

## **Determinants of Rural Farm Loan Repayment: Implications for Rural Credit Markets Development in Imo State, Nigeria**

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### **ABSTRACT**

*Owing to low agricultural productivity, which has led to low farm incomes, there has been very small private capital investment in agriculture in Nigeria. This has made credit a critical input in agricultural production. This necessitated efforts towards sustainable rural credit market development in the country. However, high rates of loan defaults have been pinpointed as a major drawback on these efforts. This study examined the determinants of rural loan repayment and their implications for sustainable rural credit markets in Imo State. Primary data collected from a random sample of 84 arable crop farmers, using well-structured interview schedule were used. Analysis of data involved the use of regression models estimated by the means of ordinary least squares. Results indicate that the number of socioeconomic associations, household size, interest, loan application costs, size of previous loan, farming experience and gross income were statistically significant determinants of loan repayment. Recommendations were made on how to stimulate sustainable rural credit markets through appropriate credit policies and programmes that take full advantages of these results.*

**Key words:** Farm Loan Repayment. Imo State.

### **INTRODUCTION**

Nigerian farmers and indeed rural entrepreneurs are known to be economically weak with little or no investment capital. Low agricultural productivity resulting in low farm income has resulted in very small private capital investment in agriculture. Although the amount of capital required might be small, at very low levels of income, it is difficult to accumulate even that amount (Hossain, 1988). Therefore, sources of funds external to the farm households are needed in order to increase rural production and income. This has made credit from both formal and informal sources a critical factor in the growth and development of the rural economy, which consists mostly of agriculturally based economic activities. Moreover, the need for credit tends to increase with every passing year due to population increase and the rising competition for available scarce funds for the expanding agricultural and non agricultural sectors (Nweze, 1990).

Therefore, rural credit provisioning has been central in policy measures for rural development in Nigeria. This centrality builds on the fact that finance is a critical factor in determining who can exploit which resources for the production of which goods and services as well as who can enjoy such goods and services. In this realisation, Nigerian governments, supported by international development agencies like the World Bank, International Monetary Fund and African Development Bank have devoted considerable financial resources to supplying credit facilities to the farmers and other rural entrepreneurs in a myriad of institutional settings. On the other hand, there are informal or non-

institutional sources of credit services to the rural borrowers. These include kinship associations, age grades, social clubs, friends and relatives and cooperative thrift and savings, which offer credit services in a wide array of unorganized terms.

Unfortunately, these rural credit structures have not been able to achieve the desired aim of effectively and efficiently facilitating the inflow of financial services into the rural economy to enable rural entrepreneurs, including the farmers, to employ efficient production techniques designed to raise their physical output and incomes. Of all the problems being fingered, high rates of loan default amongst borrowers has been identified as a stubborn culprit (see Ijose and Abelu, 1973; Osuntogun and Oludimu, 1981; Bottomley, 1983; Babalola and Odoko, 1996; Okorji and Mejaha, 1993; Ukoha and Agwamba, 2002). Loan default is the inability of the borrower to repay the borrowed fund in accordance with the loan terms. A critical issue in credit administration is how to ensure that the borrower restores the purchasing power temporarily handed over to him within the specified frames of time and other conditions. This borders a lot on the borrower's ability and willingness to live up to the terms of the credit extended to him.

The subject of loan repayment derives its relevance from the severe consequences of loan defaults on the development and effective functioning of the credit markets, especially in immature rural economies such as in Nigeria. Loan defaults dampen the enthusiasm of the financial system to increase its lending to the agricultural sector. Sufianu (1984), Banda (1991) and Babalola and Odoko (1996) observed that the reluctance of many commercial banks towards lending to the agricultural and manufacturing sectors is traceable to the level of risks associated with such lending, that is, that the borrower will default on the loan granted him. For instance, Okorji and Mejaha (1993) reported that of the many factors considered in determining the amount of loan given to a farmer, 100 percent of the lending institutions they studied ranked the farmer's ability to repay foremost. The debilitating effects this has on the development and efficient functioning of the credit markets could be gleaned from Okorie (1987) who summed up the risks peculiar to agricultural lending in the concept of loan default and pointed out that high levels of default in many cases above 50 percent have been recorded by lending institutions.

This reflects the experience in rural credit markets in Imo State. For instance, Njoku and Obasi (1991) reported that loan repayment under the Agricultural Credit Guarantee Scheme Fund in Imo State was quite poor with only about 34 percent of the total value of loans repaid. Okorji and Mejaha (1993) reported that 58 percent of Commercial Bank loan beneficiaries did not default on their loans while for the beneficiaries from the Ministry of Agriculture and Natural Resources and the Nigerian Agricultural and Cooperative Bank it was 45 and 34 percent respectively. This brings to a sharp focus the need to re-assess the dynamics of rural credit markets development in the State from the standpoint of a critical assessment of the determinants of rural farm loan repayment.

## LITERATURE REVIEW

A market describes any arrangement, which brings buyers and sellers into commercial contact. It includes all transactions between buyers and sellers as well as the facilities for trading with each other (Beets, 1990). Markets are avenues of self-expression and mutual accommodation of buyers and sellers for the harmonization of their interests. Nwachukwu (1994) explained that the participants in a market might be gathered in a particular place or scattered over a large area. He noted that a market can be a place but is not necessarily a place. According to Marshal (1925), the important thing, which defines a market, is the closeness or effectiveness of communication amongst the participants in the market.

Therefore, rural credit markets describe the arrangements, which brings lenders and borrowers in the rural economy into business contact. Thorn (1976) defined a credit market as a place where lenders and borrowers are brought together. These creditors and debtors can be geographically together or far apart; the necessary condition is that they must be in close touch through an efficient communication system (Nwachukwu, 1994). Hoff and Stiglitz (1993) opined that lenders in the market exchange money today for a promise of money in the future and take actions to make it more likely that those promises are fulfilled. On the basis of the standard of living of its participants, credit markets could be categorised into rural and urban markets.

Bottomley (1983) and Nwaru (2004) discussed the causes of loan defaults. There will often be a positive relationship between increase in borrower's net income and level of loan repayment. The declining default rates will be predicated on an increasing ability to repay, although according to Beets (1990) the willingness to repay remains a major separate issue. Variations in borrower's incomes may be a major cause of his inability to repay borrowed funds. This could be due to differences in income among farmers in a given area in a given year or yearly variations because of weather variations, natural disasters, diseases, pests, price factors, death, etc. The costs of administering loans may have bearing on the rate of default. For instance, time spent on pursuing defaulters cost money. Steps taken to ensure that borrowers use their loans for productive purposes would certainly involve higher cost of administration. Where rising administrative cost reduced the screening of applicants and supervision of borrowers below a critical minimum, loan default tends to rise. The collateral offered will normally be of greater value in the case of the higher-income, higher asset farmer while poorer borrowers often have no security to offer against a loan. As borrower's income rises the normal expectation is that value of collateral will rise and loan default rates will fall. The ratio of debt to equity will normally be lower for higher income farmers than for low income ones who have little owned property. The lower the ratio of borrowers debt to equity, the lower the risk to the lender and therefore the lower the interest rate which the borrower will probably have to pay. *Ceteris Paribus*, this translates into lower loan defaults. Other things being equal, the higher the amount borrowed, the higher will be the probability of the borrower being able to repay.

Osuntogun and Oludimu (1982) reported that loan repayment was significantly correlated to the hecterage cultivated, non-farm income, gross savings, amount borrowed, number of

supervisory visits paid to the farmer and the level of education of farm borrowers. Okorie (1986) opined that the time of disbursement, number of supervision visits by credit officers, after loan disbursement and profitability of the enterprise have decisive influence on loan repayment. Njoku and Odii (1991) examined loan repayment performance under Special Emergency Agricultural Loans Scheme in Imo State. Loan repayment was found to be only 27 percent and this was judged to be poor. The factors that significantly influenced loan repayment were amount borrowed, years of farming experience, major occupation of the borrower, years of formal education, household size, loan period, farm size, farm output, value of assets and interest on loans. Njoku and Obasi (1991) evaluated loan repayment under the Agricultural Credit Guarantee Scheme Fund in Imo State. Their result showed that loan repayment was generally poor with only 34 percent of the total value of loans repaid. The amount of loan received, rate of interest charged on loans and household size were three major determinants of loan repayment.

Okorji and Mejeha (1993) studied the demand for loans and the loan delinquency problems of the smallholder farmers in the Owerri Agricultural Zone of Imo State, Nigeria. They reported that loan repayment was significantly influenced by the age of the farmer, farm size, amount borrowed, farm and non-farm income and the number of crops cultivated. They observed that the inability of the farmer's to repay resulted from the granting of small amount of loan relative to their requirement and the non accessibility of the complementary inputs like fertilizer, insecticide, tractor hire services, etc resulting in low production and thus in the poor repayment of the loan. Their comparative analysis of loan beneficiaries by source showed that those that obtained loans from Commercial Bank performed best in repaying loans (58 percent) followed by loan beneficiaries from the Ministry of Agriculture and Natural Resources (45 percent) and those from the Nigerian Agricultural and Cooperative Bank (34 percent).

## **MATERIALS AND METHODS**

**Sample selection:** A multistage sampling technique was used in choosing a sample of 84 arable crop farmers that borrowed money. Imo State was stratified into 3 according to the agricultural zones of the State namely Owerri, Okigwe and Orlu. In the second stage, blocks were selected by simple random sampling procedure. In the third stage, the circles in each chosen block were listed. Each of these lists formed a frame from which a sample of 2 circles was chosen per block by simple random sampling procedure. In all, a total of 6 circles were chosen. The village head and the extension agents of the Imo State Agricultural Development Programme in charge of the chosen circles were contacted to provide the list of farmers in the circles. In order to delineate and locate the credit user arable crop farmers, a rapid appraisal of the study locations was conducted. The questions posed were such that revealed the sources of credit and their borrowers. The lists from each study location formed the frame from which a sample of the credit user farmers was chosen by simple random sampling procedure. In all, a total of 84 credit user arable crop farmers consisting of 14 per circle were chosen for detailed study. A trained field enumerator was

attached to each sample circle to cover the chosen samples of 14 credit user farmers per circle using interview schedule.

**Data analysis:** Data analysis consisted of regression analysis using the ordinary least squares. The implicit functional form was specified as:

$$\text{LRM} = f(\text{SAS}, \text{HHS}, \text{INT}, \text{LAC}, \text{ABP}, \text{EIF}, \text{LHA}, \text{INC}, e_i) \text{----- (1)}$$

where, LRM = amount of borrowed money repaid (₦).

SAS = Number of socioeconomic associations such as age grade, town unions, cooperative societies, trade unions, farmer and women associations, religious organizations and kindred organisations to which the farmer belong,  $\delta\text{LRM}/\delta\text{SAS} > 0$ .

HHS = Household size, describing the number of people living with the farmer and feeding from the same pot with him,  $\delta\text{LRM}/\delta\text{HHS} < 0$ .

INT = Interest (₦). This is the total amount of money the farmer pays as interest charges on borrowed money,  $\delta\text{LRM}/\delta\text{INT} > 0$ .

LAC = Loan application costs (₦). This is the total amount of money spent on the processing of the loans e.g. on application forms, transportation, etc,  $\delta\text{LRM}/\delta\text{LAC} < 0$ .

ABP = Total amount of money previously borrowed (₦),  $\delta\text{LRM}/\delta\text{ABP} > 0$ .

EIF = Farming experience. This is the total number of years the farmer has been in the business of farming,  $\delta\text{LRM}/\delta\text{EIF} > 0$ .

LHA = Farm size (in hectares). The total area of land under arable crop production,  $\delta\text{LRM}/\delta\text{LHA} > 0$ .

INC = Gross income of the farmer (₦). This consists of the farm and non farm incomes of the farmer,  $\delta\text{LRM}/\delta\text{INC} > 0$ .

$e_i$  = error term assumed to fulfill all the assumptions of the classical linear regression model.

The linear, double log, semi log and exponential functional forms of equation (1) were tried and that with the best fit chosen as the lead equation.

## RESULTS AND DISCUSSION

The results of fitting data to equation (1) were summarized and presented in Table 1. All the estimated models are statistically significant at 1 percent hence each of them is adequate for use in further analysis. However, on the basis of statistical and econometric reasons, the double log functional form was chosen as the lead equation. Number of socioeconomic associations, household size, interest payable on the borrowed money, loan application costs, size of previous loans, experience in farming and gross income are statistically significant. These results agree with those of Njoku and Obasi (1991) that the amount of loan received, rate of interest charged on loans and household size were three major determinants of loan repayment.

**Table 1: Determinants of loan repayment**

Variable	Double Log	Linear	Semi Log	Exponential
Intercept	-0.049 (0.03)	3469.364 (0.51)	-350683.000 (-2.63)**	8.120 (23.00)***
Socioeconomic associations	0.255 (1.87)*	1144.015 (0.97)	24560.000 (1.80)*	-0.003 (-0.05)
Household size	-0.577 (-1.99)*	-3090.106 (-3.25)***	-49103.000 (-1.90)*	-0.016 (-0.32)
Interest	0.437 (5.76)***	2.477 (37.15)***	28155.000 (4.16)***	2.304E-5 (6.67)***
Loan application costs	0.192 (2.08)**	0.096 (0.10)	9428.174 (1.15)	-1.750E-6 (-0.03)
Size of previous loan	0.113 (2.07)**	0.085 (0.72)	-4090.669 (-0.84)	3.077E-5 (5.05)***
Farming experience	0.557 (2.76)***	352.128 (1.97)*	19957.000 (1.11)	0.026 (2.86)***
Farm size	-0.189 (-1.04)	1805.849 (1.62)	9216.534 (0.57)	0.006 (1.11)*
Gross income	0.245 (2.13)**	0.002 (1.52)	10093.000 (0.98)	5.797E-8 (102)
R <sup>2</sup>	0.6652	0.9774	0.4353	0.7147
R <sup>-2</sup>	0.5947	0.9726	0.3165	0.6547
F-ratio	9.44***	205.27***	3.66***	11.90***

**Source:** Computed from field survey data, 2002

(. ) = t-statistic<sup>a</sup> computed; \*\*\*, \*\* and \* = significant at 1, 5 and 10 percent respectively.

Again, Njoku and Odii (1991) reported that the amount borrowed, years of farming experience, major occupation of the borrower, years of formal education, household size, loan period, farm size, farm output, value of assets and interest on loans significantly influenced loan repayment under the Special Emergency Agricultural Loans Scheme (SEALS) in Imo State. Osuntogun and Oludimu (1982) reported that loan repayment was significantly correlated to the hectareage cultivated, non-farm income, gross savings,

amount borrowed, number of supervisory visits paid to the farmer and the level of education of farm borrowers.

The severe problems posed by information asymmetry in rural credit provisioning have been well documented in literature (see Leland and Pyle, 1977; Myers, 1977; Stiglitz and Weiss, 1981; de Meza and Webb, 1987 and Bernanke and Gertler, 1990). The consensus is that asymmetric information or imperfect information in the rural credit markets leads to either over or under investment in relation to the social optimum. This explains the relevance of farmers' membership of socioeconomic associations such as cooperatives, age grades, trade unions, town unions, neighbourhood associations, etc. In circumstances of severe ruralism, remoteness, isolation and naivety, which seem pervasive amongst the core, full-time farmers in Nigeria, these socioeconomic associations prove to be one of the outstanding sources of a rare light. *Ceteris paribus* this leads to increased loan repayment. In circumstances of interlinked credit provisioning, group lending and peer monitoring is practiced on this premise. Therefore, if properly mobilized and channeled, socioeconomic associations have great potentials for making positive contributions to rural credit market development in Nigeria. This would require appropriate policy imperatives.

The coefficient of household size is negative and significant in conformity with *a priori* expectations. This implies that as the size of households increase, loan repayment decreases, that is, loan default increases. Generally, more people in a household would mean more months to feed and more bodies to clothe, house and care for. This places a higher subsistence burden on borrower households and predisposes them more to loan diversion and misapplication. Furthermore, it has been observed that farmers at times borrow money in clear understanding that it is meant for farming and then divert the borrowed funds for subsistence or to some other social needs. For instance, Nweze (1990) reported that 40 percent of borrowers used all their funds on hired labour, 4 percent spent part of theirs on seeds, 2 percent used part of theirs on fertilizer purchase, and 6 percent, 31 percent, 12 percent and 15 percent indicated that they used part of theirs for children's school fees, hospital bills, ceremonies/festivals and marriage expenses respectively. This elicits the need for policy responses that would curb loan diversions and misappropriations.

Interest rate has a significant and positive coefficient. This agrees with *a priori* expectations. Ukoha and Agwamba (2002) reported a similar positive result. The total cost of borrowing becomes higher if high interest bearing loans are to take too long before repayment could be concluded. Therefore, borrowers would prefer to conclude the repayment of high interest bearing funds than those that are non- or low- interest bearing, *ceteris paribus*. However, the explanations of Hoff and Stiglitz (1993) and Lyon (1995) that lenders who raise interest rates beyond economic optimum receive lower returns on their loans because they attract a riskier set of borrowers is instructive. If lenders fail to recognize the effect of interest rates on the risk of their portfolios, it might get to a stage whereby, at a given rate of interest, the default rate would be so high that returns to the lender would not cover the opportunity cost of the funds. The pressure on the interest rate will push it upwards and worsen the risk mix. Hoff and Stiglitz (1993) observed that this

process could go on until interest rate becomes so high that only the riskiest projects would be undertaken. The result would be high rates of project failure leading to high rates of loan defaults.

Loan application costs have a coefficient that contrary to *a priori* expectations, is positive and significant. This implies that the higher the costs that the farmer incurs in borrowing, the faster he tends to repay the loan. Two reasons are likely to underpin this. First, high costs of loan application might serve as a sorting mechanism, discouraging less keen applicants. Within a critical maximum, this leaves only those whose serious mindedness and determination to continue with the loan transactions are premised on the sharpness and genuineness of investment needs they have. The concomitance would be higher business success and higher abilities to repay borrowed funds. Secondly, the ego of the farm borrowers might be boosted by the details of the loan transactions and the concomitant costs. Amongst his local folks, he has a lot of stories to tell about the number of visits he has made and how many times loan officers have visited him. This might cause him to see the loan facility as "baby" to cherish and nurture, the additional costs notwithstanding.

In conformity with *a priori* expectations the coefficient for farming experience is positive and significant. Experience in farming has been shown to relate positively with technical progress in farming (see Nwaru, 2001). The higher the farming experience the more the farmer would have gained more knowledge and technical ideas on how to tackle farm production problems and the higher would be his output and income leading to a higher capacity to repay loans. Therefore, more experienced farmers have higher capacities for contributing to rural credit market development.

The size of previous loans borrowed by the farmer has a coefficient that is statistically significant and positive in agreement with *a priori* expectations. Okorji and Mejeha (1993) reported a similar result. *Ceteris paribus*, previous loans place the farmer on a good pedestal for higher levels of businesses that would warrant more credit currently. Moreover, the farmer's business ingenuity and the concomitant drive for innovativeness, which would warrant the need for additional investment funds, would have been steered up by the positive results of previous loans.

Gross income, consisting of farm and non-farm income, has a coefficient that is statistically significant and positive. This agrees with *a priori* expectations and with the reported from Okorji and Mejeha (1993). It has severally been opined that the poorer a borrower is the riskier it is to extend credit to him. In fact the very poorest of the poor has been described as credit risks. Although opportunities for credit-financed self-employment for them are very limited, the risks involved are unreasonably high. Very strong opinions (see Hulme and Mosley, 1996) are held that instead of extending credit to them, they should be given aids or grants. Therefore, appropriate structures such as economic policies and programmes that raise farm income on a sustainable basis would enhance the quality of rural credit markets in Nigeria.



## CONCLUSIONS

Sustainable rural credit market development is a pre-requisite for agro- industrial take-off, full capacity utilization and a prosperous rural economy. Efforts towards reduced loan defaults and delinquencies are very necessary in this regard. Results from this study reveal that the factors that affect the repayment performance of rural farm borrowers in Imo State of Nigeria include the number of socioeconomic associations, household size, interest payable on the borrowed money, loan application costs, size of previous loans, farming experience and gross income.

Therefore, policies and programmes that foster mobilized and informed socioeconomic associations at the local levels would lead to the growth in rural credit market activities. Since household size and loan repayment are inversely related, such policies and programmes that inculcate family planning and reduced household sizes in the behaviour of the rural populace should be pursued. Results indicate that enhancing the income of the rural borrowers is necessary. Meanwhile, there are many economic empowerment and poverty alleviation programmes currently in place in Imo State, some from the State Government and others from the Federal Government. Intensified efforts for their success should be mounted. Policies and programmes that would lead to optimum loan sizes are recommended. Experienced farmers with good track records of repaying loans should be given priority in subsequent lending programmes. The cost structure of loans plays vital roles in credit market development. Cheap loans might be misconstrued for handouts that could be collected even for uneconomic ends. On the other hand, over priced loans increase the risk mix of the lender and could lead to increased recovery costs and higher default rates. Therefore, policies and programmes for optimal interest rates and loan application costs should be put in place.

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