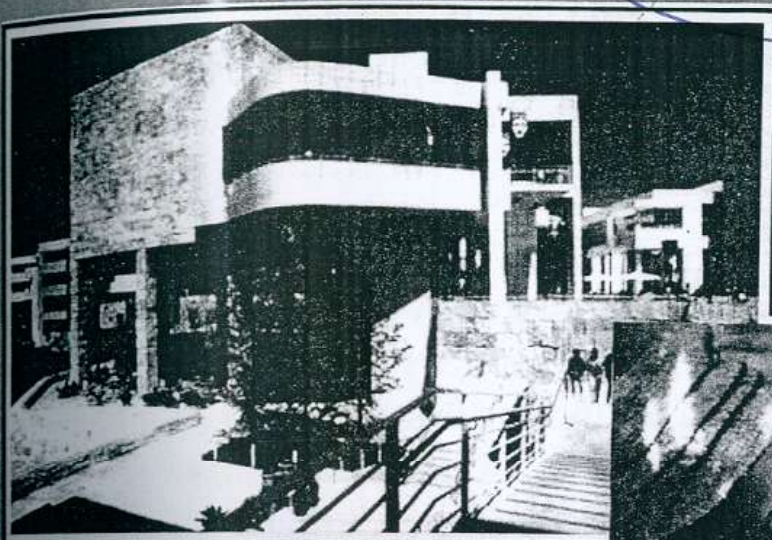


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## CREDIT ACCESSIBILITY AND FOOD SECURITY OF FARMING HOUSEHOLDS IN AYETORO, YEWA NORTH LOCAL GOVERNMENT AREA, SOUTH-WEST NIGERIA.

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### Abstract

*This study examined the socio-economics characteristics of farming families (particularly access to credit) and households' perception of food security. To achieve this, a cross sectional survey of 90 randomly selected farming families was conducted. Descriptive and econometric analyses (binary logistic regression model) were carried out. Results showed that farming households' education, farming experience of the farmers, household size, farming household perception of the food security condition were significantly related to access to credit or credit usage. In addition, we deduced from the responses that food security is attached to quantitative compromises in food selection and consumption. Policy measures aimed at increasing the farming households' access will go a long way in making the farming families much more food secured in the study area.*

**Keywords:** *credit accessibility, food security, farming households, binary logistic model and Nigeria*

### Introduction

Food security exists when all people at all times have access to safe nutritious food to maintain a healthy and active life (FAO, 1996). The main goal of food security is for individuals to be able to obtain adequate food needed at all times, and to be able to utilise the food to meet the body's needs (Obamiro, et al. 2003). According to the World Bank (2001) food security is multifaceted and the identified three pillars underpinning food security are food availability, food accessibility, and food utilization. Food availability for the farm household means ensuring sufficient food is available for them through own production. Food access means reducing poverty. Simply making food available is not enough; one must also be able to purchase it, especially the low-income households (Sen 1981). Farm families with limited access to productive resources such as land, inputs and capital, required for attaining physical efficiency in food production could be food

insecure i.e. resource poverty could lead to low productivity, food insufficiency, and lack of income to purchase the needed calories. Farming families in Nigeria have to cope with food supply shortages, price fluctuation and pressure to get 'more' out rural families continue to face poor economic conditions which impact on their living standards. Farming families of thinned out resources especially land. Some of the reasons for this situation include poverty, near absence or inadequate infrastructure, population explosion and unstable macro-economic environment (Akinsanmi and Doppler, 2005).

The returns to land in terms of output have been on the decrease especially where increased population and non agricultural uses compete for land. This further creates gaps in resource availability among the poor. The impact of this is far reaching in that the food situation gets worse; farms are being abandoned to the elderly or for off-farm jobs. Yet the income



from off-farm activities is not enough to meet families' needs.

Thus the situation requires that the current socio-economic conditions be known, and be related to the food security status of the farming households. The aim of this paper is to examine the socio-economics characteristics of farming families (particularly access to credit) and households' perception of food security and make policy recommendations that will direct the development positively.

## **Methodology**

### *Study area*

Ogun state is a fast developing state created in February 1976. It is bounded in the west by the republic of Benin, in the east by Ondo state, in the north by Oyo state and in the south by Lagos state and the Atlantic Ocean. Ogun state consists mainly of the Yoruba ethnic group, peopled predominantly by the Egba's, Egbado's, Awori's, Egun's, Ijebu's and Ijebu remo's. Yewa north local government, formerly Egbado north local government has its headquarters in Ayetoro. It came into existence via local government edict No.9 of 1976. Among the twenty local governments in Ogun state, it has the largest expanse of land with a size of 200,213.5 hectares and population of about 10,848m, according to the national population commission figure of 1991 census. Imeko/Afon local government in the north and Ewekoro local governments bound it respectively in the east. The inhabitants are mainly Yoruba, speaking various dialects. The major occupation is farming consequent upon large expanse of fertile land with a large deposit of mineral resources for industrial potentials. The local government is essentially semi-savannah vegetation area endowed with conducive climatic conditions for agricultural pursuits throughout the year. Agriculture remains the largest employer of labour in the area, as majority of the people are peasant farmers with a few engaged in mechanized farming.

## **Data collection and sampling procedure**

The data used for this study were collected from a field survey of Ayetoro, Yewa North local government area, Ogun State. Information on household perception of food security, primary occupation, incomes and their sources, and other socio-economic variables were collected through the use of well-structured questionnaires. The data were collected in 2006. Ninety questionnaires were administered in total out of which 4 were rejected for inconsistency and inadequate information.

## **Econometric Analysis**

In addition to descriptive, econometric analysis was carried out to examine the relationship between access to credit and some socioeconomic factors and household's perception of food security. In this study, a model, which reflects the empirically observed status of access to credit, was used. Such observations reflect a dichotomous variable, represented by 1 for those that have access to credit and 0, otherwise.

Although ordinary least squares estimates can be computed for binary model, the error terms are likely to be heteroscedastic, leading to inefficient parameter estimates; thus classical hypothesis tests, such as t-ratios, are inappropriate (Pindyck and Rubinfeld, 1981). An alternative proposal, and the method employed in this study, is the use of a probability model. However, if a linear model is used, predicted values may fall outside the 0-1 interval, thereby violating the basic tenets of probability. The use of probit and logit models, which give maximum likelihood estimators, overcomes most of the problems associated with linear probability models and provide parameter estimators which are asymptotically consistent, efficient and Gaussian so that the analogue of the regression t-test can be applied (Pindyck and Rubinfeld, 1981)



Model specification

$$Y_i = g(I_i) \text{-----1}$$

$$I_i = b_0 + \sum_{j=1}^n b_j X_{ji} \text{-----2}$$

where,  $Y_i$  is the observed response for the  $i$ th observation (i.e. the binary variable,  $Y_i = 1$  for a credit user and  $Y_i = 0$  for non-user).  $I_i$  is an underlying and unobserved stimulus index for the  $i$ th observation (conceptually, there is a critical threshold ( $I_i^*$ ) for each household, if  $I_i < I_i^*$  the farmer is observed to be a non-user, if  $I_i \geq I_i^*$  the farmer is observed to be a user);  $g$  is the functional relationship

between the field observation ( $Y_i$ ) and the stimulus index ( $I_i$ ) which determines the probability of using credit.

The Logit model assumes the underlying stimulus index ( $I_i$ ) is a random variable, which predicts the probability of using credit. Therefore, for the  $i$ th observation (an individual farmer):

$$I_i = \ln \frac{P}{1-P} = b_0 + \sum_{j=1}^n b_j X_{ji} \text{-----3}$$

**Table 1: Description of explanatory variables included in the binary logistic model**

Explanatory variable ( $X_i$ )	Description of the variable	Expected sign
Age	Age of farmer in years	+
Income	Income of a farmer per month (₦)	+
hhsz	Household size of a farmer	+
expe	Farming experience in years	+
educ	Level of farmer's education in years	+
FSP	Food security perception	-
sex	1 = male , 0 = female	+/-

**Results and Discussion**

Summary statistic of some socio-economic characteristics of the farming household.

The summary statistics of some important socio-economic variables of the farming household in Ayetoro, Ogun State is presented in Table 2. The minimum and maximum ages of rice

farmers in the study area are 22 years and 71 years respectively with the mean age of 38 years. The table shows, also that the respondents on the average had 12 years of formal education. Household size per farming family is 5 persons. The mean monthly income is ₦17383.72.

**Table 2.**

**Summary statistic of some socioeconomic characteristics of the farming household**

Variables	N	Minimum	Maximum	Mean	Std. Deviation	CV
Age	86	22.00	71.00	38.0930	11.7900	0.31
Sex	86	0.00	1.00	0.5581	0.4995	0.89
Education	86	0.00	24.00	12.1860	6.2091	0.51
Farming experience	86	0.00	47.00	11.6047	11.4894	0.99
Farm income	86	6000.00	60000.00	17383.7209	9644.1614	0.55
Household size	86	1.00	10.00	4.6977	2.2285	0.47
Access to credit	86	0.00	1.00	0.2326	0.1249	0.54
Food security status	86	0.00	1.00	0.7674	0.4249	0.56

CV = coefficient of variation



**Results of the econometric analysis – binary logistic regression.**

The results of the Logistic analysis (Table 3) on the factors affecting the probability of credit availability shows that the model fits. The partial derivative of the Logistic model best fit the model and gives a direct estimate of the probabilities of the factors considered. The chi-square value of 16.29 obtained was significant at five percent level ( $p < 0.05$ ). Four factors were found to be significant. In this study, farming households' education is positively related to credit usage and the coefficient is significant at 10 percent level. The educational level is high in the area which opens opportunities for taking advantage of credit acquisition. Farming experience of the farmers is negatively related to credit usage. The coefficient is significant at 10 per cent. Household size is positively related to access to credit and it is significant at 5 per cent level. This is expected as the farming households have the tendency to source for credit to meet household

demand. Farming household perception of the food security condition is negatively and significantly related to access to credit or credit usage. This implies that households that source for credit are not food secured. One possible explanation for this is that households that have the conviction that they are food secured will not source externally for credit. By deduction, those who source for credit are convinced that credit availability will make them more food secured. Results show that age of the farmers, sex, and farm income were not significant for the study area. In accordance with a priori expectation, sex is negatively signed (1 = male; 0 = female) but its significant at one percent level. It has been argued that women farmers are generally discriminated against in terms of access to information, credit, education and extension as observed by Dey (1981). Food security perception index (FSPI) which was obtained from household's understanding of food security was not significantly related to access to credit.

**Table 3: Description of explanatory variables included in the binary Logistic model**

Regression component	No credit (0)	Credit (1)	Total
Dependent variable $Y_i$	66	20	86
Explanatory variable ( $X_j$ )	Coefficient	t-value	
constant	-5.824	-3.054***	
Age	0.037	0.109	
Income	0.015	0.031	
Household size	0.601	2.201**	
Farming experience	-0.094	-1.958**	
Level of education	0.108	1.862*	
Food security	-1.215	-1.653*	
FSPI	0.634	0.530	
Sex	-0.152	-0.245	
Log likelihood function	74.994		
Chi=quare	18.29		
Significant level	0.019		

Source: computer print out of binary logistic model

Note: \*\*\* Significant at 1%, \*\* significant at 5%, significant at 10%



Perception of Food Security  
 Table 4 shows that about 33 per cent of the farming household understood food security to mean the ability to ensure more than enough food in the house while about 21 per cent understood food

security to mean the ability to eat seemingly good food thrice a day. It can be deduced from the responses that food security is attached to quantitative compromises in food selection and consumption.

**Table 4. Perception of food security by farming household in Ayetoro**

Perception of Food Security	Frequency	Percent	Cumulative Percent
Ability to eat seemingly good food thrice a day	18	20.9	20.9
Ability to ensure adequate dietary intake	22	25.6	46.5
Ability to ensure more than enough food in the house	28	32.6	79.1
Ability to eat any kind of food thrice a day	18	20.9	100.0
Total	86	100.0	

**Conclusion and recommendation**

The paper analyzed the empirical relationship between access to credit and some selected socioeconomic variables including households' perception of food security using a binary logistic regression model based on data of farming households in Ayetoro, Ogun state, southwest Nigeria. Based on the findings of the study, it can be concluded that farming households' education, farming experience of the farmers, household size, farming household perception of the food security condition were significantly related to access to credit or credit usage. In addition, it can be deduced from the responses that food security is attached to quantitative compromises in food selection and consumption. Policy measures aimed at increasing the farming households' access to will go a long way in making more food secured in the study area.

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