

THE DEMAND FOR INSTITUTIONAL CREDIT IN THE RURAL SECTOR OF NIGERIA: SOME CONSIDERATIONS

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1. Preambles

In many developing countries, commercial banks and other institutional lending agencies are being persuaded and directed to commit more and more funds for financing agricultural and allied activities in rural areas. In Nigeria, merchant banks are obliged to grant a minimum of five percent of their credit to agricultural production while commercial banks are required to grant a minimum of eight percent of their credit to agriculture. With such prescriptions, commercial banks' loans and advances to agriculture, forestry and fishing rose from N 7 million accounting for 0.5% of their total lending as at the end of December 1970, to N 482 million or 7.5% of their total lending at the end of December 1980.

In the 1970s the above and a few other innovations were made on the credit scheme in Nigeria. For example, in 1977, the Agricultural Credit Guarantee Scheme Fund (ACGSF) was set up. The main purpose was to encourage lending agencies especially the banks, to meet their loans targets to agriculture; through the Fund, agricultural loans granted by the trading banks (commercial and merchant banks) were guaranteed up to 75 percent. Between April 1978, when operations actually started, and December 1980, some 2,391 loans valued at N 75.8 million were guaranteed by the Fund.

The agricultural purposes for which loans are normally guaranteed by ACGSF are those connected with the establishment or management of plantations for the production of rubber, oil palm, cocoa, coffee, tea and similar crops; the cultivation or production of cereal crops, tubers, fruits of all kinds, cotton, beans, groundnuts, sheanuts, benniseed, vegetables, pineapples, bananas and plantains; and animal husbandry including poultry, piggyery, cattle rearing and fish farming.

Another major innovation was the setting up and funding of the Nigerian Agricultural and Cooperative Bank (NACB) by the Central Bank and the Federal Government. The bank was charged with the task of providing short, medium and long-term financing of all forms of agricultural projects and providing necessary technical assistance, supervision and monitoring of various agricultural projects at all stages of project implementation throughout the country. The bank's clientele includes individuals, cooperatives, corporate and non-corporate bodies and government agencies. Between August 1973 when the bank commenced operations and December 1980, the bank had approved loans for 853 clients, totalling over N 387 million out of which the sum of N 227,488,016 had been disbursed. Enterprises covered included poultry, feedmill,

hatchery, piggery, fisheries, rabbitry, arable cropping, tree crops, forestry development, mixed farming and cattle rearing.

In the spirit of the Fourth National Development Plan and agricultural credit policy strategy in Nigeria, specialised credit agencies have also been on-lending substantial sums of money to farmers. For example, between inception in April 1976 and December 1980, the total amounts of funds disbursed to farmers were N 5,975,302, N 10,823,688 and N 12,763,121 by the Ogun State Agricultural Development Corporation (the credit arm of which has been reconstituted as the Ogun State Agricultural and Cooperative Credit Corporation), the Oyo State Investment and Credit Corporation and the Ondo State Agricultural Credit Corporation respectively.

Despite all these, the inadequacy and oftentimes dearth of credit for financing agriculture in Nigeria has been a major impediment to the country's agricultural development over the years. Okorouen (1981) pointed out that « the problems of financing agriculture should not be confined to meeting the needs for credit and other inputs at a particular time but should extend to meeting these needs adequately as they grow from year to year ». Questions then arise as to what these needs are, what the causes are of growing credit demand and how we can estimate, at least in the short run, such credit requirements.

This paper therefore sets out to consider some of the factors which influence the levels of demand for institutional credit and to assess their relative significance in the rural sector. To this end, various dimensions of credit are appraised in section II of the paper. Section III specifies the models applicable at the micro and macro levels for the estimation of credit requirements. Section IV presents the socio-economic characteristic of farmer-respondents and a discussion of our statistical results. The last section (section V) gives the summary and conclusions of the study.

2. Dimensions of institutional credit

Available to agricultural producers are two capital markets: the institutional and the non-institutional. The institutional sources include government lending agencies, farmers' cooperatives, commercial and merchant banks; the non-institutional sources comprise friends, neighbours, relatives, professional moneylenders, produce buyers, traders and merchants. Miller (1977) noted that the non-institutional sources (the informal lenders) provide most of the credit used by small farmers while the institutional

lenders constitute the major supplier of credit to larger farmers and urban-based borrowers. In line with Miller's views and consequent upon it, Egbe (1981) suggested that the dominance of large-scale urban-based company borrowers could be due to the fact that most institutional lenders, especially the banks, are located largely in urban centres and relatively far away from farmers.

This implies that most small-scale, rural-dwelling farmers have not benefited as fully as they should have done from institutional credit. Some of the hindrances faced by the farmers include complicated, cumbersome and time-consuming loan processing procedures, ineffective supervision, inadequate or complete absence of financial projections/planning and misdirected conception of the nature of farm credit (see Oluwasanmi and Alao, 1965; Igben, 1972; Ogunfowora *et al*, 1972; Osuntogun and Oludimu, 1981; Famoriyo and Nwagbo, 1981).

Nonetheless, institutional credit received so far by farmers have been used for both production and consumption purposes. In an empirical study of credit usage in South-West Nigeria, Osuntogun (1980) found out that land clearing, an item of capital expenditure, was the most important farm level credit use; on the average, 50 percent of the total funds used for farming by those interviewed was spent on land clearing. It was also revealed that the most predominant non-farm use of credit was school fees, an item of family educational expenditure (also see Adebgoeye's findings, 1969). In line with these studies, Sharma and Desai (1980) categorised credit according to three basic criteria namely, purpose, period and nature. This form of classification (shown in Table 1) identified items of expenditure under broad categories with respect to stated criteria.

3. Estimation procedures for credit requirements

In attempts made at estimating credit requirements of farmers (Fisher, 1961; Jarret and Dillon, 1965; Young, 1973; Singh and Gupta, 1973; Srivastava, 1976; Nwosu and Ogunfowora, 1979) techniques used ranged from regression modelling involving single or simultaneous equations to simulation.

In identifying relationships between short term credit requirements of small, medium and large farms and various factors, Singh and Gupta (1973) designed a micro-model which took area under cultivation and capital inputs in a given farm into consideration.

Their model was specified to contain the following variables:

$$[1] \quad Y_i = R_i P_i X_{ij}$$

where, Y_i = Credit Requirements;
 R_i = Proportion of Credit to Capital inputs on ith farm;
 P_i = Capital inputs per acre (hectare) in the ith farm; and
 X_{ij} = Area under jth crop on ith farm.

Table 1

TYPES AND USES OF CREDIT

Criteria	Category	Items of Expenditure
Purpose	1. Capital Expenditure	Purchase of land; Land reclamation; Land clearing; Construction and repairs of well and irrigation facilities; Purchase, repairs and construction of farm houses; Purchase of farm machines, their repairs, maintenance, additions etc.
	2. Current Expenditure	Purchase of seeds, manures, feeds, and fertilisers; Hire charges of farms machines; Wages, Rent, Land revenue tax and other expenses.
	3. Capital Expenditure on Non-Farm Business	Purchase, construction, repairs, additions and maintenance of houses; production equipment, transport equipment etc.
	4. Family Expenditure	Purchase of cloths, food, utensils, medical and educational expenses; Coverage of litigation, birth, death and marriage ceremonies; Coverage of chieftaincy, traditional and religious ceremonies etc.
	5. Repayment of debts	Repayment of debts and interests.
	6. Other Expenditure	Purchase of ornaments, shares, certificates etc, Life insurance premium; Expenditure incurred jointly on any two or more purposes referred to above.
Period	1. Short-term	Recurring expenses for periods not exceeding 14/15 months to meet seasonal requirements of working capital comprising mostly of revenue expenses.
	2. Medium-term	Expenses on farm assets of temporary nature for periods not exceeding more than 60 months.
	3. Long term	Expenses covering a period of five to twenty years for reasons which include the redemption of debts, purchase of heavy machine like tractors etc.
Nature	1. Consumption credit	Personal, domestic and non-farm expenses.
	2. Production credit	Farm expenses of recurring nature and related to agricultural operations.
	3. Investment credit	Expenses incurred on permanent additions, improvement of farm assets.

Source: Sharma, D.P. and Desai, V.V. (1980) *Rural Economy of India*. Vikas Publishing House, PVT Ltd. New Delhi, India.

The values of R_i were taken to be 0.40, 0.45 and 0.50 for large, medium and small farms respectively. The authors however did not provide any explanation for the constants of R_i chosen.

Regression models can also be specified to functionally relate the amount of funds required to the cost of exogenous inputs such as fertilisers, farm equipment and the like. In a relationship such as that shown in equation 2, the amount of borrowings required is influenced by the level of farm inputs and investments.

- C = Amount of Credit required;
 X_1 = Investment on Farm Equipment and Machinery;
 X_2 = Expenditure on Fertilisers, Feeds, Seeds and Chemicals;
 X_3 = Area cultivated;
 $e^b 4^t$ = Trend factor (E = base of natural logarithms)
 $b_1; b_2; b_3$ = Regression Coefficients.

This model implicitly assumes that the influence of the supply of credit on levels of investment and expenditure in the rural sector is not of significant proportions since « conventional theory stipulates that the level of demand for loanable funds is determined jointly with the supply of funds » (Young, 1973). In specifying the model of demand for and supply of credit in the rural sector, Young lists the following variables:

$$[3] \quad Q_{dt} = f_Q(C_t, L_t, A_t, F_t, T_t)$$

$$[4] \quad Q_{st} = f_2(R_t, E_t, Y_t, S_t)$$

where

- Q_d = Quantity of credit demanded;
 Q_s = Quantity of credit supplied;
 C = Cost of borrowing;
 L = Liquidity level;
 A = Asset level;
 F = Expected level of inflation;
 T = Level of technology;
 R = Rate of interest;
 E = Equity level;
 Y = Expected level of income;
 S = Supply constraints;
 T = A given time period.

The models rightly assume that equilibrium is achieved between demand and supply in each time period (i.e., $Q_{dt} = Q_{st}$). The applicability of the models in developing countries is however suspect. Not only are relevant data not readily procurable, but also there are constraints due to wide variations in cultural practices, timing of operations and profile of costs. Moreover, some of the variables used in the models may be entirely irrelevant in the context of underdeveloped economies. Akinwumi (1976) argued that « it is a mistake for credit agents to assume that as long as interest rates are low, farmers will borrow and thereby avoid the moneylender shylocks. Rather, credit institutions must note of the personal, non-rigid, non-involved procedures adopted by money-lenders. To the average farmer, it is more important that his loan is adequate for its purpose and given without delay ».

In the present study, credit applied for and awarded to farmer-respondents, was specified to be functionally related to the gap in dates between loan application and receipt (expressed in months), the proportion of credit applied for to estimated farm income, the area of land cultivated and estimated total farm expenses.

Mathematically, it can be expressed as follows:[5] $Q_i = f(T_i, C_i, A_i, E_i)$

where

- Q_i = Credit Requirements by ith farmer;
- T_i = Time gap in months between loan application and receipt for ith farmer;
- C_i = Proportion of credit supplied to estimated farm income by ith farmer;
- A_i = Area under crop on ith farm;
- E_i = Estimated total farm expenses on ith farm.

4. Field survey and statistical results

Primary data for testing the above relationship (equation 5) was collected from seventy farmers from seven local government areas in Oyo State of Nigeria. The survey took place between March and August, 1982; the areas covered included Ila, Ilobu, Ifelodun, Ede, Oshogbo, Ejigbo and Odo-Otin. The farmers interviewed were randomly selected from those who had applied for and received credit from the Oyo State Investment and Credit Corporation between 1976 and 1981.

Twenty-three of the farmer-respondents (or 32.9% of total) were aged between 46 and 50 years. One of the respondents aged less than 35 years, six (or 8.6% total) aged

between 36-40 years, eighteen (or 25.7%) fell in the 51-53 years age group, thirteen (or 18.6%) fell in the 56-60 years age group while five of the farmers were in the 61-65 years age bracket. One respondent claimed he was over 65 years old.

In our survey, twenty-seven of the respondents (or 38.6% of total) had 6-10 members in their family, another set of twenty-seven respondents had 11-15 family members while seven respondents (10% of total) had less than five family members. Seven other respondents had between 16-20 family members. One farmer each fell in the 21-25 and 26-30 family members categories. In peasant agriculture, farmers often benefit from large family sizes to help on the farm.

To supplement whatever family labour there is, hired labour may also be used, especially at peak season. The range of annual expenditures incurred by the farmers on such hired labour is shown in Table 2.

As shown in the table, about seventy-six percent of the farmers paid amounts ranging from less than N 500 annually on hiring labour. Sixteen farmers (or 22.8% of total) expended between N 1,501 - N 2,500 on labour while one respondent actually expended more than N 2,500 on labour alone, distinct from other farm inputs.

Table 2

ANNUAL EXPENDITURES ON HIRED LABOUR BY FARMER -RESPONDENTS, OYO STATE

Amount in Naira	Absolute Frequency of Respondents in each category	Percentage Frequency	Cumulative Frequency
≤ 500	23	32.9	32.9
501 - 1,000	16	22.9	55.8
1,001 - 1,500	14	20.0	75.8
1,501 - 2,000	8	11.4	87.2
2,001 - 2,500	8	11.4	98.6
2,501	1	1.4	100.0
Total	70	100.0	

Source: Field Survey, 1982.

The amounts spent on non-labour farm inputs such as fertilisers and chemicals ranged between N 1 - N 200, N 201 - N 400 and N 401 - N 600 for twenty-seven, thirty-three and nine farmers respectively. The remaining farmer-respondents (1.4% of to-

tal respondents) utilised between N 801 - N 1,000 on acquiring essential non-labour farm inputs. In situations where so much was expended on production inputs and where farm income was relatively low, recourse to outside credit seemed to be the only alternative left to the respondents.

On the basis of foregoing discussions, the postulated relationship (equation 5 above) between credit requirements (the dependent variable) and the stated explanatory variables, was subjected to computer analysis. The Cobb-Douglas function was fitted; linear in logarithm, the Cobb-Douglas can be written in the following form;

$$Y = AX^b$$

$$\text{or } \log Y = \log A + b \log X$$

Assuming that the errors in our data are small, such a logarithmic transformation presumes a substantial degree of normality in the distribution of errors in the data.

The estimated coefficients and the R^2 and F values for our regression equation are presented below.

$$[6] \quad Q = 6.3676 + \frac{0.7391}{(0.0629)} C^* + \frac{0.6568A}{(0.1038)} * - \frac{0.0077T}{(0.0432)} + \frac{0.0132E}{(0.0831)}$$

$$R^2 = 0.7963$$

$$F = 63.5358$$

$$\text{S.E. of Estimate}$$

$$R^2 = 0.7838$$

$$\text{MSR} = 0.0560$$

$$= 0.2367$$

* Statistically significant at the 1% level.

One important inference which can be drawn from the equation is that the farmers' estimated farm income has a highly significant positive influence on amount of credit granted. As could be observed from the equation, the estimated coefficient for the proportion of credit supplied to estimated farm income, is statistically significant at the one percent level. This suggests two things:

(i) that gross farm income is a significant determinant of the amount of loan a farmer is likely to be granted;

(ii) that farmers with relatively high farm income are those with the greater scale of operations requiring greater amount of credit.

In a similar vein, low farm income reflects low level of input application which means low level of credit requirements (to keep operating on such a small scale).

Our results also indicate that the area under crop has some influence on credit requirements. The estimated coefficient for area cultivated was significant at the one percent level. This is to be expected since land preparation costs are bound to increase with increase in land put under cultivation, especially with respect to land clearing as earlier mentioned.

Two of the explanatory variables, time gap between loan application and receipt and the estimated farm expenses incurred on each farm, turned out not to be significant, even at the 10 percent level. However, a high R^2 value, 0.7963, was still obtained for our equation. Since the R^2 is of such a high magnitude and since the overall function is significant as judged by the S.E. value, it is believed that the non-significance of some of the explanatory variables in the given equation could be accommodated (Heady, 1953).

5. Summary and conclusions

The paper set out with the objective of assessing some of the factors which influence the levels of demand for institutional credit in the rural sector of Nigeria. Primary data for the study were collected from seventy farmers from seven areas in Oyo State.

After a review of literature of the dimensions of institutional credit, procedures for estimating credit requirements were discussed. Models which have previously been used in identifying relationships between short-term credit requirements of farmers and various econo-technical variables were appraised. Particular attention was paid to models by Singh and Gupta on Indian agriculture and Young's model on Australian agriculture. The paper argued that the applicability of these models in the Nigerian context is restricted due to many factors including the inavailability or inadequacy of relevant data and wide variations in cultural practices, profile of costs and timing of operations.

The socio-economic characteristics of farmer-respondents, in our case study such as the influence of family size, age factor and expenditures on labour and non-labour farm inputs were discussed. Using data collected from the farmers, a relationship was postulated between credit requirements and various explanatory variables. Results of our analysis revealed that, if proper care is not taken, the vicious cycle of low income, low farm size, low level of farm inputs, low scale of operations and low farm returns that presently afflict many farmers in the rural areas, would not be broken.

Evidence seems to point to the fact that the larger-scale operator with huge returns from bigger hectares continue to have greater credit needs which are largely being met.

It is recommended that a serious and concerted effort be made to disburse more funds to small scale operators to get them effectively functional in order to improve the rural sector in particular and for the greater benefit of Nigerian agriculture in general.

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LA DEMANDE DE CREDIT INSTITUTIONNEL EN MILIEU RURAL AU NIGERIA: QUELQUES CONSIDERATIONS

RESUME

L'article vise à identifier les facteurs qui influent sur le niveau de la demande de crédit institutionnel en milieu rural au Nigéria. Les données de base ont été recueillies sur un échantillon de 70 agriculteurs dans 7 zones du Oyo State. Après une revue de la littérature sur le volume du crédit institutionnel, l'Auteur décrit les procédures d'évaluation des besoins de crédit et analyse les modèles utilisés jusqu'ici pour identifier les rapports entre le besoin de crédit à court terme des agriculteurs et les différentes variables écono-techniques avec une attention particulière pour les modèles de Singh et Gupta sur l'agriculture indienne et le modèle de Young sur l'agriculture australienne dont l'utilisation dans le contexte nigérien est toutefois limitée à cause surtout du manque ou de l'insuffisance des données nécessaires et de la grande variabilité des cultivations, des coûts etc.

L'article prend aussi en considération les caractéristiques socio-économiques des agriculteurs interviewés, telles que l'importance des dimensions de la famille, le facteur âge, les frais pour la main d'œuvre et pour les autres facteurs de production.

Sur la base des données recueillies l'Auteur a postulé une relation entre les besoins de crédit et un nombre de variables explicatives. Les résultats de l'analyse démontrent que, si on ne prend pas des mesures adéquates, il est impossible de briser le cycle vicieux du faible revenu agricole, petites dimensions des fermes, nombre réduit des inputs agricoles, petite échelle des activités agricoles et faibles bénéfices, qui afflige maintenant un grand nombre d'agriculteurs. L'analyse semble aussi confirmer que les grands agriculteurs avec des grandes fermes et des revenus importants continuent à avoir des besoins de crédit toujours plus importants qui sont néanmoins satisfaits en bonne partie.

Il faudrait donc faire un effort pour assurer plus de fonds aux petits agriculteurs pour leur permettre d'atteindre un bon niveau de fonctionnalité non seulement pour améliorer le secteur rural, mais pour le développement de l'agriculture nigérienne dans son ensemble.