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Credit Reserve and the Demand for Agricultural Loans in Cross River State, Nigeria

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Abstract
This paper analyses credit reserve amongst small scale crop farmers and its use in the demand for loans from banks in Cross river State, Nigeria. 101 crop farmers from the three agricultural zones of Cross River State were randomly sampled. The results showed that the mean credit reserve of these farmers was N435, 332.89 (USD 2720.83). Age, level of education farm size and the amount of credit reserve owned were positively related to the demand for agricultural loans.
Keywords: Credit reserve, small-scale farmers, loans, Cross River State, Nigeria.

Introduction

The forces of supply and demand affect every significant economic decision not just in Nigeria but the world at large. These economic decisions are not all made at the market place as other economic forces such as-government affect how resources are used. The demand and supply of loan-able funds depend to a large extent on the forces influencing the financial markets. Macro conditions attributed to monetary and fiscal policies, structural characteristics of financial markets and aggregate economic performance may influence costs and availability of loan-able funds; so may micro conditions that characterize financial intermediaries. These financial market conditions are far removed from farmers' operating environment and may have little or no influence in farmers' cash demands. They influence, but are not influenced by farmer's credit management. Hence, farmers can only monitor them as part of their financial environment.

Understanding loan demand is critical for lenders to meet the requirements of their customer base and assemble a more balance and profitable loan portfolio. Such an understanding is also necessary for government policy makers to evaluate the potential effect of changes in monetary policy on investment in agriculture (Turvey and Weersink, 1997). Policy makers and farm borrowers are also concerned whether the demand for agricultural loans is balanced with the supply provided by lenders. The resulting number of loan contracts established between borrowers and lenders extends beyond a simple quantity - price relationship and involves factors such as business and financial risk. Agricultural loans cannot be treated as ordinary commodity whose demand is characterized by a competitive, equilibrium solution. In fact, the differentiating factor between loan demand and the demand for other commodities is that debt contributes to financial risk to the farm and business risk to the lender. Exacerbating the lender's risk is limited liability, which limits the recovery of outstanding and delinquent loan principal only to those assets secured, collateralized or otherwise clattered by loan agreement. When loan default or bankruptcy occurs, the outstanding loan principal that is not recovered by the scale of collateral asset represents a loss to the lender.

Agricultural loans demand is of particular salience in the context of agriculture and rural development in Nigeria. This is because approximately 70% of the population are rural dwellers who take to agriculture as the main source of livelihood (Nwoze et.al 2010). Access to loans from major financial institutions has been of interest to many, particularly policy makers, as this is considered one way of not just providing jobs or increasing production but of breaking the cycles of poverty in these rural areas. Government in a bid to make this possible set up the Agricultural Credit Guarantee Scheme Fund (ACGSF) in 1977, and Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) in 2002. The establishment of these agencies however yielded little result hence, other financial institutions particularly commercial banks were encouraged to increase loan supply to the sector. The creation of special fund tagged "The Commercial Agricultural credit Scheme - CACS" in 2008 with an initial grant of N200 billion by the Federal government was part of the deal to make sure banks lend to farmers. The disbursement of the fund was to be handled by three apex banks under the supervision of the Central Bank of Nigeria (CBN**).** The conditions to accessing the fund have been of concern to many farmers as most of them do not have the requirements. In fact, five years since the fund was created, only N60 billion has been utilized. The reason for stringent conditions according to these banks is to check defaults which characterized earlier schemes that preceded this one. Hence, they insist that potential applicants, in addition to meeting other conditions, should have target market in a known multinational corporation. Worst hit by these conditions are small-scale farmers who constitute the greatest force in food production in Nigeria (Ijere, 1986; FMAWARRD, 1987). Apart from the fact that their population is a problem in terms of how many should actually get the loans, there is also the problem of provision of collateral which is one condition by banks that most small farms find difficult to meet. Consequently, banks rely on loan rationing for eligible beneficiaries.

Loan (credit) rationing is said to occur when lenders face a demand for credit that exceeds the amount they are willing to lend at the prevailing market rate. If an excess demand for credit persists, then the credit market may appear to be out of equilibrium. Generally, the demand for agricultural loans depends in part on a farmer's credit reserve. Assets owned, or collateral use in demand for loan-able funds, as well as a farmer's income is the building blocks of a farmer's credit reserve. In addition to these, Sonka et.al (1980), reasoned that repayment potentials, expected returns and risk-bearing ability were important determinants in lenders' analyses of farmers' credit reserve. Gustafon (1989), opined that lenders look out for five determinants in assessing a farmer's credit worthiness. This, he called the five C's of credit: capacity, capital, collateral, character, and conditions of financial markets. An investigation is reported that relates the availability of operating credit to characteristics of the lender as well as to financial situation of the prospective borrower (Sonka and Dixon, 1979).

Arene (1992), Okorji and Mejeha (1993), identified size of loan, farm size, income, age of farmers, farming experience as having significant positive relationship with the demand for loan particularly as it relates to farming in Nigeria. Empirical work by Arene (1993), showed that income, farm size, age of farmers, farming experience and level of formal education of farmers contributed positively to the credit worthiness of farmers in getting loans.

Generally, these factors are key in a country like Nigeria but importantly, collateral factor which most banks stress is the foundation for farmers' reserve and unfortunately most farmers particularly small- holders are yet to realized this.

2. MATERIALS & METHODS

One hundred and one (101) small holder farmers were sample from each of the three agricultural zones of Cross River State using structured questionnaires. Farmers with farm size of $\leq$ 5ha were targeted (Upton, 1979). Small scale crop farmers were so targeted because they produce the bulk of food crops in the state. Random sampling was then used in selecting the local governments, two in each zone and the respondents. Akpabuyo and Akamkpa were randomly picked from zone one, Obubra and Ikom from zone two, and Obaniliku and Ogoja from zone three. Data analyses involved the use of means, frequencies, percentages and multiple regression analytical technique.

The multiple regression model is implicitly stated as:

$Y = (X_1, X_2, X3, X4, X_5, X_6)$

And explicitly given as:

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + e$$

Where:

Y = Credit Used in borrowing
X_1 = Age of farmers (in years)
X_2 = Farming Experience (in years)
X_3 = Education Index (Number of year of schooling)
X_4= Farm Size (ha)
X_5 = Credit (borrowing) Capacity (in Naira)
X_6 = Outstanding Credit Reserve (in Naira)

a = intercept; b_1 - b_6 = coefficients; e = stochastic term.

In evaluating credit (borrowing) capacity of farms, Barry et al (1983), assumed that a primary real estate lender requires one-third equity in purchased land. This requirement implies a maximum debt - to- equity ratio of two (D/E = 2). Non - real estate lenders allow a maximum debt - to - equity ratio of one (D/E = 1) for non-real estate assets. In addition, operating credit arising from profit projection for a typical farm is generated atleast per cent of the expected gross value of crop production.

Given this scenario, a $100,000 land value will support a $200,000 credit, while a $60,000 equipment values will support a $200,000 credit, while a $60,000 equipment value can support only S60.000 credit thus, total asset - generated credit is $260,000. The operating credit generated by income expectation is estimated at $52,500 for 25.0 acres of crop farm. The farm thus has a total credit of $312,500.

This approach was used in estimating each of the respondent-s credit. In this case however, information as it concerns lending to these farmers was obtained from the local banks; First Bank of Nigeria (FBN) and Unity Bank for Africa (UBA). A one-third equity (Vs) is required for real estate's e.g. land. That implies a D/E of 2 and, 75% equity for equipment giving a D/E of 0.33. Operating credit was based on 70% of the expected gross value of the crops. To get this value/ha; the following steps were taken.

1. Average yield/ha: this was obtained from Cross River State Agricultural Development Project - CRADP.
2. Price/Kg: obtained from local markets.
3. Multiplication of price/100kg by Average Yield/ha divided by 100kg gives values/ha.
4. Credit/ha is obtained by dividing 70 by 100 and multiplying the result by gross value/ha.

* For instance, if the yield/ha of groundnut is 3 92-5 60kg the average is 392 +560/2 = 476kg/ha.

* If the price /100kg is N25,000.00, the gross value/ha
= 25,000 x 476
100 =N119,000
* Credit/ha =70/l 00 x 199,000 = N83, 000.

In terms of Non-real estate such as equipment's and machineries, value was calculated taking into account the depreciation overtime. Straight line method of depreciation was used.

3. Results and discussion:

Descriptive Statistics:

Understanding the socio-economic background of small-scale crop farmers is essential in evaluating the use of credit in obtaining loans. Results show that Age, Farm Size, Sex, Farming experience, Cropping System, Farming purpose, Source of borrowing, level of education were important socio - economic factors that influenced small- scale crop farmers' use of credit in the demand for loans.

Table 1: Age Distribution of Respondents in the Study Area.
Mean =49 (x = 49)

Age	Number of farmers n=101	Percentage
20-30	4	3.90
31-40	23	22.80
41-50	23	22.80
51-60	37	36.60
61-70	14	13.90
More than 70	-	-

Source: Field Survey Data, 2008

In administering loans, most lenders are thought to consider age as a serious factor (Arene, 1992; 1993, Okori and Mejeha, 1993). This is based on the fact that apart from farming being a strenuous business; requiring energy, it is not at the same time for very young minds who will not put into effective use the loan-able funds. Hence, the age distribution on table 1 shows that farmers within the bracket of 31 - 60 years managed their credit reasonably for loans. Those from 20-30 years with a percentage of 3.90, and farmers from 60 - 70 years with a percentage of 13.90 may not be considered. The mean age for the sample farmers was 49. This implies that most small-scale crop farmers fall within this age limit.

Table 2: Farm size distribution

Size of farm (hectares)	Number of farmers n=101	Percentage
Less than 5(<5ha)	97	96.00
6-10	2	1.98
More than 10	2	1.98

Source: Field survey data, 2008

The World Bank's Rural Strategy defines smallholders as those with a low asset base, operating less than 2 hectares of cropland (World Bank, 2003). Upton, (1979), defined small-holder farmers as, farmers cultivating a maximum of 5 hectares (5ha) of land. The sole consensus on small farms may be the lack of a sole definition. The issue spans a widely diversified group from middle class family business well-integrated into the market economy to subsistence farmers who constitute almost 75 percent of the world's poor (Huvio,Kola, and Lundstrom, eds. 2005). Be that as it may, small holder farmers are defined here by the most common approach, driven by availability of internationally comparable empirical data. That is, on the basis of size of holding. The table above shows that.96 percent of the surveyed farmers had landholdings of less than 5.2 farmers each representing 1.98 percent between 6-10 hectares and more than 10 hectares respectively.

Cropping system in the study area also revealed that mixed cropping is generally the practice. This may be explained from economic stand point as the cultivation of different crops served family as well as commercial purposes.

Interestingly, the study also revealed that more than 60 percent of the farmers practice a mix of commercial and subsistence production, where the family provides the majority of labour and the farm provides the principal source of income. This discovery is in agreement with studies conducted by Narayanan and Gulati (2002) on Globalization and the small holders.

Out of the 101 respondents, only 47 actually borrowed from either formal or informal Sources. And, out of this number, 57.4 per cent borrowed from informal sources while 42.6per cent borrowed from formal sources. Majority who did not borrow from formal sources were probably lacking the conditions necessary for them to do so.

Table 3: Farming experience of farmers in the study areas

farming Experience	Number of farmers n=101	Percentage
1- 10	39	38.60
11-20	40	39.60
21-30	14	13.90
31-40	7	6.90
41-50	1	1.00
More than 50	0	0
X=14.86		

Source: Field Survey Data, 2008.

From table 3, the mean farming experience for the farmers was 14.86 years. By implication, it means, formal lending houses considered farmers who had at least 15 years' experience in farming. If this is the case, it means relatively more experienced farmers are more credit worthy than the less experience ones.

Table 4: Farmers' level of formal education

Level of formal education	No of farmers n=101	Percentage
No formal education	10	9.90
Attempted primary education	3	3.00
Completed primary education	11	10.90
Attempted secondary education	5	5.00
Completed secondary education	19	18.80
Attempted tertiary education	29	28.70
Completed tertiary education	24	23.80

Source: field survey data, 2008

The analysis of the level of education of farmers in the study area is of prime importance because it partly determines their ability to effectively manage the loans should they be granted and increases productivity since, adopting new technology will be carefully thought through. The results are presented in table 4. From the results, only 10.90 per cent completed primary education and 18.80 per cent completed secondary education. Banks' condition in Nigeria for advancement of loans' amongst others is that the beneficiary should have some amount of education enough for such The analysis of the level of education of farmers in the study area is of prime importance because it partly a person to read and write effectively. This means that at least a farmer who has attempted secondary education should be capable of this. Consequently, it means that more than 76.3 per cent of the farmers had this ability and therefore eligible for bank loans. High level of education has also been known to proactively contribute to credit worthiness of farmers (Onyenucheya and Ukoha, 2007).

Table 5: Borrowing capacity of farmers

Borrowing capacity	Number of farmers n=101	Percentage
Less than 500,000	82	81.2
500,001- 1,000.000	10	9.9
More than 1,000,000	9	79
X=435,332.89 (USD2720.83)		

Source: Calculated from survey data, 2008

Table 5 shows the borrowing capacity of the surveyed farmers. Majority of the farmers representing 81.2 per cent had less than N500, 000 borrowing capacity. 9.9 per cent had between N500, 001 - N1, 000,000, 7.9 per cent had more than N1, 000,000. The mean borrowing capacity is

N435, 332.8.This implies that, farmers who did not possessed this amount of credit; fell short of the requirement to ask for loans from banks. This may be the season why most of these farmers rather went to informal credit providers instead of the banks.

Table 6: Extent of use of Credit Reserve in Borrowing.

Credit use in the demand for loans	Number of farmers n=101	Percentage
Less than 100,000	31	66.0
100,001- 200,000	14	30.0
More than 200,000	2	4.0
X=N94,202.3 (USD588.76)		

Source: Calculated from survey data, 2008.

Extent to which credit reserve was used in obtaining loans is presented in table 6. Results show that only 47 farmers actually used their credit to get loans. 54 farmers never borrowed and therefore did not use their credit. 66 percent of borrowers used below 100,000 worth of credit in the demand for loan. 30 percent used between 100,001 - 200,000 credit and percent used above 200,000.

The mean extent of use of credit in borrowing is N94, 202.30, implying that most of this borrowers used this amount of credit when obtaining loans. The mean borrowing capacity as given in table 6 is N435, 332.89 and major financial houses or loan providers require one-third ($^1/_3$) of this to advance loans. This gives N145, 110.963. If borrowers are below this par, they will certainly seek other sources. Dividing mean extent use of credit in borrowing by mean borrowing capacity and multiplying the result by 100, will give 21.63percent; which inferentially implies that credit used by most of these farmers out of the reserves they had was this percentage.

Table 7: Regression Results for the Determinants of Credit use in the demand for loans

Variables	Coefficients (B)	t-value	Sig
Constant	-119123.8	-3.910	.000
$X_{1=}$A6	1962.207	3.178*	.002
X_2= FE	-1095.181	-1.442	.153
X_3= EI	7261.343	2.113**	.037
X_4= FS	114495.614	4.255*	.000
X_5= CC	-4283E-03	-1.243	.217
X_6= CR	1.288E- 02	2.680*	.009

R^2= 0.622= 62.2% Adj.R2 = 0.598= 59.8% F= 25.802

*significance at 1% ** significance at 5%.

The result from the table shows that Age is positively related to the use of credit reserve in obtaining loans. A year increase will encouraged more use of the reserve in borrowing. Farming experience is not a factor since its negatively related to credit reserve use. Level of educational attainment is a factor as it is positively related to credit reserve use. This means that a farmer who is educated will likely use his reserve in getting loans than an uneducated farmer. The size of farm is equally positively related to credit use in borrowing. The implication is that additional hectare will encourage a farmer to borrow. Credit capacity or borrowing capacity is expected to decrease as it is usedun borrowing. Consequently, it is negatively related to credit reserve use. The outstanding credit reserve is however positive, meaning that if the outstanding credit reserve is okay, a farmer will still use it for further borrowing. Such a farmer has not exceeded his or her limits of borrowing.

Basically, Age, farm size and outstanding credit reserve are significant at 1%, while educational index is significant at 5% level. Farming experience and credit capacity are however not significant in their effect on credit use in borrowing.

4. Conclusion:

The major conclusion derived from this study is that the determinants of small – scale farmers use of credit reserve in obtaining loans are age, level of educational attainment, farm size and outstanding credit reserve. The study also revealed that all the farmers have reserve to support short term borrowing particularly in an emergency situation. While most of the farmers had a capacity N435, 332.89 worth of credit, many fell short of bank's requirements as they were either not willing to present the one-third requirement or not having the basic educational requirement. Be that as it may, the study revealed that 21.63% was used by these farmers out of their reserves to ask for loans. In view of this loan providers should give priority to relatively aged farmers in granting loans to farmers. References should also be given to educated farmers in loan approval and farmers with fairly large farms should be preferred when loans are granted.

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