

Full Length Research

Factors Influencing Food Security among Loan default Farmers in Kwara State, Nigeria

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The objective of the study is to assess the factors influencing food security among loan default farmers in Kwara State, Nigeria. A list of members of Kwara State Apex farmers cooperatives union that consisted of 3100 agricultural loan defaulters was obtained to form the sampling frame. The frame was stratified into four, based on the existing Agricultural Development Program zones in the state. A proportionate sampling technique was used in selecting the 400 agricultural loan defaulters. Data collected with questionnaire were analyzed using logistics regression. The result showed that dependency ratio, years of education, farm size, and repayment period and farmers income influences the food security of defaulting farmers. The marginal probability estimates showed that years of education had the highest influence on defaulting farmers food security status. It was concluded that the probability of food security among the default farm households is more responsive to a change in years of education. In view of this, a strategy for effective households is recommended.

KEY WORDS: Factors influencing, Food security, Loan, default, and Farmers.

INTRODUCTION

In many African countries, food security at both national and household level is depressing. The figure released in 2015 on the state of food security in the world showed that 7% of Nigerian population was chronically under nourished. Although, In Nigeria, the percentage of undernourished people was reported to be 10.2% in 2012 and 12.9% in 2015 (FAO, 2016). To improve the

undernourishment situations in the country, farmers need more access to loan facilities that will enhance their productivity that could more lead to availability of food.

However, the problems of loan default among farmers has always contributed to shortage of funds as this has made commercial banks in Nigeria to shy away from financing agricultural loan facilities. In Nigeria, few researchers (Nnadozie and Uzoigwe, 2002; Oladeebo and Oladeebo, 2008) have related several factors to agricultural loan default among small-scale farmers. Agriculture is a major

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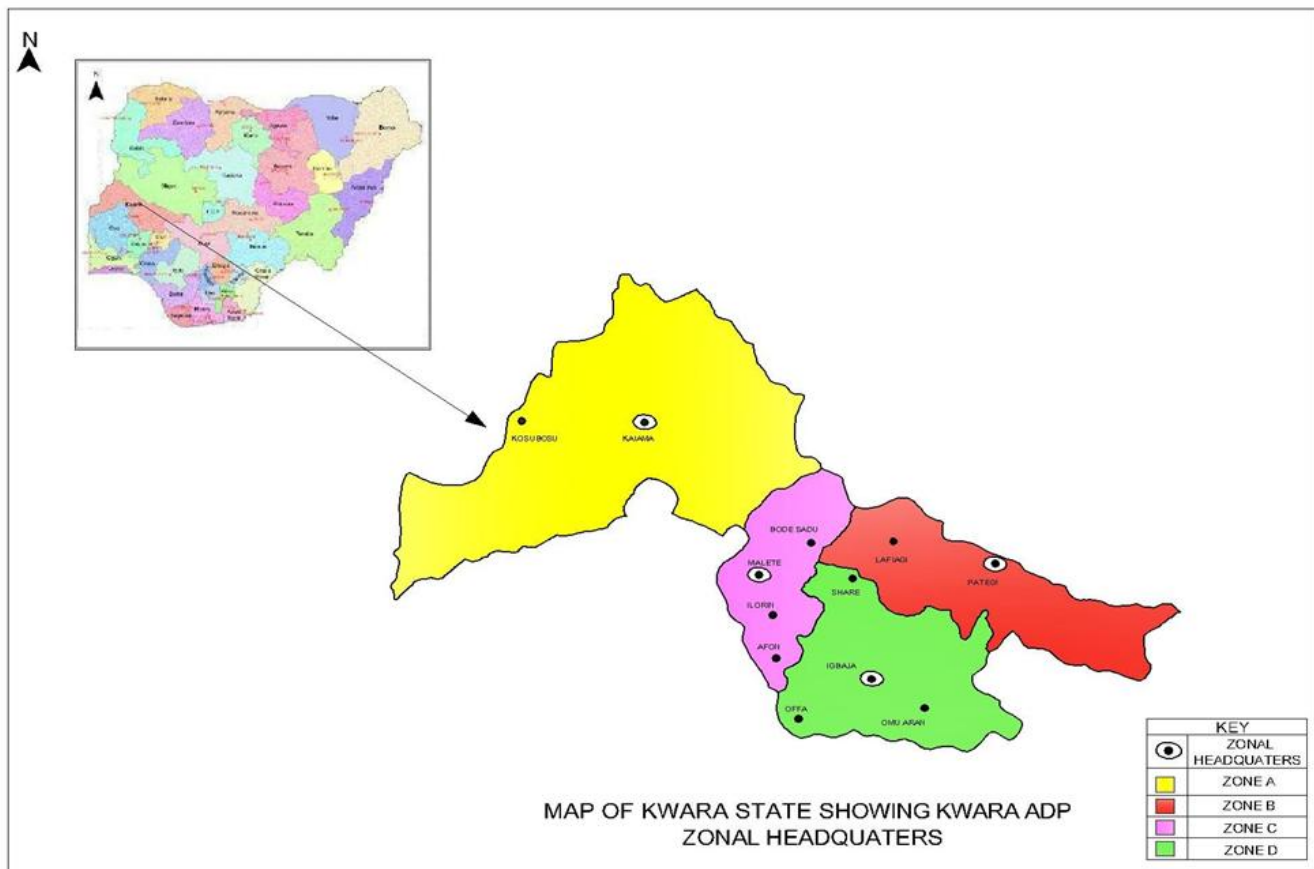


Figure 2. Map of study area.

contributor to the GDP and small-scale farmers play a dominant role in this contribution (Rahji and Fakayode, 2009), but their productivity and growth are hindered by limited access to credit facilities (Odoemenem and Obinne, 2010). Loans are to be paid back on time to ensure the recycling of money for the benefits of other farmers (Oni et al., 2005). One of the main objectives of any government including that of Kwara State is to strive to become self-reliant in food production. Since, the inauguration of commercial farming system by the Zimbabwean farmers, Kwara State government has been given the indigenous farmers facilities to improve their production, credit schemes were also put in place to increase the accessibility of farmers to credits, so that food and cash crop production can be increased. The productive use of these facilities is not yielding the required arrangement of the assignment. In view of this, the objective of the study was to assess the factors influencing Factors Influencing Food Security among Loan default

Farmers in Kwara State, Nigeria.

METHODOLOGY

Study Area

The study was conducted in Kwara State **Figure 1** shows the map of the study area and it is located between parallels $8^{\circ}30'$ and 10° North latitude and 3° and 6° East longitude. It is situated in the middle belt zone of Nigeria and occupies an area of about $36,825\text{km}^2$. The state falls within the Guinea Savannah vegetation Zone with hot and humid season and lies along the country's most important commercial route linking Northern part to the Southern parts of Nigeria. Important tourist attractions in Kwara State include Esie Museum, Owu Falls, Imoleboja Rock Shelter, Ogunjokoro, Kanji Lake National Parks and Agbonna Hill, Awon Mass Wedding in Shao.

Agriculture is the main source of the economy with annual rainfall is between 1000mm and 1500mm, while the average minimum temperature is between 21.1° c and 25°c while the maximum temperature is between 30°c and 35°c. The principal food crops and livestock are cassava, yam, maize, millet and chickens, goats, sheep respectively. The production is largely peasant and small scale relying on the use of manual labour, improved seed and agrochemicals to some extent, while the cash crops are: cotton, tobacco, beniseed and palm produce while mineral resources in the state are Gold, limestone, marble, feldspar, clay, kaolin, quartz and granite. A list of 3100 agricultural loan defaulters who has defaulted at least once from loan since 2000 to 2014 from the members of Kwara State Apex farmers cooperative union was obtained to form the sampling frame. The sampling frame was stratified into four, based on the existing four ADP zones. A proportionate sampling technique was used in selecting the 400 agricultural loan defaulters used for the study. Data were collected using a structured questionnaire. A food security index was used to determine the status of the farmers in the study area and logistic regression was used to establish the factors influencing of food security status of loan default farmers in the study area.

The model specification was as follows:

Food security status of the farming households was determined by classifying the households into food secure and food insecure, using the food security index. The food security index formula is given by:

$$Fi = \frac{\text{per capita food expenditure of } i\text{th household}}{\frac{2}{3} \text{ mean per capita food expenditure of all households}}$$

Fi= food security index

When;

Fi≥1= food secure

Fi≤1= food insecure

A food secure household is whose food security index falls above or is equal to one. On the other hand, a food insecure household is that whose food security index falls below one (Omonona et al., 2007). Based on the food security index (Fi), probit regression will be estimated to identify the determinants of food security among the respondents. Probit predicting equation that will be used is:

$$Fi = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_{13} X_{13} + U$$

Dichotomous variables which is expressed as; F =1= Food security and F=0= Food insecure

α= intercept

β₁ – β₁₃ = regression coefficients that explain the probability of food secured

X₁= Age (years)

X₂= Amount spent on food consumption (N)

X₃= Farm size (hectares)

X₄= Family size (numbers)

X₅= Years of education

X₆= Farming experience (years)

X₇= Repayment period (months)

X₈= Income (N/month)

X₉= Years of membership in the association

X₁₀= Amount of loan received (N)

X₁₁= Interest rate charged (%)

X₁₂= Dependency ratio (proportion of children and old age that are dependent to household size).

X₁₃= Work force (number used, family, hired, both)

U= error term (are random and unobserved variable)

RESULTS AND DISCUSSIONS

Result of the Food security status

The result of Summary statistics of food security status of the farmers in the study area above (Table 1) shows that the 2/3 mean per capita food expenditure of the farmers in the study area is N27, 757. The result also shows that about 164 of the sampled farmers in the study area are food secured while 236 were food insecure. Therefore, household that has a per capita food expenditure falling below N27, 757 were designated food insecure, while household that has a per capita food expenditure equals or is greater than N27, 757 were food secure. It was observed that 41% of the households were food secure while majority (59%) were food insecure and it was statistically significant (p<0.01). That is, there is substantial difference between food secure and food insecure status of the farmers in the study area.

Maximum likelihood estimate of food security among defaulting farmers in the study area

The result of the appraisal of food security among

Table 1. Summary statistics of food security status of the farmers in the study area.

Variable	Mean	
2/3 mean per capita food expenditure	₦27, 757	
	Frequency	Percentages
Household food secure	164	41
Household food insecure	236	59
Total	400	100

Source: Field survey 2016. T-test ($p < 0.01$).

Table 2. Logit regression estimates for determinants of food security status of the respondents.

Variables	Coefficient	Std. error	Z	P-value
Constant	-0.389835	0.460679	-0.8462	0.39743
Age	-0.0142256	0.00897364	-1.5853	0.11291
Years of education	0.0382999	0.0181757	2.1072	0.03510**
Farm experience	0.00542377	0.00901751	0.6015	0.54753
Family size	0.0452457	0.0295361	1.5319	0.12555
Membership of association	0.00787725	0.0137587	0.5725	0.56697
Dependent	-0.0951843	0.022979	-4.1422	0.00003***
Farm size	0.0331171	0.0193347	1.7128	0.08674*
Work force	0.0386978	0.0263058	1.4711	0.14127
Amount received	-0.0025113	0.00538226	-0.4666	0.64079
Repayment period	-0.267419	0.0837531	-3.1929	0.00141***
Interest rate	-0.0148402	0.0134192	-1.1059	0.26877
Farm income	0.0023544	0.0011299	2.0837	0.03719**
Amount spent on food consumption	0.0411224	0.112246	0.3664	0.71410

*=1%; **=5%; ***=10%

the farmers is shown below in Table 2 and it shows the distribution of maximum likelihood estimate of determinants of food security in relations to their socio-economic and institutional characteristics in Ilorin, Kwara state. Table 2 shows those years of education, farm size, and farm income had a positive significance of 5%, 10%, and 5% respectively. The repayment period and dependent ratio had a negative coefficient with significant level of 1% each.

Moreover, age, amount received and interest rate have a negative coefficient that are not significant in the analysis, while farm experience, family size,

membership of association, work force and amount spent on food consumption are all positive but are also not statistically significant within the three significant level assessed. It is being noted that a positive sign on a parameter indicated that higher values of variables tends to increase the likelihood of being food secured. Similarly, a negative value of coefficient implied that higher values of the variables would reduce the probability of food security status of the household.

Years spend in school is a social capital which could impact positively on household ability to take good and well informed information on production

Table 3. Predicted Marginal Probability of Factors that Determine Food Security Among Farm Households.

Variables	Coefficient	Std. Error	Z	Marginal effect
Constant	-0.435175	0.279432	-1.5574	
Years of education	0.0328179	0.0164641	1.9933	0.01299
Dependent	-0.0823052	0.0201723	-4.0801	-0.032601
Farm size	0.0226715	0.0151698	1.4945	0.008980
Repayment period	-0.204185	0.0732299	-2.7883	-0.08087
Farm income	0.0211509	0.0104631	2.0215	0.00837788

and nutritional decisions. The result shows that education is significant and this implies that household with more educated heads are more likely to be food secured. The result agrees with Ahmed et al. (2015) who also showed that, educated household heads influences food security of their respective households.

Dependency ratio is the ratio of children and (or) old age that are not independent to household. The result shows that dependence ratio has a negative sign which, implies that as the amount of children or old age that are not independent decreases the probability of household food security increases. Hence, increase in household size would lead to decrease in the food security status of the household. This result is expected because a decrease in the member of household means less people to cater for, given the same resource base. Hence, large household may not be able to access enough food as much as a small household, thus decreasing the probability of the household to be food secure. The result is in line with the findings of Oluyole and Taiwo (2016) who found out that a decrease in household size would increase the probability of a household to be food secure. It also agrees with the findings of Ahmed et al. (2015) that as household size reduces; the probability of food security increases and also concurs with the result of Ayantoye et al. (2011) that households with a high dependency ratio are particularly prone to food insecurity.

It has been argued that the larger the farms size the higher the possibility of generating higher income from the farm productions. Thus, borrowers with larger farm sizes are likely to be food secured. The result from the table shows that farm size is positive and significant, indicating that as farm size increases the probability of the household to be food secure will increase. This result agrees with the

result of Awunyo-Vitor, (2012) that as farm size increases the likelihood of household food security will increase. Ayantoye et al. (2011); and Ibrahim et al. (2009), agreed that factors that have been found to provide a buffer against food insecurity include the education level of household head, the size of the farm (households with larger farms are more food secure).

Repayment period is the time it takes to repay the amount of loan collected which is usually monthly, quarterly, biannual and annual. The repayment period in relation to food security here, revealed that the negative sign of the repayment period of the defaulting farmer may not necessarily affect the probability of been food secured. This implies that as repayment period reduces it also raises the probability of the food security status of the farmers by 26.7%.

Farm income refers to the sum total of earnings of household in a month from farm activities. An increase in farm income is expected to boost household access to more quality and quantity food. This result showed that the higher the income the higher the probability of the household to be food secured. The result agrees with Babatunde et al. (2007) and Omotesho et al. (2006) that annual income from quantity of food produced from farmer's own production were found to determine the food security status of family household.

Marginal probability estimates

The predicted probability of food security status of the farmers as related to the significant socio-economic variable is shown in Table 3. The Table showed that years of education have a positive marginal effect of 0.01299. This shows that the probabilities of being food secure would increase by about 1.3 percent for a units increase in year of

education. Dependent ratio has a negative marginal effect of 0.0326 this implies that the probability of being food secure will decrease by 3 percent. Farm size has a positive marginal effect of 0.00898 indicating that the probability of being food secured will increase by at least 0.8 percent. The repayment period has a negative marginal effect of 0.08087 implying that the probability of being food secured will decrease by 8.1 percent and the farmer farm income has a positive marginal effect of 0.003778, which indicates that the probability of being food secured will increase by 0.7 percent.

The result shows that dependent ratio and repayment period may not necessary be a factor contributing to food security among the farmers in the study area because of the negative signs of their respective coefficient, meaning that they may have less dependent and lower repayment periods from their loan institutions. The implication is that it increases the likelihood of more access to food. However, years of education, farm size and farm income have a positive effect on food security of the farmers. Years of education have the highest marginal effect on food security of the farmers implying that education attainment is the main factor behind the farmer food security status. This shows the likelihood that more years spent in attainment of education enables farmers to comprehend more complex information, keep records, conduct basic cash flow analysis and making the right investment decision to enable farmers increase their farm size which leads to increased access to food and make their family food secured and also get more income from sale of remaining farm produce.

Furthermore, the implication of this is that the more opportunity a farmer has access to education; the more they tend to increase their farm size, with a tendency to increased income. This will lead to an increase in their participation to repay the loan because as income increase savings will also increase.

CONCLUSION AND RECOMMENDATIONS

It was concluded that dependency ratio, years of education, farm size, repayment period and farmer's income influences the food security of defaulting farmers. The marginal probability estimates showed that years of education had the highest influence on defaulting farmers food security status. Effective policy participation of household heads (males) in

the design of concepts and messages aimed at impacting knowledge about family measures encouraged. In view of this, a strategy for effective households is recommended.

REFERENCES

- Ahmed FF, Eugene C and Abah P (2015). Analysis of Food Security among Farming Households in Borno State, Nigeria. *J. Agric. Econ. Environ. Soc. Sci.*, 1 (1): 130- 141.
- Awunyo-Vitor D (2012). Determinants of Loan Repayment Default among Farmers in Brong - Ahafo Region of Ghana. *J. Develop. Agric. Econ.*, 4(13): 339-445.
- Ayantoye K, Yusuf S, Omonona B and Amao J (2011). Food insecurity dynamics and its correlates among rural households in South Western Nigeria. *Int. J. Agric. Econ. Rural Develop.*, 4(1): 43-55.
- Babatunde R, Omotesho O and Sholotan O (2007). Factors Influencing Food Security Status of Rural Farming Households in North Central Nigeria. *Agric. J.*, (2): 351-357.
- Food and agricultural organization (1996). The state of food insecurity in the world. Rome: FAO.
- Food and agricultural organization (2016). The state of food insecurity in the world report; Food and Agricultural Organization, Rome, Italy.
- Ibrahim H, Uba-Eze N, Oyewole S and Onuk E (2009). Food security among urban households: A case study of Gwagwalada Area Council of the Federal Capital Territory Abuja, Nigeria. *Pak. J. Nutr.*, 8(6): 810-813.
- Nnadozie, A., and Uzoigwe, J. (2002). Effectiveness of local sanctions on agricultural loan recovery under community banking in Enugu State. *Journal of the Science of Agriculture, Food Technology and the Environment*, 2 (1): 56 – 62.
- Odoemenem I and Obinne C (2010). Assessing the factors influencing the utilization of improved cereal crop production technologies by small scale farmers in Nigeria. *J. Crop Sci.*, Pp. 9-17
- Oladeebo, J. O., and Oladeebo, O. (2008). Determinants of loan repayment among smallholder farmers in Ogbomoso agricultural zone of Oyo State, Nigeria. *Journal of Social Sciences*, 17(1): 59-62
- Oluyole K and Taiwo O (2016). Socio-economic Variables and Food Security Status of Cocoa Farming Households in Ondo State, Nigeria. *Asian*

- J. Agric. Ext. Econ. Sociol., 9 (1): 1-7.
- Omonona B, Agoi T and Adetokunbo G (2007). An analysis of food security situation among Nigerian urban households: Evidence from Lagos State, Nigeria. J. Central of European Agric., 8 (3):399-406.
- Omotesho OA, Adewumi M, Muhammad-Lawal A and Ayinde O (2006). Determinants of food security among the rural farming households in Kwara State, Nigeria. Afr. J. General Agric., 2(1): 7-8.
- Oni O, Oladele O and Oyewole I (2005). Analysis of factors influencing loan default among poultry Farmers in Ogun state Nigeria. J. Central European Agric., 6(4):619-624.