

Household Food Security among Rural Household in Afikpo North L.G.A. Of Ebonyi State.

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Abstract: The study investigated food security among rural household in Afikpo North Local Government Area (LGA) of Ebonyi State. Both purposive and multi-stage random sampling techniques were used to select a total of 120 respondents that make up the sample size for the study. Data were collected from the sampled respondents by using structured questionnaire and interview schedule; the data were analyzed using both descriptive and inferential statistics such as frequency tables, percentages, mean scores, multiple regression analysis and factor analysis. The null hypothesis of the study was tested using f-test statistics at $p=0.05$ the result of the study shows that the mean age of the respondents was 39.4 years and majority representing 61.67% were males while females constitute 38.33%. again, majority (65%) were married and 30% were single, with mean household size of 10 children also mean years of farming experience was 10 and all (100%) of the respondents had acquired one level of education or the other and majority (48.35%) had secondary education, this is followed by 27.5% that obtained primary education and tertiary education with 24.17%. Result of the analysis on criteria for assessing levels of food security among rural households indicates that majority of the respondents (79.17%). Observed that price of foods items was the major factor that determine household's food security in the study area. This was followed by level of income required to purchase adequate food for households and quantity of food available to households, accounting for 79.17% and 75.00% of the respondents respectively. Similarly, result of the mean score analysis revealed that household food security was perceived to be very low ($X=2.53$), low (2.63) and high ($X=2.77$) as evidenced by their high mean score above 2.5. While very high perception ($X=1.60$) was rejected because of its low mean below 2.5. Also, result of the multiple regression analysis shows that the coefficient of multiple determination (R^2) was 85.1%, implying that about 85.1% change on the dependent variable (food security of the rural households) was caused by the combined effects of the independent variables (socioeconomic variables) used in the regression model. Result of factor analysis identified financial, environmental/institutional and social constraints as the major factors influencing household's food security in the study area. It was therefore recommended that Government should provide soft loans to the rural households in order to increase their level of productions and thereby attain food security level.

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I. Introduction

Food is an important resource to human development and survival. As such food is expected to be available for human existence. Nigerian's population is growing rapidly. This has made food supply to be insufficient to feed the population. This indicates food insecurity. Idachaba (2004) stated that food insecurity exists when the majority of the people in a nation do not access to food that is adequate in quality and quantity consistence with descent existence at ails times.

Food is very important to the development of a nation. Food security occurs where the quality/quantity of food is sufficient and available to the citizens of a country. Food or its lack has strong effects on human destiny and subsequently on the nation. A nation is food secure when the majority of the population has access to food of adequate quality and quantity, consistent .at all time (Nwabah, 2005).

A Edo State Agriculture Development program (2002) by "Edo ADP (2002) highlighted the present situation. It reported that less than 50% of Nigerians are food secure, 65% are semi-food secure. Over 30% of Nigerians are facing the problem of food insecurity.

Food security is insecurity is terms used to describe whether or not householder has access to sufficient quality and quantity of food. Food security issues gained prominence in the 1970s and have since been given considerable attention. Food security is perceived at the global, national, household and individual levels. Food security at a global level does not guarantee food security at the household or even the individual level. Food security in a broad sense has to do with having at all times adequate level of food and food products to meet

increasing consumption demand to mitigate fluctuation in output and price (Drisa et al, 2008). According to FAO (1996) food security is a situation when all people at all time have physical and economic access to sufficient, safe and nutritious food for a healthy and active life. Ladeie and Ayoola (1997) sees food security as a function of food production level, that is, high level of food production is equals to food security. However, to Oriola (Ssxtf), food security entails producing food that will go round every citizen both in quality and quantity. To achieve this, agricultural production need to be enhanced with adequate knowledge of the environment, climatic condition, the market and its operation, and be aware of price and price mechanism, good transportation system storage, fashion modality to check glut and be well prepared in case of disasters. Food insecurity is the opposite of this, it is the lack of access to sufficient quality and quantity of save nutrition food for an active and healthy life, in ability of households or individuals to meet the required consumption level in the face of fluctuating production, price, and income (Oriole, 2009). Gillespia and Hadded (2001) stated that food insecurity boils down to inability of householders to have reliable access to food in sufficient quantity and quality to enjoy active and healthy life.

The socio-economic characteristics and resources of individual household, have been identify as basic factors influencing the food security status of households (Sanusi *et a*;/ 2006).

Food security has becomes an issue of global concern in the recent time. Nigeria, with her huge endowed natural and human resources is not spared. Nigeria food crisis is a product of colonial disorientation that has led to neglect of the peasant agriculture and food crops sub-sectors as well as over reliance on cash crops production and the oil sector (Attah, 2012). He further deduced that Nigeria still has the potentials to be food-secure if the following strategies are adopted and implemented; rural development, provision of easy access to basic form inputs, adequate budgetary allocations to agriculture particularly to the food crop sub-sector, political stability, reduction in rural poverty, and peasant farmer's education.

The problem of food insecurity has serious adverse effect on a nation. Food insecurity is the inability of the citizens to have regular access to enough food to meet up the daily nutritional requirements for a healthy and productive life (Uko-Aviomoh, 2005). She started the endemic poverty and very low per capita income levels are the roots causes of food insecurity in Nigeria. She remarked that raising the per capita income level and reducing poverty levels will reduce food insecurity in Nigeria.

Some factors account for the presence of food insecurity in Nigeria. There is the problem of low food production in Nigeria to meet the needs of the growing population. Robinson (1995) noted that with the rural to urban shift and few people to work on farm led to insufficient food production. This food shortage leads to higher prices.

Uko-Aviomah (2005) identified some reasons why food insecurity must be avoided. Those are based on the effects of food insecurity which are as follows:

Malnutrition,

- i. Deterioration in health of the citizens, occurrence of high blood pressure, and nutritional deficiency diseases.
- ii. Increase in social vice such as begging, ritual sacrifices,prostitution, armed robbery, child labour, juvenile delinquency,
- iii. hunger, unemployment etc. Production of citizens that lack self esteem and low integrity,
- iv. High infant mortality rate.
- v. Low life span
- vi. Increase in divorce rate.

In addition Nwabah (2005) explained that lack of food has strong effects on human destiny and also on the nation. Bald (1999) stated, that lack of food security will show down a nation's development and will also seriously disrupt from in put, provision of infrastructural facilities and employing new techniques.

Inspite of some effort being by government and individuals, food insecurity still persists. Therefore, certain factors could be responsible for this, persistent problem. Such factors need to be identified and appropriately addressed to terminate the dreaded problem of food insecurity. The following question will be addressed in order to proffered solutions; what are the socio-economic characteristics of the respondents; Does food insecurity have any effects in farming household?

Does the socio-economic of respondents have effects on food security? What are the constraints to food security in the study?

Objective of the Study

The broad objective of the study is to investigate household food security among rural household in Afikpo North L.G.A. of Ebonyi State. The specific objectives were to:

- i describe the socio-economic characteristics of rural in the study area.
- ii identify the perceived food security determinants among households.

- iii analyze the perception of farm households on their food security status.
- iv determine the effects of socio-economic variables on the food security of rural households..
- v identify the constraints militating against household ability and capacity to attain food security.

Hypothesis

The null hypothesis to be tested will be;

H₀: Socio-economic characteristic of the respondents have no significant influence on the level of household food security in the study area.

II. Methodology

Study Area

The research was carried out in Afikpo North Local Government Area. Afikpo North Local Government area is made up of eight clans namely; Ohasiu, Itim, Nkpoghoru, Ugwuegu, Ozizza/Ibiu, Uwana, Amasiri and Akpoha. Geographically, it is located between longitude 7°56'24" East of the Greenwich prime meridian, and latitude 5°53'24" North of the equator. The distance from Afikpo North town to Abakaliki, the capital is 59.3km (Afikpo today, 2002). Afikpo North has a total population of about 156,649 as at 2006 census of National population commission (NPC, 2006).

The area is influenced by two main wind systems. The south west trade winds and the north-east winds. The wind system gave rise to two different seasons, the rainy season and the dry season respectively. The rainy season begin in March and lasts till October while the dry season begins between November and February.

The staple food grown by the people include cassava, yam, cocoyam, and groundnut, vegetable like pepper, Okra, Melon, tomatoes pumpkins, waterleaf, while cash crop include cashew, orange, banna, Kolanut, plantain, mango, and oil palm. They are also involved in livestock production such as goat, cattle, sheep, poultry production, fishery etc.

Sampling Procedure

A multi-stage random sampling will be used to select the respondents in for the study. In the stage, four (4) communities of the local government will be randomly selected from 8 communities that made up the local government.

In the second stage, three (3) village will be selected randomly each from the four (4) communities sampled in stage one, making it a total of 12 villages.

Finally, 10 farm household will be randomly selected from each of the 12 villages. This gives a sample population size of 120 farmers as respondents to be used for the study.

Data Collection

Primary data will be used for the study. The primary data will be collected using a set of structured interview schedules and administered to the respondents in the study.

Analytical Techniques

Descriptive and inferential statistics will be employed to analyze the objectives. The descriptive statistics such as tables, percentages and frequency distribution will be used to analyze objective (i) & (ii) while objective (iii) will be analyze using likert scale. Multiple regression will be utilized for objective (iv) and factor analysis will be used for objective (v).

Model Specification

The multiple regression analysis model is stated as follows;

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7)$$

Implicit function

$$Y = a_0 + a_1 X_1 + a_2 X_2 + a_3 X_3 + a_4 X_4 + a_5 X_5 + a_6 X_6 + a_7 X_7 + et.$$
 Explicit function

Where

Y = level of Access to food (degree)

X₁ = Age (yrs)

X₂ = Land ownership

X₃ = Household Income

X₄ = Educational status (yrs)

X₅ = Farming experience

X₆ = Membership of cooperatives

X₇ = Primary occupation

X₈ = Farm size

X₉ = Credit availability

et = error term

a₀ = constant

a₁-a_a = multiple coefficients

III. Results And Discussion

4.1 Socio-Economic Characteristics of the Respondents

Result of the analysis presented in Table 1 shows that the mean age of the respondents was 39.40 years and majority of the respondents, representing 76.67% had age range of 31 -50 years, while the least number, indicating 5% fell within the age bracket of 51 years and above. This result implies that the sampled respondents were in their active productive age, which ensures food security among their households. Result of the analysis on gender indicates that most of the sampled respondent accounting for 61.67% was males, while 38.33% were females. This may be because of the traditional rights that bring about dominance of males over females on issues of ensuring food security among the household members. With regard to marital status of the respondents, result presented in Table 1 showed that greatest number, accounting for 56% were married and 30% were single, this implies that majority (65%) of the respondents were staying with their family members, which propel them to ensure food security among the households. Analysis of data on household size indicate that the mean household as presented in table 1 was 10 persons and most of the respondents, with 46.67% had between (6-10) persons while the least number (13.33%) had over 16 persons, this implies that the respondents had enough household size, which they cater for by providing adequate food for them. Result of the analysis on farming experience, indicate that the mean farming experience was 10 years and majority of the respondents, with 54.17% had between 6 – 10 years of farming experience. Thus, the respondents had adequate years of farming experience that enable them to ensure steady availability of food for their households. Also educational level of the respondents showed that all of the respondents had one form of educational level or the other and the majority (48.33%) had secondary education, this is followed by 27.5% that had primary education, while 24.17% has obtained tertiary educations, however the educational level of the respondents needs to be improved which would widen their knowledge and experience on various methods to adopt in order to ensure adequate steady availability of food for their households. Result of the analysis on primary occupation reveals that 38.33% of the respondents were into farming; this is followed by 29.17% that were engaged in civil service as well as 17.50% of the respondents that were traders, while the least number (15%) were involved in artworks. The findings of this result is in Random with the findings of *Amonoma et al (2007)* who found that socioeconomic status is one of the major determinants of ensuring food security among households in Nigeria.

4.2 perception of farm household on the factors determining food security

This section describes the various factors determining food security in the study. This was actualized using frequency tables and percentages. Result of the analysis presented in Table 2 showed that majority of the respondents (79.17%). Observed that price of foods items was the major factor that determine household's food security in the study area. This was followed by level of income required to purchase adequate food for households and quantity of food available to households, accounting for 79.17% and 75.00% of the respondents respectively. Other factors observed by the respondents were Level of access to adequate physical supply of food, Size of households and equitable distribution of food among the members of the households. Accounting for 58.33%, 51.67 and 41.67% of the respondents respectively. This result conforms to the findings of Barrett, (2002) who opined that level of food security among the household is determined by such criteria, which include food availability, access, utilization and stability of access.

4.3 Farm household's perception on their household food security status.

This section examines the level of perception on food security characteristics among the rural households in the study area. This was analyzed with the use mean score derived from point likert-scale. And result was presented in table 3.

Result of the mean score analysis presented in Table 3 revealed that household food security was perceived to be very low ($X=2.53$), low (2.63) and high ($X=2.77$) as evidenced by their high mean score above 2.5. While very high perception ($X=1.60$) was rejected because of its low mean below 2.5. This result is in line with the findings of *Drisa et al (2008)* who stated that food security level as perceived at the global, national, household and individual levels has remained at variance and the adequate quantity and quality of food to meet the increasing consumptions demand has remained low.

4.4 Effects of Socio-Economic Variable on the food security of rural Households.

Ordinary least square (OLS) of multiple regression analysis was used to analyze the effects of socioeconomic variables on the food security of the Rural Households. Result of the multiple regression analysis presented in table 4 showed that the coefficient of multiple determinations (R^2) was 85.1%, and adjusted R^2 was 71.2%, this implies that about 85.1% change on the dependent variable (level of access to food, security among rural households) was caused by the combined effects of the socioeconomic variables included in the model. The remaining 14.9% change on the food security of the rural households was caused by those variables that are relevant to it, but were not used in the regression model adopted, since; they are not the

subject of the study.

The closeness of R^2 (85.1%) to adjusted R^2 (71.2%) shows that the explanatory power of the regression model used was not exaggerated, and the positive change on food security of rural household was confirmed by the positive coefficients of the socioeconomic variable used. This was further confirmed by low value (1.290) of f -change and this was statistically reliable since, the value (.17782) of standard error of the estimates was low. Also, the low value (1.468) of Durbin Watson constant reveals that there was absence of auto correlation among the independent variables employed in the regressions model.

The coefficient of age (X_1) was positive and statistically significant at 1% level, indicating that ages of the rural households had positive effect on their food security in the area. And so, the apriori expectation was met. The coefficient of gender (X_2) bore positive sign and statistically significant at 1% level. This implies the gender of the rural households had positive effect on their food security, and so, the apriori expectation was met. Marital status (X_3) had positive coefficient and statistically significant at 10% level, revealing that marital status of the rural household had positive effect on their food security in the area.

Household size (X_4) bore positive sign and statistically significant at 1% level, this implies that the independent variable had positive effect on the food security of the rural household. Thus, the apriori expectation was met. Educational level (X_5) bore a positive sign and statistically significance at 1% level, this implies that the independent variable had positive change on the food security of the rural households. Primary occupation, (X_6) coefficient had positive sign and statistically significant at 1% level. This implies that primary occupation of the rural household had positive effect on their food security in the area. Farming experience (X_7) had positive coefficient and statistically significant at 1% level. This implies that the farming experience of the rural households had positive effect on their food security. Annual income (X_8) bore positive sign and statistically significant at 5% level. This implies the independent variable had positive effect on the food security of the rural households. And so, the apriori expectation was met.

4.5 Constraints militating Against Household Ability and Capacity to attain food Security.

Constraint militating against household ability and capacity to attain food security was examined using factor analysis and result of the analysis was presented in Table 5.

Because of the necessity to determine constraints militating against household's food security, factor analysis was used. Those variables that loaded high and above (0.4) according to Kaiser's rule of thumb, were used in naming each of the extracted factors, this rule has general application in all cases regarding the factor analysis. From the result obtained in Table 5, it was observed that the major factors that affect the household's ability and capacity to attain food security can be categorized into 3 components. The components are financial, environmental and institutional and social components.

Based on the factors loading, the following financial components were extracted; low income level (.840), inadequate working capital (.630), land unavailability (.584) inadequate supply of farm inputs (.559), this conforms with Thingan (2001), who found that due to persecuting nature of the rural households, the possibility of attaining food security is hindered by low income level. The result equally revealed that the environmental and institutional constraints to household ability and capacity to attain food security based on Kaiser's loading were environmental hazard (.915) that might have resulted to harvest losses (.576), low rate of technology adoption (.936) due to poor extension services (.906). This is in line with the findings of Oriole (2009) and Gilesia and Hadded (2001) who noted that risks and uncertainties surrounding agricultural productions as well as lack of research institutions have limited the possibility of attainment level of food security among the rural households.

Socially, the household ability and capacity to attain food security were constrained by low level of education (.824) and religious crisis (.670). This low level of literacy as justified from this result and earlier findings on their socioeconomic status indicated that this education has negatively affected the ability and capacity of the rural households to attain food security in the area.

4.6 Test of Hypothesis

The null hypothesis which states that the socioeconomic characteristics of the respondents have no significant influences on the level of household food security was tested using f -statistics at $p=0.05$ and the result shows that f -cal (91.38) > f -tab (2.45),

Hence, it was concluded that the socioeconomic characteristics of the respondents had significant influence on the level of household food security in the study

IV. Conclusion And Recommendations

Conclusion

Based on the findings of this study, it was concluded that the socioeconomic variables of the respondents had significant positive effect on their food security. The criteria such as quantity of food available to households and level of income required to purchase adequate food for households shows that levels of food security among rural households was inadequate, also, certain factors investigated such as low income level, environmental hazard, harvest loses, and low rate of technology adoption militated against household ability and capacity to attain food security.

Recommendations

The following recommendations were made based on the findings of the study

1. Government should provide soft loans to rural households to enable them boost their financial status and increase their level of income.
2. Government should send well trained and equipped personnel's on extension services to educate the people on the best methods to use and diversify their productions in order to ensure food security.
3. Free education programmes should be introduced in the area in order to improve the educational status of the respondents.
4. The research institutes and other concerned bodies including government should ensure adequate and steady supply of farm inputs to the rural households in order to increase their level of productions and attain food security.
5. Government and research institutes should be regularly relating the information on weather and climatic conditions to the rural households to enable them mitigate and adapt to effects of environmental changes emanating from weather and climate change.

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Table 1: Socioeconomic Characteristics of the Respondents

Variables	Frequency (120)	Percentages (%)	Mean (X)
Age (years)			
< 20	0		
21 – 30	22	18.33	
31 – 40	48	40.00	
41 – 50	44	36.67	
51 and above	6	5.00	39.40
Gender			
Male	74	61.67	
Female	46	38.33	
Marital status			
Single	36	30.00	
Married	78	65.00	
Widow	3	2.50	
Separated	2	1.67	
Widower	1	0.83	
Household size			
1 -5	28	23.33	
6 – 10	56	46.67	
11 – 15	20	16.67	
1 and above	16	13.33	10.00
Farming experience (years)			
1-5	12	10.00	
6 – 10	65	54.17	
11 – 15	28	23.33	
16 and above	18	15.00	
Educational qualification			
No formal education	0	0	
Primary education	33	27.50	
Secondary education	58	48.33	15.00
Tertiary education	29	24.17	
Primary Occupation			
Farming	46	38.33	
Civil Service	35	29.17	
Art works	18	15.00	
Trading	21	17.50	

Sources, field survey, 2015

Table 2: Distribution of the Respondents based on their perceived determinants of households security.

Household food security determinants	Frequency	Percentages (%)
Level of access to adequate physical supply of food	70	58.33
Quantity of food available to households	82	68.33
Level of income required to purchase adequate food for households	90	75.00
Equitable distribution of food among the members of the households	50	41.67
Size of households	62	51.67
Price of foods	95	79.17

Source: Field Survey, 2015

*Multiple Responses Recorded.

Table 3: Farm household’s perception on household food security status in the study area.

Household food security status	SA 4	A 3	DA 2	SD 1	Mean (X)	Decision
Very low	18	40	50	12	2.53	Accept
Low	24	38	48	10	2.63	Accept
High	40	32	28	20	2.77	Accept
Very high	0	18	36	66	1.60	Reject

Source: Field survey, 2015.

Table 4: Multiple Regression Analysis on Effects of socio economic variables on the food security of the Rural Households

Variable Symbols	Variable names	Regression efficient	Co- errors	Standard errors	T-values	Significance
X	Constant	1.594		.525	3.038	.003
X ₁	Age	.050		.090	.563	.006

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X ₂	Gender	.105	.098	1.069	.029
X ₃	Marital Status	.000	.095	-.004	.100
X ₄	Household size	.011	.115	.099	.009
X ₅	Farming Experience	.092	.096	.957	.034
X ₆	Educational qualification	.123	.104	1.183	.024
X ₇	Primary occupation	.155	.107	1.446	.015
X ₈	Annual income	.188	.093	2.030	.045

Source: Data analysis 2015

R² = 0.851 (85.1%)

Adjusted R² = 0.712 (71.2%)

F- Change 1.290

Duration Watson = 1.468

Standard error of the estimates = .17782

Table 5: Varimax Rotated Component Matrix on Constraints Militating against Household's food Security in the study area.

Variable symbols	Variable names	Factor1 financial constraints	Factor2 Environmental /institutional constraints	Factor3 social constraints
V ₁	Low income level	.840	-.121	.324
V ₂	Religious crisis	-.356	-.177	.670
V ₃	Environmental hazard	.076	.915	.034
V ₄	Harvest loses	.025	.576	-.039
V ₅	Low rate of technology adoption	.071	.939	.071
V ₆	Poor extension services	-.066	.906	.384
V ₇	Low level of education	.031	-.082	.824
V ₈	Land unavailability	.584	.002	-.696
V ₉	Inadequate working capital	.630	.043	.346
V ₁₀	Inadequate supply of farm inputs	.559	.076	.158

Source: Data analysis, 2015

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