility. The findings on marital status agree with the position (Ololade and Olagunju, 2013).

The number of years spent in school was significant at 5% and positively related to the loan approval intensity of female smallholder farmers. This implies that loan applications of female smallholder farmers who attained higher education status than their counterparts, have a higher likelihood of being approved. According to Baba *et al.*, (2015) higher level of education is associated with the ability to access and comprehend information on credit terms and conditions, and ability to complete loan application forms properly. According to United Nations (2009), Education is very important for smallholder farmers, reasons being that it makes it possible for them to utilize available know-hows in order to enhance their standard of living. Hence poor education attainment by female farmers is a major determinant influencing their loan approval intensity by banks due to the fact that banks daily activities which involves the use of bank instruments the dissemination of vital information and decisions are always communicated via text messages and emails.

Proximity to bank and household size were both significant and positively related to loan approval intensity of female smallholder farmers. This implies that loan applications of female smallholder farmers who have a higher house hold size and live closer to the bank have a higher likelihood of being approved. According to Demirgüç-Kunt and Klapper (2013), due to sociocultural limitations, female farmers aren't as mobile as male farmers and it restricts their capability to tour lengthy distances to microfinance banks to pay off their loans or make cash deposits which can influences loan approval by the banks; also Braun *et al.*, (2012) were of the opinion that female farmers are loaded with household tasks, which increases their daily hours of work. The time load or triple work load inhibits the female farmers ability to engage in financial transactions.

Interest amount and annual income are significant and positively related to loan approval intensity. This indicates that loan application forms of female smallholder farmers who are charged higher interest amounts and who have more annual income have a higher likelihood of approval. Aterido, Beck, and Iacovone, (2011) were of the opinion that African women aren't viewed as prospective bank customers reason being that they have truncated income as most of them operate on a very small scale (small holder farmers).

## 5. Conclusion and Recommendation

This paper deciphered the intensity of loan approval and its determinants for female smallholder farmers particularly in South-East Nigeria. The results are Two- fold. Firstly, the mean loan approval intensity for the female smallholder farmers is 48.9%, which suggests that for every 100 loan applications made by the smallholder female farmers, only forty-nine (49) applications were approved. Secondly, the result shows that there are 7 key factors which significantly influence the intensity of loan approval for female smallholder farmers. Evidence from table 2 in the data above shows that, farming experience, marital status, years of schooling, proximity to microfinance banks, household size, interest amount, and annual income are the major determinants of the loan approval intensity for female small holder farmers in South-East Nigeria. We therefore recommend that the basic requirements needed by the farmers in securing loans from the MFBs should be properly communicated to them and also loan approval intensity by microfinance banks should be improved on, and finally the Federal Government should set up supervisory mechanisms to monitor the intensity of loan approval for farmers irrespective of gender

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