
Effects of Financial Literacy on Food Security among Households in Bwari Area Council, Abuja, Nigeria.

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ABSTRACT

Financial literacy was considered an important factor that affects food security status of households in Bwari Area Council, Abuja, Nigeria. Primary data was used for the study through the help of a well-structured questionnaire with the use of three-stage random sampling technique was utilized and a total of one hundred and twenty (120) respondents for the study. The data was analyzed with the aid of Food Security Index (FSI) and logit regression model. Result revealed that majority of the households were food insecure (55.83%) while only 44.17% were food secure. The coefficient of the financial literacy of the household heads (-0.0180349) was negatively signed and does not significantly influence the food security status of households in the study area. This implies that a household head being financially literate does not necessarily guaranty the household food security status. It was concluded that possibility of households diverting their funds to other projects of priority, acquire luxury and other material items. It was recommended that policy measures disseminated through extension agents to guide household heads on judicious use of finance and income accrue be directed towards improved welfare of the household while savings be encouraged as well.

Keywords: Financial literacy, food security, Abuja, Nigeria

INTRODUCTION

Food security entails national security, and every household head is expected to feed his household so also any nation should be able to feed its populace. Enilolobo *et al.* (2022) reported that Nigeria's food production is increasing at less than 2.0 percent while population growth rate is estimated to be 2.5 per annum. Food insecurity remains a fundamental challenge in Nigeria. Despite the Food and Agriculture Organization (FAO, 2020) enlisting Nigeria among countries faced with serious food insecurity problems, the vision of the country to have physical and economic access to food on a continuous basis remains a mirage. Ensuring food security is a very serious problem in farming households due to low productivity in staple crop production, seasonal change in food supply and price. The issue of food insecurity in Nigeria is of major concern.

In most parts of the world, concerns regarding financial literacy are vital for ensuring food security among households. Financial literacy is conceptualized as having two dimensions: understanding (personal finance knowledge) and use (personal finance application). Personal finance knowledge is usually used to refer to financial management of an individual or household and it comprises of how an individual or household manages money through expenditure, investments and savings considering various life events and risks. Research carried out by; Monirul *et al.* (2018) did not attempt to carry out systematic research that would allow a better understanding on the effect of financial literacy on food security among households and the coping strategies adopted by the households in the event of adverse food insecurity conditions. Consequently, none or little work has been done in Bwari Area Council, Abuja, FCT on effect of financial literacy on food security among households and the coping strategies adopted during cases of food insecurity.

Mrunal (2022) defined financial literacy as a combination of financial awareness, knowledge, skills, attitude, and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing. Financial literacy also involves the proficient use of financial principles and concepts such as financial planning, compound interest, managing debt, profitable saving techniques and the time value of money. The lack of financial literacy may lead to making poor financial decisions that can have negative consequences on the financial well-being of a household or individual.

The importance of financial literacy can never be neglected as it does not only contribute to the well-being of a household, but also assist them to become economically empowered and prudent in their financial management. Regardless of household income, those who fail to plan for smooth spending between pay periods and lack access to credit may struggle to be food secure throughout the month (Fowowe, 2020).

The major objective of this study is to examine the effects of financial literacy on food security among households in Bwari Area Council, Abuja, FCT. However, the basic objectives are to:

- i. determine the food security status of the respondents.
- ii. evaluate the effects of financial literacy on food security of the respondents in the study area.

METHODOLOGY Study Area

This study was carried out in Bwari Area Council, Abuja, largely populated by the indigenous Gbagyi people and other ethnic settlers. The population of the communities that comprise the study area is heterogeneous in nature.

Population and sampling procedures

The population for this study comprised of all farming households in Bwari Area council of FCT, Abuja. A three-stage random sampling technique was used to select the respondents for this study. In stage one; four (4) wards in the council were randomly selected. For stage two, two (2) farming communities were randomly selected from each of the wards giving a total of eight (8) farming communities and in the third stage, fifteen (15) farming households were randomly selected from each farming communities making a total of 120 respondents.

Method of Data Collection

Primary sources of data were used for this study through the administration of structured questionnaires and interview schedule to respondents. Data was analyzed using descriptive and inferential statistics. Food security status of the farming households was achieved using Food Security Index (FSI).

$$FSI (Z_i) = \begin{cases} \frac{Y_i}{R} & \text{if } Y_i \geq R \\ 0 & \text{if } Y_i < R \end{cases} \quad (1)$$

Where, Z_i = food security index of the households, Y_i = daily per capital calorie intake of the households, R = recommended per capital daily calorie intake (2260 kilocalorie), $Z_i = 1$ for Y_i greater than or equal to R and $Z_i = 0$ for Y_i less than R

Note: The household is food secure when $Y_i > Z$ for this model otherwise food insecure

$$Gap (p_a) = \frac{1}{N} \sum_{i=1}^q \left(\frac{Z - Y_i}{Z} \right)^\alpha \quad (2)$$

Where q = number of food secure households, Z = minimum requirements per day per adult equivalent (2260kcal/day/AE), Y_i = Calorie intake of each food secure household, α = weight attached to food security, N = Total sample size.

In addition, the food security gap (shortfall/surplus) through the headcount ratio of food security will be estimated for the sampled households based on the food security line. The shortfall index (P) will measure the extent to which households are food insecure while the headcount ratio (H) will measure the percentage of the population of households that are food secure.

$$\begin{aligned} \text{Shortfall index (P)} &= \frac{Gi}{N} \\ \text{Head count Ratio (H)} &= \frac{M}{N} \end{aligned}$$

Where M= the number of food insecure households, Gi= per capital calorie intake deficiency for the households, N = Number of households in the sample The logit model is specified as:

$$\text{Logit}(E[Y_i|X_{1,i}, \dots, X_{m,i}]) = \log\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 X_{1,i} + \dots + \beta_m X_{m,i}$$

Where the dependent variable Yi= Food security status (food secure=1, and 0 if food insecure)

X₁=Age of the respondent (years), X₂=Education (years of schooling), X₃=Gender of the farmer (1 if male, 2 if female), X₄= Household size (number of persons in a household), X₅= Farming experience (years), X₆= Primary occupation (1 if farming, 0 if otherwise), X₇= Annual income (Naira), X₈= Farm size (square meter), X₉= Credit access (1= credit access, and 0= otherwise), X₁₀= Financial literacy (count data).

RESULTS AND DISCUSSION

Household Food Security Indices

Table 1 presents a summary of the food security indices using a minimum recommended threshold per capital daily calorie intake (2260 kilocalorie) per household in 24 hours.

Table 1: Indices of farming households food security

Indices	Foodsecure	Food insecure	All
Percentage household	53(44.17%)	67(55.83%)	100
Daily per capita Calorie consumed	3,007.19	941	1,853.91
Food security index (z)	1.33	0.42	0.82
Head count ratio (H)	0.44	0.56	
Shortfall index (P ₁)		0.58	
Severity (P ₂)		0.39	
Surplus index	0.33		

Source: Researchers' Computation, 2021

Results in Table 1 indicated headcount ratio was 0.44 for food secure households while it was 0.56 for food insecure households. This implies that for every 10 persons in the study area, only 4 persons were food secure while 6 were food insecure. The headcount ratio suggests that only 44% of the individuals in the study area were food secure while 56% were food insecure subsisting on less than the minimum recommended calorie intake. The surplus/shortfall index which is a measure of the depth of food insecurity indicates that the food secure households exceeded the calorie requirement by 33% while food insecure households fell short of the recommended calorie intake by 58%. This suggests that the food insecure households were relatively far from food security line. The severity of food insecurity among food insecure households was 0.39. The average calorie available (adult equivalent per day) for food secure households was 3007.19kcal while average calorie available for food insecure households was 941kcal. The total average calorie intake among households in the study area was 1,853.91kcal adult equivalent per day. This result implies that food insecurity is a major challenge in the study area and there is need for measures to be put in place to reduce incidence of food insecurity in the study area.

Effects of financial literacy on food security

Result of the logistic regression used to examine the effects of financial literacy on food security among farming households in the study area was presented in Table 2.

Table 2: Effect of financial literacy on food security

Food security	Coefficient	Standard error	P> /Z/
Age	-0.0473439	0.037657	0.209
Sex	-1.815556	0.7300031	0.013**
Education	0.4941511	0.1258965	0.000***
Household size	-0.3361798	0.1785618	0.060*
Farming experience	0.1500988	0.0644768	0.020**
Extension contacts	2.25329	1.48037	0.123
Financial literacy	-0.180349	0.0999731	0.857
Constant	-0.8029372	2.191452	0.714
Number of observations	120		
LR> chi2(7)	99.69		
Prob> chi2	0.0000		
Pseudo R2	0.6052		
Log likelihood	-32.511849		

Source: Researchers' Computation, 2021

Total number of observations was 120 respondents. Four variables were found to be significant factors influencing the food security status of households in the study area. They were the sex of household head (-1.815556), household size (-0.3361798), educational level (0.4941511) and farming experience (0.1500988). The pseudo $R^2 = 0.6052$ (60.52%) express the model's goodness of fit. LR> chi2 (99.69) which was however significant at 1% while the log-likelihood estimate was -32.511849.

The coefficient of the sex of household head was negatively (-1.815556) and statistically significant at 5%. This suggests that the probability of being food insecure increases with households being headed by female. This is because men have more access to productive assets than women and consequently have higher returns than the women. This is in line with the findings of Gyimah-Brempong (2015). This suggests that as the contributions of female household heads to farming activities increases, the probability of food insecurity incidence might reduce in the study area. The educational level of the household heads was significant at 1% and positively related to households' food security. This suggests that households with well-educated household heads are likely to be more food secure than households with uneducated household heads. This could be because of engaging in family planning by the educated household heads.

The higher the level of education, the lower the probability that households headed by male or female will be exposed to food insecurity. This conforms to other studies (Adamu *et al.* 2015; Ogunniyi *et al.* 2016; Olagunju *et al.* (2019); Omotayo *et al.* 2017). These studies suggested that education attainment decreases food insecurity headcount. Education is expected to lead to increased earning potential and improve occupational and geographical mobility of labour.

The coefficient of the household size was negatively significant at 5% in relation to the food security status of the farming households. This conforms to a *priori* expectation as larger household size put great pressure on the household heads in terms of providing food for their households. This result implies that households with smaller size were more food secure than their counterparts, while those with larger household size were food insecure. This conforms to the findings of (Ogunniyi *et al.*, 2018) that households with few members are more food secure and those with larger members are food insecure. The coefficient of the farming experience of the household heads was significant at 5% and positively related to household food security. This implies that food security increases with increase in farming experience of household heads.

However, the coefficient of the financial literacy of the household heads (0.0180349) was insignificant and negatively influence the food security of households in the study area. This implies that a household head being financially literate does not necessarily mean that the household would be food secure. This could be as a result of households diverting their finances to complete an ongoing project or to acquire assets like a land, house, and car. It could also be because of low income, poverty or unemployment status of the household.

Financial Literacy Level of the Respondents and Sources of Financial Information

Results in table 3 revealed that the mean literacy level of respondents was 7.54, with standard deviation of 4.00 however, the minimum and maximum values were 2 and 14 respectively. Majority of the respondents (38.33%) were somewhat sure of their financial abilities while 5.53%, 19.17%, 36.67% were not sure at all, not too sure, and very sure of their financial abilities respectively.

Results on sources of financial information to household heads in the study area revealed that averagely experience of the household head (4.75) was the major source of information. Other major sources of information were parents (3.45), school (3.57), books (3.32), media (2.48), friends (2.21) and internet (2.29). However, financial planner (1.33) as a source of financial information was not well pronounced. This implies that most of the respondents in the study area do not consult with a professional financial planner about their finances.

Table 3: Distribution of Financial Literacy Level of the Respondents

Financial ability	Frequency	Percent
Not sure at all	7	5.83
Not too sure	23	19.17
Somewhat sure	46	38.33
Very sure	44	36.67
Interest to increase financial knowledge		
Very uninterested	1	0.83
Somewhat uninterested	8	6.67
Not sure	20	16.67
Somewhat interested	90	75.00
Very interested	1	0.83
Summary Distribution of respondents Financial literacy Level		
Mean	7.54	
Standard deviation	4.00	
Min	2	
Max	14	

Source: Researchers' computation, 2021

Table 4: Distribution of Financial Information Sources to Respondents

Variables	Mean	Standard Deviation
Parents	3.45	1.01
Friends	2.21	-0.90
School	3.57	1.00
Books	3.32	1.03
Media	2.48	-0.68
Experiences	4.75	2.87
Internet	2.29	-0.78
Financial planner	1.33	-0.65

Source: Researchers' computation, 2021

CONCLUSION AND RECOMMENDATIONS

The study concluded that majority of the households in Bwari Area Council of FCT were food insecure during the period of the survey. Level of education and years of farming experience were factors that positively influenced food security status. However, coefficient of financial literacy was negative and do not significantly influence food security status of the respondents in the study area. It was based on these the study recommended that enlightenment on financial literacy be improved upon and encouraged especially, more experienced household heads should educate the less experienced households in the study area. This will enable food insecure households make appropriate choices in farm production activities and matters of food consumption. Policy measures that will boost the income of household heads in the study area should be put in place by relevant stakeholders.

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