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Original Research

Factors Influencing Loan Repayment Performance among Smallholder Rice Farmers under the Anchor Borrower Programme in Sokoto State, Nigeria

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ABSTRACT: This study determined the factors influencing loan repayment performance among the dry season smallholder rice farmers who benefitted from loan under the Anchor Borrower Programme (ABP) in Wammako, Bodinga and Kware Local Government Areas (LGAs) of Sokoto State, North-west Nigeria. Multi-stage sampling technique was used to select a sample size of 189 respondents. Primary data were collected using structured questionnaires. Data were analyzed using descriptive statistics, loan performance indices and two-limit Tobit regression. The results showed that 11% of the beneficiaries made full repayment while 37% and 52% made partial and no repayment respectively. Moreover, 8%, 18% and 8% of the loan disbursed were fully repaid in Wamakko, Gwadabawa and Bodinga LGAs respectively. Also, 47%, 39% and 71% were held by beneficiaries who did not make any repayment in the three LGAs, suggesting poor loan repayment in the study area. Results from the Tobit regression model revealed that off farm income, amount of loan granted and numbers of contact with extension agents were the statistically significant factors that influenced loan repayment performance under the ABP in the study area. Reasons for default in repayment includes delay in loan disbursement, supply of unsuitable seed, destruction by birds and flood disaster. It was recommended that moral persuasion be used in encouraging the beneficiaries to repay the loans.

Keywords: Loan repayment, smallholder rice farmers, Anchor borrower programme, Sokoto State
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INTRODUCTION

The Nigerian agricultural credit scheme had been characterized by bureacratic bottlenecks that made access to loan particularly difficult for smallholder farmers as well as poor loan repayment among beneficiaries smallholder farmers. Of late however, a new paradigm of the Anchor Borrower Programme was designed to reduce the bureaucracy in accessing the loan and yet prima facie evidence suggested that the Anchor Borrower Programme loan extension to dry season rice farmers of 2017 in Sokoto has suffered poor loan repayment performance among the beneficiary smallholder farmers. This was observed by participating banks in the loan programme in 2017 (Suleiman, 2021). Evidence has shown that the institutionalized sources of credit are not willing to extend credit to smallholder farmers which may be due to poor loan repayment performance from this sector (Acquah and Addo, 2011). This attitude of financial institutions has adversely affected agricultural development of the country (Afolabi, 2010).This is because when funds are been provided to

agriculture, it goes a long way in helping to achieve a drastic reduction of poverty and alleviating the poor welfare situation of the rural farmers as it increases agricultural productivity of the rural farming households. This will at micro level translate to an increase in farm income, food security, poverty reduction and improved rural household welfare, while leading to inclusive industrial development and economic growth on the aggregate (Awotide *et al.,* 2015). Therefore, to bring about this drastic change in the smallholder farmers' condition, there is need for direct intervention through the provision of credit and other financial services to smallholder farmers.

The Central Bank of Nigeria (CBN) lunched Anchor Borrower Programme (ABP) in 2015 with the aim of increasing smallholder farmers' access to loan and other credit facilities. This credit comes in cash and kind to smallholder farmers to boost production of agricultural commodities, stabilize input supply to agro processors and address the country's negative balance of payment on food (Coker *et al*., 2018). In Sokoto State, all the dry season rice farmers were actually given water pumping machine, inorganic fertilizer, pesticide and the sum of N80, 000 each in cash. Initial agreement involved the beneficiary farmers taking the rice output to the uptakers but due to some challenges, it was agreed that the farmers can sell the paddy rice in the open market to repay with their harvested rice output equivalent of what they were given in total. So far, three banks were considered for the programme namely: Access Bank and United Bank for Africa (UBA). However, available statistics and records from Unity Bank Sokoto indicated that ABP loans for 2017 dry season rice farmers in Sokoto State suffered poor repayment among the beneficiaries of the scheme in selected local government areas of the State. For instance, while 39% of all the beneficiaries in Yabo local government area were said to have repaid the loan which was the highest, 19% of the beneficiaries in Gwadabawa local government area were said to have repaid which recorded the lowest or least repayment rate (Unity Bank, 2019). Thus, there is dearth of empirical information of loan repayment performance vis-à-vis Anchor Borrower programme in the study area. Hence, this study seek to investigate loan repayment performance among smallholder dry season rice farmers in Sokoto state, Nigeria.

METHODOLOGY

The study was carried out in Gwadabawa, Bodinga and Wamakko LGAs of Sokoto State, Nigeria. Sokoto State is located in North Western part of Nigeria and lies between latitudes 4˚20' N - 6˚40'N and longitudes 11˚30'E - 13˚50' E and covering a land areas of 28, 232.37 square kilometres (Sokoto State Government Diary, 2014). Multi-stage sampling procedure was used in selecting the rice farmers' loan beneficiaries in purposively selected Wammako, Gwadabawa and Bodinga local government areas of the State due to their past record of lowest repayment rate in the ABP. From the sample frame of 375loan beneficiaries that was obtained from the participating banks, a sample size of 189 respondents was computed using Yamane's guideline. Primary data were collected using structured questionnaires. The data were analyzed using descriptive statistics, loan repayment index and Tobit regression.

Loan repayment index

This involved evaluation of two indices such as loan repayment index (LRI) and beneficiaries repayment rate (BRR). This formula was adopted from Etukumoh and Akpaeti (2015).

$$LRI = [BVR_f/VB+W_2(BVR_p/VB]*100 \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where:
LRI = Loan repayment index which shows the level of loan repayment by loan beneficiaries.
$W_2 = NRC_P/ TNLO_P$
BVR_f = Value of loan collected by those who made full repayment.
VB = Total value of loan outstanding
BVR_P = Value of loan collected by those who made partial repayment
NRCp = Number of beneficiaries who made partial repayment.
$TNLO_P$ = Total number of beneficiaries who have outstanding loan to repay.
Loan default index (LDI) is computed as follows:

$$LDI = 100 – LRI \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Beneficiaries Repayment Rate is given as:

$$BRR = [BNF_f/NB + W_2 (BNR_p/NB)]*100 \ldots\ldots\ldots (3)$$

Where:
BRR is the beneficiaries' repayment rate, which is defined as the rate at which the borrowers repay or fulfill their loan obligation.
$W_2 = VRC_P/TVLO_P$;
BNF_f = number of beneficiaries who made full repayment;
NB = total number of beneficiaries in a particular period;
NBR_P = number of beneficiaries who made partial repayment;
VRC_P = value of repayment collected from those who made partial repayment;
$TVLO_P$ = Total value of loan outstanding for those who made partial repayment.
Beneficiaries default index is then measures as follows:

BDR = 100- BRR …….. (4)

Where BDR is beneficiaries default ratio.

Tobit regression model

In this study, Tobit regression model has been chosen as an appropriate econometric model. The value of the dependent variable ranges between 0 and 1. Unlike many other studies on loan repayment that used either logit or probit models, a dichotomous discrete model where the dependent variable is a dummy that takes a value of zero or one depending on whether or not a farmer has defaulted. Sileshi *et al*. (2012), pointed possible loss of information if a binary variable is used as dependent variable because the variable may have more than two possible outcomes. In addition binomial models explain only the probability that an individual made certain choice (i.e. defaulted or not defaulted) and fails to take into consideration the degree of loan recovery. This inadequacy is minimized with the use of Tobit model. So, the current study employed Tobit regression model to determine the factors influencing loan repayment among smallholder rice farmers represented as:

$y^* = \beta x_i + \varepsilon_i$, …….. (5)
$\varepsilon \sim N [0,\sigma^2]$.
Denoting Y_i as the observed dependent (censored) variable

Where:

Yi = the observed dependent variable, in this case repayment rates (ratio of the amount repaid to the amount due)
Y = the latent variables (unobserved for values smaller than 0 and greater than 1).
Xi^*= is a vector of independent variables (factors affecting loan repayment and intensity of loan recovery)
βi = vector of unknown parameters
εi = Residuals that are independently and normally distributed with mean zero and a common variance σ^2 , and i = 1,2 … n (n is the number of observations).
X_1= Age (years)
X_2 = Gender (Male = 1, Female = 0)
X_3 = Marital Status (Single = 1, Married = 0)
X_4 = Household size (numbers)
X_5 = Years of farming experience (Years)
X_6 = Education Attainment (Years)
X_7 = off farm income (₦)
X_8 = Occupation
X_9 = Years of membership of Cooperative Association (Years)
X_{10} = Number of Contact with Extension Workers or Supervisor (Numbers).

RESULTS AND DISCUSSION

Socio economic characteristics of respondents

Age is one of the factors affecting decision and actions made in agriculture; this is because people's need, behavior and thought are basically related to their ages (Jatto *et al.* 2017). Table 1 shows the distribution of farmers according to age of the beneficiaries. About (34.9%) of the respondents are between the age of 42 and 51 years. The mean age of the respondents is 50 years. This result shows that the respondents are still in their active ages which enhance farmer's productivity resulting in improvement in farm income and consequently better loan repayment. This finding is in agreement with Afolabi (2010) who reported that most of the beneficiaries small scale farmers of a loan programme in Oyo State are in their fifties (50s). The result further shows that majority (97.4%) of the respondents are male while (2.6%) of respondents are female. This indicates that male participants are more into agricultural activities and have more access to loan than female in the study area. The results also showed that about (30%) of the respondents have between 13 to 22 years of farming experience. It is expected the more experienced farmers are the more likely their productivity and income level increases hence their loan repayment ability get better.

Measures of loan repayment performance

The various measures of loan repayment performance computed and shown on (Table 2) indicate poor loan repayment performance among the beneficiaries of ABP dry season rice farmers across the three LGAs. Specifically, only 19% of the loan granted to the beneficiaries during the period under review was repaid as at when due. About 81% of the loan granted by ABP to dry season rice farmers of 2017 was however held by about 89% of the beneficiaries. This result of poor loan repayment is in line with the findings of Akpan *et al.* (2014); Udoh (2008) and Etukumoh and Akpaeti (2015) that reported poor loan repayment among beneficiaries of various programme where the studies were carried out.

Factors influencing loan repayment performance of ABP loan programme

Tobit regression model estimates for the factors influencing loan repayment performance of the Anchor Borrower Programme beneficiaries are shown in (Table 3). The result shows that four explanatory variables had significant influence on loan repayment performance while the remaining five explanatory variables were not significant.

Table 1: Socio-economic characteristics of respondents

Parameters	Wammako		Bodinga		Gwadabawa		Pooled	
Age								
	Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
22 – 31	3	4.2	3	5.0	2	3.6	8	4.2
32 – 41	10	13.5	7	11.9	9	16.1	26	13.2
42 – 51	25	33.8	18	30.5	23	41.1	66	34.9
52 – 61	21	28.4	25	42.4	15	26.8	62	32.8
62 – 71	14	19.7	5	8.5	7	12.5	25	13.2
72 – 81	1	1.4	1	1.7	0	0	2	1.1
Gender								
Male	71	96	57	97	56	100	184	97.4
Female	3	4	2	2 3	0	0	5	2.6
Marital Status								
Single	4	5.4	3	5.1	0	0	7	3.7
Married	70	94.6	55	93.2	56	100	181	95.8
Divorced	0	0	1	1.7	0	0	1	0.5
Household Size								
1 – 7	10	13.5	6	10.2	7	12.3	23	12.2
8 – 14	27	36.5	23	39.0	20	35.7	70	37.0
15 – 21	19	25.7	22	37.2	22	39.3	63	33.3
22 – 28	10	13.5	6	10.2	6	10.7	22	11.5
29 – 35	8	10.8	2	3.4	1	2.0	11	5.8
Farm Exp								
3 – 12	17	23.0	23	39.0	8	14.3	48	25.4
13 – 22	16	21.6	24	40.7	16	28.6	56	29.6
23 – 32	17	23.0	6	10.2	17	30.0	40	21.2
33 – 42	27.0	27.0	4	7.0	10	18.1	34	18.0
43 – 52	4	5.4	2	3.4	5	9.0	11	5.8
Total	74	100	59	100	56	100	189	100

Table 2: Loan Repayment Performance of ABP.

LPI	Wammako	Gwadabawa	Bodinga	Average (%)
LRI	13	23	21	19
LDI	88	77	79	81
BRR	12	11	11	11
BDR	88	89	89	89

Source: Computed from equations 9, 10, 11 and 12

LPI = Loan performance indices
LRI = Loan repayment index
LDI = Loan default index
BRR = Borrower repayment rate
BDR = Borrower default rate.

The significant variables include numbers of contact with extension agents, off-farm income, farming experience and years of membership of cooperative association. Number of contact with extension agents or supervisors have a positive coefficient and are statistically significant at 1% level. This implies that farmers with more access to technical assistance on agricultural activities would have better repayment performance than those who had less or no contact at all. This is because farmers who have frequent contact with development agents are better informed about market and production technologies. This is in line with Sileshi *et al,* (2012) who reported that farmers with more access to technical assistant has better loan repayment performance.

Off-farm income activities is another economic factor that has positive coefficient and statistically significant at 1% level. This is in conformity with our *a priori* expectation. This means that farmers with off-farm income would have better repayment performance compare to farmers that had none. This might be due to the fact that off- farm activities were additional source of income for the beneficiaries and the income generated

Table 3: Tobit regression estimates on factors influencing loan repayment performance among ABP rice farmers

Variables values	Coefficient	Standard Error	T	p>/t/
Age	- 0.003	0.002	-1.25	0.213
Gender	- 0.323	0.158	-2.05	0 .042
Marital Status	-0.445	0.242	-1.84	0.068
Educational Attainment	0.007	0.009	0.88	0.379
Farming experience	0.015	0.002	7.16	0.000***
Household size	-0.001	0.003	-0.42	0.068
Years of membership	0.016	0 .005	3.59	0.000***
Contact with extension agent	0.225	0.016	7.93	0.000***
Off- farm income	0.067	0.016	5.51	0.000***
Constant	0.455	0.600	0.76	0.450
Sigma	1.780	0.013		
Log likelihood	8.755			
Pseudo R2 =	1.067			
Prob >Chi2 =	0.000			
No of observation =	89			

Source: Field Survey, 2019. *** = Significant at 1%, ** = Significant at 5%, * = Significant at 10%, ns = Not Significant

Table 4: Reasons for loan default among smallholders ABP rice farmers (n=189).

Reason for loan default	Frequency	Percentage	Rank
Delay in loan disbursement	136	71.96	1st
Supply of unsuitable seeds	131	69.31	2nd
Destruction of rice by Birds	80	42.33	3nd
Flooding	73	38.62	4th

Source: Field Survey, 2019

* = multiple responses existed, hence > 100%

from these activities could back up the farmer's income to settle their debt even during bad harvesting seasons and when repayment period coincides with low agricultural prices. During this time, farmers who practice off-farm income activities can easily repay their loan on time than those without or little off-farm income. This could be corroborated with the findings of Etukumoh and Akpaeti (2015) on Akwa Ibom State Integrated Farmers' Scheme reported that beneficiaries without off-farm income tend to default in loan repayment while those with off-farm income had better repayment performance. Years of farming experience had positive coefficient and also statistically significant at 1% level and also in agreement with our *a priori* expectation. This direct relationship showed that the probability of loan repayment performance would increase with increase in years of farming experience. This is because beneficiaries who have been in business for long time are expected to be more stable and more experienced than those who just started. This is in line with Afolabi (2010) and Akpan *et al*, (2014) who observed that farmers become more knowledgeable in farming practice due to more years of farming experience.

Years of membership of cooperative society had positive coefficient and statistically significant at 1% level. This also conforms to our *a priori* expectation. This is an indication that farmers with more years of membership of cooperative would have better repayment performance. This implies that as the number of years of membership increases so also the chance for better information sharing, risk reduction and increase awareness on matters relating to farm credit. This is in consonant with Lawal and Balogun, (2007) who reported the more cooperative experience a farmer has the better his/her ability to manage challenges relating to credit sources and utilization.

Reasons for loan default among smallholder ABP rice farmers

Table 4 presents the beneficiaries reasons for defaulting. The results revealed that the default was attributed to the delay in loan disbursement 71.96% which reflects the major reason for the default. About, 69.31% attributed it to the supply of unsuitable seeds while 42.33% and 38.62% attributed it to destruction by birds and flooding respectively. Delay in loan disbursement could be attributed to bureaucratic practices in government institution as clients' (farmers) requests pass from table

to table which prolong the management appraisals and result to late disbursement of loan. Farmers are most affected by this as their activities are tied to the prevailing weather conditions. Therefore, late receipt of loan delays the planting season, resulting in low yield or output that causes the farmer to default. This finding concurs with Agada *et al.* (2018) who observed that loan delay and supply of unsuitable seeds is the reason for the inability to repay loan by farmers.

Conclusion

Drawing from the result obtained, it can be concluded that the involvement of youth in agriculture in the study area was very low or fewer youth actually had access to the loan programme while the programme lasted. Furthermore, the loan repayment performance measure revealed that about 19% of the total loans disbursed under the ABP were repaid fully while 81% of the loans granted were still held by 89% of the loan beneficiaries in the study area. This indicated that the loan repayment performance of ABP in the study area was very poor. Also, reasons given by beneficiaries for their loan default were ranked in order of importance as: delay in loan disbursement, supply of bad seed, destruction by birds and effect of bad weather. Lastly, the result of Tobit regression model reveals that off farm income, number of years of membership of cooperative association, numbers of contact with extension agents or supervisors' and primary occupation were significant factors that influence loan repayment.

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