Determinants of formal agricultural credit allocation to the farm sector by arable crop farmers in Benue State, Nigeria

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The aim of this study was to determine the effects of socio-economic and demographic factors on the rate of credit allocation to the farm sector by arable crop farmers in Benue State, Nigeria. Cross-sectional data were obtained from 300 randomly selected loan beneficiaries. Obtained data were analyzed using frequency counts, percentages, t-test and multiple regressions. Results showed a statistically significant gap (p ≤ 0.001) between the amount of loan applied for and the amount received by farmers. The study also found that only about 56% of the loans were invested directly in farm activities implying that the balance of 43% of the loan was diverted and spent on non-farm activities. Factors that significantly (p ≤ 0.005) affected the rate of credit allocation to the farm include age, education, farm size, household size, length of loan delay and visitation by bank officials. Based on these results, the paper recommends increased flow of capital to the bank for on-lending to farmers. In addition, loans should be disbursed on time and bank officials should be encouraged to pay regular supervisory visits to farmers. Finally, benefiting farmers should be given basic training on efficient management of loans in order to curtail the high rate of loan diversion.

Key words: Credit allocation, farm sector, arable crop farmers, Nigerian agricultural and rural development bank, Nigeria.

INTRODUCTION

Agriculture has always played a pivotal role in the history of Nigerian economic development by providing food security, employment, foreign exchange earnings and poverty reduction. Despite the enormous contributions of agriculture to the Nigerian economy over the years, the sector has slipped into a systemic decline, particularly in the past three decades since the petroleum industry replaced the sector as the main earner of government revenue and foreign exchange earnings (FGN, 2004). In Nigeria, agricultural credit has for long been identified as a major input in the development of the agricultural sector. In fact, the lack of adequate, accessible, and affordable credit is among major factors responsible for the systemic decline in the contribution of agriculture to Nigerian economy (Rhaji, 2000).

Every segment of agricultural production requires the availability of adequate capital since capital determines access to all other resources on which farmers depend (Ayoola and Oboh, 2000). It has been shown that farm level credit if well applied, encourages capital formation and diversified agriculture, increases resource productivity, size of farm operations, innovations in farming, marketing efficiency, value added and net farm incomes (Nwaqbo et al., 1989). The usefulness of any agricultural credit program does not only depend on its availability, accessibility and affordability, but also on its proper and efficient allocation and utilization for intended uses by beneficiaries (Oboh, 2008). In spite of the importance of credit in agricultural production, its acquisition, management and repayment are replete with a number of problems. Awoke (2004) reported that high rate of default arising from poor management procedures, loan diversion and unwillingness to repay loans has been
threatening the sustainability of most public agricultural credit schemes in Nigeria.

The study was conducted in Benue State, Nigeria. The State was

MATERIALS AND METHODS

necessary information towards designing a more effective

A detailed understanding of these factors may provide

the rate of credit allocation by beneficiaries of NACRDB.

To examine the socio-economic and demographic

poor farmers better. The aim of this study therefore was
to examine the socio-economic and demographic
determinants of credit allocation to the farm sector by
arable crop farmers in Benue State, Nigeria.

The study was conducted in Benue State, Nigeria. The State was

purposely selected because most of the inhabitants are arable crop
farmers and Benue State is acclaimed the nation’s food basket.

A total of 300 arable crop farmers were randomly selected

through a two-stage stratified sampling technique. The

respondents were credit beneficiaries of the Nigerian Agricultural,
Cooperative and Rural Development Bank (NACRDB) from the

three agricultural and geopolitical zones of the State. First, the six

branches of NACRDB (with two branches located in each of the

three zones) formed the primary sampling strata. Then, a simple

random sampling technique was used to select 300 loan

beneficiaries. Structured interview schedule was used to collect
cross sectional data from respondents during the 2006 cropping
season.

The available data were analyzed with the use of frequency
distribution, percentages, t-test and multiple regression analysis. To
test for significant differences between credit demand by farmers
and credit supply by NACRDB, the paired – sample t-test was
employed.

In order to determine factors affecting the rate of credit allocation
to the farm sector, the multiple regression model was used and
specified as follows:

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_9 + \beta_9 X_{10} + \beta_{10} X_{11} + \epsilon, \]

Where

- \( Y \) = Percentage of credit allocated to the farm sector (%)
- \( X_1 \) = Age (years);
- \( X_2 \) = Gender (male = 1, female = 0);
- \( X_3 \) = Education (years);
- \( X_4 \) = Annual income (Naira);
- \( X_5 \) = Farming experience (years);
- \( X_6 \) = Farm size (hectare);
- \( X_7 \) = Household size;
- \( X_8 \) = Extension visits (visited = 1, not visited = 0);
- \( X_9 \) = Loan delay (number of days between loan application and receipt);
- \( X_{10} \) = Bank visits (visited = 1, not visited = 0);
- \( X_{11} \) = Adoption of Innovation (adopted = 1, not adopted = 0);
- \( \alpha \) = Constant;
- \( \beta_i \) = Regression coefficients;
- \( \epsilon \) = Error term.

RESULTS AND DISCUSSION

Socio-demographic profiles of respondents

The socio-economic and demographic profiles of respondents are presented in Table 1. Results indicated that majority (77.7%) of the farmers were males with an average age of 45.1 years. Farmers spent an average of 8.3 years in formal school, while they had a mean household size of 8.0 persons. In general, their farm sizes averaged 2.8 ha with a mean annual income of N24,380. Farmers also had an average farming experience of 22.2 years. The three major arable crops grown include cassava, yam and rice.

However, given the farmers’ low level of education, small farm size, low annual income and large household size, availability of credit may help to improve their farm output and productivity.

Size of loan applied for and received by respondents

Table 2 presents the result of a t-test analysis used to
determine whether significant differences exist between
amount applied and amount received by farmers. The
result indicated that the mean value of loan supply was
significantly \( P \leq 0.01 \) lower than the mean value of loan
demand. This may be attributed to shortage of loanable
funds at NACRDB. Inadequate loan facilities are common
problems among publicly owned agricultural credit
institutions in Nigeria (Oboh, 2008). The inadequate
amount of loan granted to applicants might limit their
capacity to finance their farm investment plans thereby
affecting farm output and productivity negatively.

Allocation of loan by respondents between the farm
and the non-farm sectors of the household economy

The average loan size allocated to the farm was 56.1% leaving the balance of 43.9% to the non-farm sector. This is called the average budget share (ABS) and it measures the percentage of total credit spent on each sector. Even though, the ABS value of 56.1% for the farm sector is relatively higher, the value of 43.9% for the non-farm sector suggests a reasonable level of loan diversion.

Table 3 presents the percentage of loan allocated to
the farm and the non-farm sectors across the various
categories of loan size. On a comparative basis, beneficiaries belonging to low loan size category (≤N20,000 to 40,000) allocated less of their loans to the farm sector and by implication, more to the non-farm sector. On the other hand, beneficiaries in the high loan size category (>N40,000) allocated more of their loans to
Table 1. Selected socio-demographic profiles of respondents.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td>29</td>
<td>62</td>
<td>45.1</td>
</tr>
<tr>
<td>Education (years)</td>
<td></td>
<td></td>
<td>0</td>
<td>19</td>
<td>8.3</td>
</tr>
<tr>
<td>Farming experience (years)</td>
<td></td>
<td></td>
<td>2</td>
<td>52</td>
<td>22.2</td>
</tr>
<tr>
<td>Household size</td>
<td></td>
<td></td>
<td>2</td>
<td>24</td>
<td>8.0</td>
</tr>
<tr>
<td>Farm size (ha)</td>
<td></td>
<td></td>
<td>0.7</td>
<td>8.0</td>
<td>2.8</td>
</tr>
<tr>
<td>Annual income (N)</td>
<td></td>
<td></td>
<td>15300</td>
<td>84000</td>
<td>24380</td>
</tr>
</tbody>
</table>

Gender

- Male: 233 (77.7%)
- Female: 67 (22.3%)

Major arable crops grown

- Cassava: 292 (97.3*)
- Yam: 231 (77.0)
- Rice: 187 (62.3)
- Potatoes: 101 (33.7)
- Maize: 97 (32.3)
- Groundnut: 68 (22.7)

* Total percentage >100 due to multiple responses. Source: Survey data, 2006.

Table 2. Summary of mean scores and paired sample t-values for differences between size of loan applied and received by respondents.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean (₦)</th>
<th>t-values</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of loan applied for</td>
<td>211,666.7</td>
<td>39.34**</td>
<td>299</td>
</tr>
<tr>
<td>Size of loan received</td>
<td>50,536.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Significant at 1% level of probability; ₦ represents the local currency, the Naira. Source: Survey data, 2006.

Table 3. Loan allocation (%) to the farm and the non-farm sectors based on size of loan received by respondents.

<table>
<thead>
<tr>
<th>Size of loan (₦)</th>
<th>Allocations (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Farm sector</td>
</tr>
<tr>
<td>≤ 20,000</td>
<td>31.2</td>
</tr>
<tr>
<td>21,000 – 40,000</td>
<td>34.7</td>
</tr>
<tr>
<td>41,000 – 60,000</td>
<td>51.3</td>
</tr>
<tr>
<td>61,000 – 80,000</td>
<td>50.8</td>
</tr>
<tr>
<td>81,000 – 100,000</td>
<td>52.7</td>
</tr>
<tr>
<td>&gt;100,000</td>
<td>69.5</td>
</tr>
</tbody>
</table>

Source: Survey data, 2006.

The result suggests that there is high propensity for low loan size (which seems inadequate for meaningful farm work) to be easily diverted for non-farm activities. This result is similar to the findings of Rabo et al. (2001) in which about 36.7% of small scale farmers’ institutional credit meant for farm activities in Bauchi State in Northern Nigeria was diverted.

Factors affecting the rate of credit allocation to the farm sector

The estimated determinants of credit allocation to the farm sector were summarized and presented in Table 4.
Based on statistical and econometric considerations, the semi-log functional form was chosen as the lead function. The coefficient of determination ($R^2$) is 0.564, implying that the explanatory variables accounted for about 56.4% of the change in the rate of credit allocation to the farm sector. Six variables were statistically significant ($P \leq 0.005$), and these include age, education, farm size, loan delay, bank visit and household size. Age of beneficiaries maintained the right a priori positive sign, suggesting that credit allocation to the farm increases with increasing age of farmers. Education also maintained a positive relationship with loan allocation to the farm sector. This is consistent with the observations of Nwaru (2005), that an educated farmer, other things being equal, allocates farm resources more efficiently.

The positive effect of farm size implies that farmers’ loan allocation to the farm increases with increasing farm size. This confirmed the findings of Emerole (2004) that increase in farm size necessarily requires the employment of more farm inputs which in turn require additional capital for their purchase. Bank visits specified as a dummy variable also had a positive sign implying that beneficiaries visited by bank officials tend to allocate more funds to the farm sector. The coefficient for length of loan delay showed inverse relationship with rate of credit allocation to the farm implying that less of delayed loan is used for farm work. This result was in line with earlier findings by Nweze (1991) that untimely release of loan tends to tempt farmers to divert the loan for unintended uses.

Finally, household size with a negative coefficient conforms to a priori expectation, implying that credit allocation to the farm sector decreases with increasing household size. This result was in agreement with the findings of Mejeha (2005) in which farmers with high household sizes tended to divert their loans for the sustenance and upkeep of family members.

### Conclusion

This study showed that the size of loan granted to farmers was significantly lower than what was applied for. A reasonable proportion of the loan was also diverted to non-farm activities. The pattern of loan allocation showed that beneficiaries with high loan size tended to allocate more of their loans to the farm than beneficiaries with low loan size.

In addition, it was found that factors that significantly affected the rate of credit allocation to the farm sector.
the farm were farmers’ age, educational level, farm and household size. Other factors are length of loan delay and visit to farmers by bank officials. Based on these findings, it is suggested that government should increase the volume of loan facilities to NACRDB for onward disbursement to intending beneficiaries. This may lead to reasonable increase in farmers’ individual loan sizes. In order to reduce the rate of loan diversion, loans should be disbursed on time, and bank supervisors should visit beneficiaries regularly. In addition, pre-disbursement training is recommended for all successful loan applicants for efficient loan allocation and management.

REFERENCES
