Determinants of Food Security in Ogbomoso Agricultural Zone

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Abstract- This study analyzed determinants of food security in Ogbomoso agricultural zone. Multistage random sampling technique was used in selecting the respondent for the study. A total of 148 households respondents were interviewed. Data were subjected to descriptive statistics and logit model. About 70% of the respondents were literates. The coefficient of age of household head was negative and significant at 1 per cent. However, the coefficient of income was positive at 1 per cent. Therefore, educated and young individuals should be encouraged to engage in agriculture.

Keywords- Economic power, food security, literacy.

1. INTRODUCTION

Food is a basic necessity of life. Its importance at the household level is obvious enough since it is a basic means of sustenance (Olayemi, 1998). Adequate intake of quality food is a key requirement for healthy and productive life (Helen, 2002). However, it has been established that the quantity and quality of food consumed by households affects their health and economic well being (Adesimi and Ladipo, 1979). These in turn have significant repercussions on the general level of economic activities and productivity.

A country and its people are food secure when production, markets and social systems work in such a way that food consumption needs are always met (Maxwell, 1992). Food insecurity, in turn, is the lack of access to enough food and may be chronic or transitory. Chronic food insecurity is depicted by continuously inadequate diet caused by inability to acquire sufficient food in terms of quantity and quality. It affects households that persistently lack the ability either to buy enough food or to produce their own. Transitory food insecurity is a temporary decline in a household's access to enough food. It results from instability in food prices, food production, or household incomes and in its form, produces famine.

The per-capita growth of production of major foods in Nigeria has not been sufficient to satisfy the demands of an increasing population (Karmawa, 1999). The result is a big gap between national supply and national demand for food. Progress in the agricultural sector has also remained unsatisfactory (Abdulahi, 1999). Common staples in most Nigeria homes are insufficient and do not provide a balanced diet, as malnutrition is prevalent in most homes.

The objectives of this are to;

- describe the socio-economic characteristic of the farming households in the study area,
- estimate the determinants of food security level of farming household in the study area.

Hypothesis:

- There is no significant relationship between the food security of the household and its determinants.

1.2   Household food security and its measurement

The generation of household food security is dependent on the physical availability of food at the market or community level, the ability of the household to access the available food, the ability of individuals particularly those especially susceptible to food deficits such as women, infants, and children to eat the food, and finally the body's ability to process the nutrients consumed. The physical availability of food is a function of productive agriculture, effective trade infrastructure, and efficient food aid logistic, if necessary. Agriculture, trade, and aid policies are important in influencing the availability of staple and non-staple foods. The promotion of staple crops that are high in micronutrient status can increase calorie and micronutrient availability simultaneously. Economic access is a function of prices (food and others) and incomes (not onl the level on income, but who earns it) (Obayelu, 2010).

Accounting for the complexity in measuring such a construct, analysts have turned to mesure distinct facets to food security rather than the whole. A number of indicators developed that are limited to measuring distinct aspects of food security such as quantity or quality of consumed food or the psychological, social and cultural aspects of food insecurity. In Nigeria, household food insecurity is one of the topmost developmental problems; the level has continued to rise steadily since the 1980s. It rose from about 18% in 1986 to 41% in 2004 (Sanusi *et al*; 2006).

2. METHODOLOGY

The study was carried out in Ogbomoso Zone of ADP in Oyo State. Ogbomoso zone was made of 5 Local Government Areas, Viz Orire, Ogo-Oluwa, Surulere, Ogbomoso North and Ogbomoso South. Ogbomoso was located approximately on Longitude $4^0 15'$ east of Greenwich and on latitude $8^0 7'$ north of the equator. The town was situated 104 kilometers north of Ibadan Oyo State capital; 51 kilometers South-West of Ilorin Kwara State capital' 53 kilometers North-West of Oyo town and 98 Kilometers North-East Oshogbo capital of Osun State.

Population of the study comprises of the selected samples of the total population of the entire farm households in Ogbomosho agricultural zone. Going by the village listing survey in Oyo State (OYSADEP, 2001) a multi stage random sampling technique was used in selecting the respondent for the study. In the first stage, 60% of the total number of villages in Ogbomosho North (3 villages) and Ogbomoso South Local Government Areas (4 villages) were randomly selected while 10% of the villages in Ogo-Oluwa LGA (16 villages) were selected making a total of 23 villages. The third stage, 10% of the number of household in Ogbomosho North and South Local Government Areas were randomly sampled as well as 0.5% of the number of household in Ogo-Oluwa Local Government Area, to give a total of 148 households as respondents for the study. Method of data collection was mainly with the use of well structured questionnaire.

Descriptive statistics was used to analyze socio-economic characteristics of household in the study area. This involved frequency table and percentages.

Food security index:

Household were classified into food secure and food insecure status using food security index.

It is given by;

$$F_i = \frac{per\ capita\ food\ expenditure\ of\ the\ ith}{2/3\ mean\ per\ capita\ food\ expenditure\ of\ all\ househols} \qquad (1)$$

Where,

F_i = Food security index

$F_i \geq 1$ = Food secure ith household

$F_i \leq 1$ = Food insecure ith household

Logit Model:

$L = \log \dfrac{P}{l - P_1} = \log P - \log (1-P)$

$= - \log [l + e^{-x\beta}] - [\log (e^{-x\beta}) - \log (l + e^{-xb})] = x^1\beta \ldots \ldots (2)$

L = logit or the log of the odd ratios, and analysis based upon the logistic distribution is often called logit analysis

$\beta^1 x = \beta_0 + \sum \beta_1 x_1 + u_1 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3)$

Where:

- e = the natural logarithm
- β_0 = constant term
- β_1 = vector of coefficients
- X_1 = vector of the explanatory variables
- V_1 = error term

3. DISCUSSION

As shown in Table 1, 31.8 percent of the farmer had no formal education, 36.5 percent had primary education, 21.6 percent had secondary education and 10.2 percent had tertiary education. Educated farmers had been found to be more receptive to new technologies and to possess better management skills in agricultural production. Since there were greater percentage of literate among the people in the communities, this would affect their level of food utilization positively. Also their level of literacy suggests that the household farmers level of understanding in the area of being prudent and eating balanced diet in guiding against food insecurity in the study area is likely to increase.

Table 1 showed the household size distribution of the respondents. About 4.7 percent of the farmers had household size between 1 and 3 members, 42.6 percent had household size between 4 and 6 members, 39.2 percent had household size between 7 and 9 members while 13.5 percent had 9 and above. The family size seems high and this is very much likely to be an incentive for engagement in multiple income generating activities in order to meet the obligation of the family. Also children would be helpful in terms of involvement in farming activities. The reason for maintaining large family size it the various households sampled may be to ensure adequate supply of family labour for their farm and non-farm activities.

Table 1: Socio –economic characteristics of respondents and their household

Socio Economic Characteristics	Frequency	Percentage
Level of education		
No formal education	47	31.8
Primary	54	36.5
SSCE	32	21.6
Tertiary	15	10.2
Household size		
1-3	7	4.7
4-6	63	42.6
7-9	58	39.2

> 9	20	13.5

Field survey, 2010.

The table 2 showed the result of logit analysis for the study area. The chi-square measure the significance of the model and the value showed that the model fit the data reasonably well. The Mc Fadden Pseudo R^2 measure the goodness of fit of the data and a value of 0.495 showed that the data was well fitted. This indicated that the model had a good fit to the data. Out of the seven independent-variables used in the model, three variables were found to be significant in determining the food security status of the farm households.

The coefficients of the following were not significant in explaining the food security condition of farmers; experience, age, education, sex and extension visit. The significant variables were age, number of dependants and income.

Age: Age was significant at 1 percent and a unit increase in the age of household head will reduce the probability of household to be food secure by 0.0192. This could be attributed to the fact that the productivity of old household head would decline as they got old thereby impacting on their food security status.

Number of dependant: This was also significantly related to the food security of farmers at 10 percent. A unit increased in dependant reduced the probability of a farmer been food secure by 0.0024. This implied that as dependant increased the marginal effect of food security of farmers' increased in the study area.

Income: Income was significantly related to the food security of farmers at 1 percent. One unit increased in income had a positive influence on food security as the income increased they will have money to cater for their families.

Others: See, farming experience, extension visit and education also affected food security but the effect were not significant.

Table 2: Determinants of food security

Variable	Coefficient	Marginal probability
Experience	0.0171 (0.093)	0.0021 (0.342)
Age	-0.529*** (-2.49)	-0.0192** (-2.42)
Number of dependants	-0.0329* (-1.745)	-0.0024** (-1.79)
Education	0.0911 (0.053)	0.0928 (0.049)
Income	0.314*** (2.72)	0.0142*** (2.79)
Sex	0.9900 (0.0012)	0.9812 (0.001)
Extension visit	0.1724 (0.053)	0.1220 (0.046)
X^2	45.23	
Pseudo R^2	0.495	

*** 1% level of significance, ** 5% level of significance, * 10% level of significance

Figures in parentheses are t-values

Source: Field survey, 2010.

Hypothesis testing:

In table 2, age, number of dependants and income were significant at 1, 5 and 1 percentage respectively. Therefore, the hypothesis that there is no significant relationship between the food security of the household and its determinants was thereby rejected.

4. CONCLUSIONS AND RECOMMENDATIONS

There were greater percentage of literate among the respondents. Thus, adult education should be done free of charge to illiterate and elderly farmers. The productivity of old household head would decline as they got old thereby impacting negatively on their food security status. Therefore, educated and young individuals should be encouraged to engage in agriculture. The household had propensity of increasing their food security as their income increases. Policies aimed at increasing the economic power of farmers should thereby be practiced.

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