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CONTENTS:

Empirical Analysis of Food Security and Social Capital Dimensions among Urban Farming Households in Akwa Ibom State, Nigeria Itoro Brown, Otu W. Ibok and Udeme Okoro	1
Economic Efficiency of Small holder Cassava-based Producers in Cross River State, Nigeria. Idiong, C. Idiong*, Abam, O. Ewa and Kingsley, O. Itam	27
Economics of Small-scale catfish (<i>Clarias gariepinus</i>) Production on Concrete Ponds in Calabar Metropolis of Cross River State, Nigeria Itam, K. O. , Etuk, E. A. and Ogbor, M. E.	42
Food insecurity in Rural Households in Akpabuyo Local Government Area, Cross River State, Nigeria: Causes and Policy implications I.C. Idiong, E.A. Etuk & I. A. Akwa	57
Influence Of Consumer's Perception On Pork And Poultry Meat Consumption In Cross River State, Nigeria. Nkang, Mfonobong Offiong	74
Determinants Of Off-farm Income Diversification Among Small-scale Farmers In Abia State, Nigeria Obike, K.C., Nse-Nelson F.A., Aigboke S.O and Emezue G.	83
Inorganic Fertilizer Use And Technical Efficiency In Food Crop Production In Ogun State, Nigeria Abiodun O. Otunaiya, Peter A. Okuneye and John O.Y. Aihonsu	97
Fish Import Demand in Nigeria (1971-2013) Etuk, E. A. and M. O. Effiong	110
Performance of laying Japanese Quails fed varying levels of Boiled and Sundried Cola rostrata Seed Meal (CRSM: Monkey Cola) Grace Idiong Christopher and Bassey Igri Okon	123

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FOOD INSECURITY IN RURAL HOUSEHOLDS IN AKPABUYO LOCAL GOVERNMENT AREA, CROSS RIVER STATE, NIGERIA: CAUSES AND POLICY IMPLICATIONS

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ABSTRACT

The study assessed food insecurity in rural households in Akpabuyo Local Government Area, Cross River State, Nigeria. The specific objectives were to describe the socioeconomic profile of sampled households in the study area, determine their level of food security, ascertain the factors that influence the food security of respondents and examine the coping strategies adopted by the respondents against food insecurity. The study utilized a multistage sampling technique to obtain a sample of 70 rural households in the study area. Frequency counts, tables, percentages, food security index and logistic regression model were used to analyze the data. The result showed that 52.86% of the households sampled were food secure. The result of the logistic regression showed that household income was positive and significant. This implies that the income of the households was directly proportional to their food security status. Household size was negative but significant. This implies that the higher the household size, the lower the probability of that household being food secure. Allowing children to eat first, eating once a day, switching to food items of lower cost and buying food on credit were the coping strategies adopted by households against food insecurity. The study recommends among other things that adequate measures should be put in place to boost household income and they should be educated on ways to control their household size through family planning.

BACKGROUND TO STUDY

Among the development problems facing Nigeria, food insecurity ranks top most (Ibrahim *et al* 2009). This explains why many policies and programs have been formulated to combat it. Several factors contribute to this situation. A good example is our import rate. In 1970, import bills were about ₦1 billion, now it is about ₦630 billion per annum. It is made up of items such as sugar, rice, milk, wheat, maize, beef, poultry, fish etc.

This is a clear indication that domestic agricultural output is not keeping pace with our domestic needs for essential food items and raw materials for agro-based industries. The cheap food import reduces the market for domestic agricultural products and leaves many farmers and workers in the agro-allied industries without source of income unless they are able to switch to more profitable production (Nyangito, 2003). This implies that even if low-cost food supplies are plentiful, many may not be able to access them. The above position was further reinforced by the increasing trend of food prices in Nigeria. According to the Central Bank of Nigeria (CBN, 2003) and the Federal Office of Statistics (FOS) the domestic producer prices of major food items have been on the increase due to increased cost of transportation occasioned by the upward adjustments in the prices of infrastructural facilities, which increased the cost of evacuating farm produce to the markets.

With the identification of cassava as another internationally tradable product from Nigeria, Garri (an important staple food from cassava) is gradually becoming unavailable and inaccessible (Usman, 2010). According to Omonona (2007), the economic development of a nation is dependent on its factor endowment that includes the non-human and human resources. The productive capacity of the human resources is a function of how well fed they are and the concern for food security and nutritional well-being in an economy is predicated on the role of human elements in economic development of a nation (Okunmadewa et al., 2001). Since the strength of any nation is in its labor force or active population, much dependence on food imports would result in its weakening. Interestingly, several studies have shown that food security is lack of access rather than an aggregate shortage of supplies. Focus on food security has now moved from the national level to the household level (Omonona, 2007). Food security is a measure of a household's condition, not that of each individual in a household, because not all individuals in a food insecure household are food insecure. This is especially true of young children who are often shielded from even the most severe forms of food insecurity and hunger (Hall et al 2004).

The American Institute of Nutrition (AIN) defines food security as "whenever the availability of nutritionally adequate and safe foods in socially accepted ways is limited or uncertain. (Anderson 1990). Food security is also defined as "access by all people at all times to enough food for an active and healthy life" (FAO, 1996).

In Nigeria, the rural households are the farming households because most of the farming work is done by them. However, it is also seen that most of the food insecure households are found in the rural areas. It is thus important that we study the determinants of food security in rural households especially in Cross River State being an agrarian local economy.

PROBLEM STATEMENT

National food security is dependent on households' food security and household food security requires that all individuals and households have access to sufficient food either producing it themselves or by generating sufficient income to demand for it (Omonona et al., 2007). Rural households produce their food and urban households depend on food purchases from rural households. Several studies have been carried out on food security in Nigeria and much of the works have concentrated on studying food security in urban and rural households in the Northern States such as, Idrisa et al. (2008), Muhammed-Lawal & Omotesho (2008) Babatunde et al. (2007) and Ibrahim et al. (2009). There are few works on household food security in the Southern states these include; Fakayode et al. (2009), Omonona and Agoi (2007) and Olagunju et al. (2012). However, for Cross River State, there is paucity of information on the food security of rural households especially where the population is majorly rural. This study therefore seeks to determine the food security status of rural households in Akpabuyo Local Government Area (LGA) of Cross River State as well as the factors that influence it.

RESEARCH METHODOLOGY

STUDY AREA

Akpabuyo is one of the eighteen (18) Local Government Areas (LGAs) in Cross River State in Nigeria. It is located between Latitude $4^{\circ}51'$ and $5^{\circ}40'$ and Longitude $8^{\circ}25'$ and $8^{\circ}32'$ East. It lies within the vegetation belt of Southern Nigeria and shares the Atlantic coastline with Bakassi to the east and the Republic of Cameroon to the west (www.kerete.tripod.com/CRSG, 2013). Based on the 2006 population census figures about 272,262 persons live in Akpabuyo with an average household size of 5 persons (NPC, 2006). Given the population growth rate of 2.83% (Ministry of Economic Planning, 2010), the approximate population of the area in 2015 is about 333,902.12 persons. The major ethnic groups are the Efiks, Efuts and Quas. The major languages spoken are Efik and English. Akpabuyo is known as the food basket of Cross River State (www.fidelitybankplc.com) and the people are predominantly farmers and fishermen. They are major producers of food crops like cassava, cocoyam, okra and tree crops such as palm produce, kola nut, plumps as well as sea food. There are two distinct seasons in the area; the rainy season from March to October and the dry season from November to February. The annual rainfall varies from 2942mm to 3424mm according to the Cross River Agricultural development Project (CRADP, 1992). The area is divided into ten (10) council wards and two hundred and four (204) villages (Cross River State Gazette, 1996) as shown in Table 1.

TABLE 1: List of Wards and Villages in Akpabuyo

WARDS	NUMBER OF VILLAGES
IDUNDU/ AYANANSE	23
ATIMBO EAST	31
ATIMBO WEST	14
EFFANGA OFFIONG	17
EDEM ODO	13
EDET NSA	22
ENEYO NORTH	30
ENEYO SOUTH	17
EYO EDEM	14
NAKANDA	23

SAMPLING TECHNIQUES AND SAMPLE SIZE

A multistage sampling technique was used in this study. At the first stage, a random sample of two council wards out of the 10 wards in the study area i.e. Atimbo East and Edem Odo were selected. In the second stage, fifty percent (22) of the villages from the selected wards were chosen. In the third stage five (5) households were randomly picked from the 22 villages selected giving a total of 110 households.

SOURCES OF DATA AND METHOD OF COLLECTION

Primary data was used for this work. Questionnaires were distributed to households within the sample area and retrieved. 110 questionnaires were distributed. Out of these, 70 of the questionnaires that were correctly filled were selected and used for analysis in the study.

METHOD OF DATA ANALYSIS

Different techniques were used in analyzing the data based on the specific objectives of this study. Descriptive statistics such as, ratios, frequency counts, tables and percentages were used in describing the socioeconomic profile of the respondents as well as their coping strategies.

A logit model was used to determine the factors influencing food security of the respondents.

MODEL SPECIFICATION

Food security index (FI) was given as

$$F1 = \frac{\text{per capita food expenditure for the } i^{\text{th}} \text{ household}}{2/3 \text{ mean per capita food expenditure of households}}$$

Where, $F1$ = food security index

if $F1 \geq 1$ household is food secure

$F1 \leq 1$ household is food insecure

This method of estimating food security was used because it is easier to get the per capita food expenditure of households than getting the calorie intake of each household and comparing it with the standard calorie for individuals and households. Omonona et al; (2007) used this formula when he studied food security in Lagos state. From the food security index, those households whose per capita monthly food expenditure is equal to or above two-third of the mean per capita monthly expenditure of the total households in the study area are considered food secure.

A logit model was used to estimate the factors influencing the food security of respondents. The implicit form of the model is

$$Z_i = \beta x_i + u_i$$

Where Z_i = food security status of households in Akpabuyo local government area.

x_i = vector of explanatory variables

u_i = the error term.

The explicit form of the model is:

$$Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + U$$

Where Z = Food security status (1 = food secure, 0 = food insecure)

X_1 = household income (₦)

X_2 = Age of the household head (years)

X_3 = household size (number)

X_4 = Educational level of the household head. (Years of formal education)

X_5 = Sex of the household head (male = 1; female = 0)

RESULTS AND DISCUSSIONS

SOCIOECONOMIC CHARACTERISTICS OF RURAL HOUSEHOLDS IN AKPABUYO LOCAL GOVERNMENT AREA OF CROSS RIVER STATE

Table 2 shows the socioeconomic characteristics of respondents in the study area. Majority, (71.43%) of the households was male headed and the gender of the household head can affect the food security of the household. Majority of the respondents also, were within 36-45 years of age followed by those between 26 and 35 years. The mean age was 42.92.

Anyanwu et al., (2001) recognized that young people are more energetic and have the capacity to use innovations to enhance productivity vis a vis income and therefore likely to be food secure. Majority of the householders in the sampled households were married. Those not married were single, divorced, separated or widowed.

The study revealed that majority of the households are headed by civil servants and many households took farming as a secondary occupation. Multiple sources of incomes is likely to guarantee food security for the households. It is interesting to note that only 10% had no form of formal education and therefore would engender food security for the households. In terms of Income majority earned between ₦1000.00 and ₦ 100,000.00. None earned between ₦500,000.00 and ₦700,000.00 and very few earned above ₦ 700,000.00 monthly

Table 2: SOCIOECONOMIC CHARACTERISTICS OF HOUSEHOLDS

Variable	Frequency	Percentage
Age		
= 25	4	5.71
26-35	16	22.86
36-45	23	32.86
46-55	15	21.43
56-65	10	14.29
Above 65	2	2.86
Total	70	100
Sex		
Male	50	71.43
Female	20	28.57
Total	70	100
Marital status		
Single	7	10
Married	41	58.57
Divorced	4	5.71
Widow	12	17.14
Widower	3	4.29
Separated	3	4.29
Total	70	100
Main occupation		
Civil servant	27	38.57
Farmer	18	25.71
Trader	5	7.14
Artisan	2	2.86
Pensioner	5	7.14
Public servants	4	5.71
Clergy	1	1.43
Student	3	4.29
Other businesses	5	7.14
Total	70	100
Household size		
1-3	14	20.00
4-6	35	50.00
7-9	18	25.71
10-13	3	4.29
Total	70	100
Highest educational level		
None	7	10
First school leaving certificate	10	14.29
Jsce/Ssce/trade two test	9	12.86
OND/HND/NCE	10	14.29
B.Sc/M.sc and above	34	48.57
Total	70	100

Source: Field survey, 2014

Food Insecurity in Rural Households in Akpabuyo Local Government Area, Cross River State, Nigeria: Causes And Policy Implications
 Another socio economic characteristic studied was the household size. This is really important as the food security status of a household is a function of the number of people in that household. The highest household size was eleven (11) persons and the least had one (1) person. The mean or average household size was 6 persons. Household size increases the pressure on household resources particularly food and households with high dependency ratio are particularly prone to food insecurity (Ibok, 2012).

FOOD SECURITY STATUS OF RURAL HOUSEHOLDS IN AKPABUYO LOCAL GOVERNMENT AREA, CROSS RIVER STATE

The index of food security used in this study employed the measure of a household's monthly expenditure on food. The study revealed that the highest per capita household food expenditure was ₦26,666.67 and the least was ₦ 778.18 monthly. The mean food expenditure of the households was ₦7,671.05 and. Two thirds of the mean was ₦5114.0355. Omonona et al (2007) also employed this method to measure food security. The mean per capita food expenditure he got was ₦11,950.785. Two thirds of this was ₦7,967.19.

The odd ratio of the most food secure household was 5.2144, while the least secure or the most food insecure was 0. 1522. On the average, households had a ratio of 1.3100, implying that the average household was food secure.

Table 3 shows some classes of food consumed by rural households in the study area. It was found that majority (25.82%) of the household consumed garri on a daily basis. The next was meat/fish products (23.00%). On the average persons preferred (or their income allowed for more) food rich in carbohydrates. Vegetables were also consumed by many households. Ibok (2012) when studying food security in Cross River State found that 68.88% of the households' diet comprised of carbohydrates. Then proteins constituted 31.12% of their food.

It was found that 52.86% of the households were food secure. (Table 4) Fakayode et al., (2009) asserted that 12.2% of the households they studied were food secure. Ibok, (2012) also reported that 1.84% were food secure while 98.16% were food insecure at different levels of insecurity (with or without hunger). Ibrahim et al (2009) got that 70% of those sampled were food secure and 30% were food insecure.

Table 3: KINDS OF FOOD CONSUMED BY HOUSEHOLDS DAILY

Food Item	Frequency	Percentage
Garri	55	25.82
Protein rich foods	88	41.31
Rice	34	15.96
Yam	16	7.51
Wheat	3	1.41
Fermented cassava	1	0.47
Granulated wheat	2	0.94
Fruits	14	6.58
Total	213*	100

Source: field survey, 2014 * Number exceeds 70 due to multiple response.

Table 4 FOOD SECURITY STATUS OF THE RESPONDENTS

Food security	Frequency	Percentages
Food secure	37	52.86
Food insecure	33	47.14
Total	70	100

Mean food security status = 1.3100 Standard deviation from the mean = 1.0595565

COPING STRATEGIES ADOPTED BY RURAL HOUSEHOLDS AGAINST FOOD SECURITY

Table 4.1: Percentage distribution of respondents according to strategies used against food security

Coping strategies	Very	often	Regularly	Occasionally		Never		number/%
	number/%	number/%	number/%	number/%	number/%	number/%	number/%	
Eating once a day	11	15.71	5	7.94	15	21.43	39	55.7
Allowing children to eat first	7	10	13	18.6	14	20	36	51.43
Selling of assets	2	2.86	2	2.86	17	24.26	49	70
Switching to food items of lower cost	2	2.86	10	14.29	33	47.14	25	35.71
Buying food on credit	6	8.57	5	7.14	19	27.14	40	57.14
Visit to grandparents	1	1.43	-	-	1	1.43	68	97.13
Visit to friends	-	-	1	1.43	-	-	69	98.57
Eating little at a time	1	1.43	-	-	-	-	69	98.57

Source: Field survey, 2013

Table 4.1 shows the coping strategies adopted by households against food insecurity. The strategies span from eating once a day to eating at homes of friends and family. Majority of the households asserted that they never had to visit friend, grandparents, eat less or sell their assets to attain to food security. some(47.14%) confessed to occasionally switching to food items of lower cost. On the average households occasionally adopted one or two strategies to tackle food insecurity.

Table 5: FACTORS AFFECTING FOOD SECURITY OF RURAL HOUSEHOLDS IN AKPABUYO LOCAL GOVERNMENT AREA, CROSS RIVER STATE

	<i>Coefficient</i>	<i>Std. Error</i>	<i>Z</i>	<i>p-value</i>	
Const	3.0087	1.58689	1.8960	0.05796	*
SEX	0.713622	0.652276	1.0940	0.27393	
HHS	-0.487715	0.158642	-3.0743	0.00211	***
HI	1.0686	4.83263	2.2112	0.02702	**
EDUC	-0.0177345	0.0588069	-0.3016	0.76298	
AGE	-0.0345127	0.0256646	-1.3448	0.17870	
Mean dependent var	0.528571	S.D. dependent var	0.502787		
McFadden R-squared	0.254235	Adjusted R-squared	0.130284		
Log-likelihood	-36.09945	Akaike criterion	84.19890		
Schwarz criterion	97.68987	Hannan-Quinn	89.55768		

Number of cases 'correctly predicted'=55 (78.6%), f (beta)x) at mean of independent vars = 0.503 Likelihood ratio test: Chi-square (5) = 24.613 [0.0002]

*** Significant at 0.01, * significant at 0.10, ** significant at 0.05%

Household size was significant in explaining variation in the food security status of the households in the study area. It was negative and significant at 1%. This indicates that the higher the household size, the greater the probability that the household will be food secure. Idrisa et al., (2008) reported that household size has a great influence on household food security.

Food Insecurity in Rural Households in Akpabuyo Local Government Area, Cross River State, Nigeria: Causes And Policy Implications
Household income is positive and significant at 10%. (See Table 5). This is the expected sign for the factor. This implies that the income of households is directly proportional to their food security status. Hence, the higher the income of households, the higher the probabilities of it being food secure. It also indicates that lower income earning households are more vulnerable to food insecurity.

The coefficient of the variable age has a negative sign and shows that age is inversely proportional to food security. The higher the age of the household head, the lower the probability of households being food secure. Education has a negative sign however but not significant. In this study, though many claimed to be educated, they were not food secure. This could be attributed to the fact that very few of them had higher paying jobs and most did not engage in other businesses that could boost their income.

CONCLUSION

In spite of the fact that food insecurity has remained a challenge in the area, the study indicates that in relative terms, majority (52.86%) were food secure.

The major determinants of food security of the households in the area were household income and size whose coefficients were positive and negative respectively.

RECOMMENDATIONS

1. This study reveals a need to remedy food insecurity problems in some households in Akpabuyo Local Government Area. Though it is a food producing city, very few engaged in farming at commercial levels. It is recommended that households return to agriculture to increase availability and access to food.
2. Household income plays a vital role in attainment of food security. It is recommended that the minimum wage be implemented to enable household heads working as civil servants get enough food for their families. Household heads should also be educated on various jobs they can engage in to boost their income.

1. As foods from cassava constitute the daily food consumed by most households, effort should be made to boost cassava production. Adequate storage and processing facilities should be made available to reduce wastage of food.
2. Since household size is inversely related to food security, the people should be educated on modern family planning techniques to control the number of children they have and increases their probability of food security.
3. The objective of self sufficiency in basic food supply can only be achieved when we can produce food in quantities that feed us sufficiently. Hence government should make farming more attractive to youths by providing incentives like subsidies in most farm inputs especially those in the rural areas.

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