

Empirical Analysis of The Factors Promoting Food Insecurity Among Farming Households in Ebonyi State, Nigeria

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Food insecurity, hunger, malnutrition and undernourishment are on the rise in Nigeria and Ebonyi State in particular. This study analysed the factors promoting food insecurity among rural farming households in Ebonyi state of Nigeria. Multi-stage sampling technique was used to select three hundred rural farming households for the study. Frequency and percentage distribution, Likert rating scale and Ordinary Least Square (OLS) multiple regression model were used to analyse data. Findings show that the majority of the respondents 55.2% had no formal education while 93.7% had no access to formal loans. Results also show that factors such as poverty (mean = 3.7), poor crop yield (mean = 3.6), illiteracy (3.5), lack of improved crop/livestock varieties (mean = 3.4), lack of governmental support (mean = 3.3), high cost of farm input (mean = 3.2), pests/disease attack (mean = 3.1) and socio-political crises (3.0) play a critical role in promoting food insecurity. The result of the multiple regression analysis revealed that the coefficient of multiple determination (R^2) was 78.2%, while the adjusted (R^2) was 64.5%. Thus, it was recommended that government should provide adequate security and farm incentives such as grants, subsidized inputs, loans, improved crop/livestock varieties and modern farm equipment for the rural farming households to enable them to overcome food insecurity in Ebonyi state in particular and Nigeria at large.

KEY WORDS: Analysis, Factors, Promoting, Food, Insecurity, Food insecurity, Multiple regression analysis, Farm household.

INTRODUCTION

Food is fundamental to human existence. People are said to be food secured when the quality and quantity of food are sufficient and available to them. It is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food (UNCWFS (United Nations Committee on World Food Security), 2020). Food security is perceived at the global, international, national, state, household and individual levels. A country, state or household is food secure when the

majority of the population has access to food of adequate quality and quantity, consistent at all times. Okpolu et al., (2018) stated that food insecurity boils down to the inability of households to have reliable access to food in sufficient quantity and quality to enjoy an active and healthy life. Food availability and affordability have declined dramatically in many states in Nigeria including Ebonyi due to insecurity. Thus, the absence of food in adequate quantities and qualities results in hunger and undernourishment

(Muhammad et al., 2023). Hunger is defined as a condition synonymous with chronic undernourishment; where undernourishment itself is defined as a state, lasting for at least one year, of the inability to acquire enough food to meet dietary energy requirements (FAO (Food and Agricultural Organization), 2019).

Otaeha (2013) observed that food insecurity exists when people are undernourished as a result of the physical unavailability of food, and their lack of social or economic access to adequate food. Food insecure people are those whose food intake falls below their minimum energy requirements as well as those who exhibit physical symptoms caused by energy and nutrient deficiencies resulting from an inadequate or unbalanced diet or from the body's inability to use food effectively because of infection or disease (Ubokudom et al., 2021). Ebonyi is one of the states in Nigeria richly blessed with abundant natural and human resources that if properly harnessed can feed its people and export the surpluses to other parts of the country and even beyond; but, unfortunately, that the state is experiencing a persistent food crisis at recent times both in terms of quantity and quality (Esheya, 2019).

Ebonyi state has given considerable policy attention to food security over the years but the desired outcome has not been achieved possibly due to inefficient management of available resources and lack of continuity of policy implementation. According to Akamere et al., (2018), volatility in resources flows arises from the fact that the country depends largely on oil for its revenue while the huge potentials in other natural resources such as agriculture and solid minerals remain untapped. A recent report indicates that 68% of Nigerians live below the international poverty line of \$1.25 per day. Eradicating extreme poverty and hunger occupied a priority position in Nigeria under the Millennium Development Goals (MDGs) which Ebonyi state was not an exemption. This laid a solid policy foundation in the agricultural sector to address the challenges of chronic hunger, food insecurity, and malnutrition (Omogo et al., 2023).

Low level of agricultural productivity often leads to scarcity of food, which in turn results in hunger and starvation with adverse consequences on malnutrition (Esheya, 2023). Bridging productivity gaps in the country through interventions that enhance the production of crops rich in micronutrients, bio-fortification, and agricultural intensification with applications of improved inputs

and crop varieties is apt to have a positive impact on food availability, dietary diversity, and micronutrient intake (International Institute of Tropical Agriculture (IITA), 2018; Nurudeen et al., 2019). USAID (United States Agency for International Development) (2011), proposes several key steps to increasing agricultural productivity which is in turn key to increasing rural income and reducing food insecurity. They include: boosting agricultural science and technology; securing property rights and access to finance; enhancing human capital through education and improved health; and conflict prevention, resolution mechanisms, democracy and good governance based on principles of accountability and transparency in public institutions and the rule of law are basic to reducing vulnerable members of society. Since the inception of the present administration in Nigeria, hunger has appreciated in Ebonyi state where economies have slowed down due to economic shocks, deprivation and worsening insecurity. According to FMARD (2018), food production in Nigeria is increasing at less than 3% while the population growth rate is estimated to be well above 3% per annum. This low level of food production when compared to the ever-increasing population growth in the state suggests food insecurity, hunger and undernourishment (Esheya, 2022).

Although many authors have worked on related literature. For instance, Omonona et al., (2007), analysed the food security situation among urban households in Lagos state of Nigeria. Orewa and Iyangbe (2009), assessed the degree of food insecurity in rural and low-income urban populations of Nigeria. Abubakar and El-Rasheed (2020), conducted an empirical study on the extent of hunger and food insecurity in Gombe State of Nigeria; while Nurudeen and Shaufigue (2019) examined the determinants of food security among households in Nigeria using food and non-food expenditures. Okpolu et al., (2018) researched household food security among rural households in Afikpo North Local Government Area of Ebonyi State. They opined that despite some efforts being made by the government and individuals, food insecurity persists. Therefore, certain factors could be responsible for this persistent problem and such factors need to be identified and appropriately addressed to terminate the dreaded problem of food insecurity. Hence, hunger eradication should remain a key commitment of decision-makers at all levels. Against this background, this study becomes imperative to

analyse the factors promoting food insecurity among farming households in Ebonyi state.

The specific objectives were to: describe the socio-economic characteristics of the farming households; identify the factors promoting food insecurity and determine the effects of socio-economic variables on the food security status of farming households in the study area.

MATERIALS AND METHODS

Study area

This research was conducted in Ebonyi State of Nigeria. Ebonyi State is located in the South-east geopolitical zone of Nigeria. Ebonyi is composed of thirteen local government areas with an estimated population of 4,339,136 based on the 2005 census and the inhabitants are spread across 5,935 square kilometers (National Population Commission, 2006). The State shares a border with Benue State to the North, Enugu State to the west, Imo and Abia States to the south and Cross River State to the east. The tropical climate of the state is broadly of two seasons which are the rainy season between April and October and the dry season between November and March. The temperature throughout the year ranges between 21 °C to 29 °C and humidity is relatively high. The annual rainfall varies from 1,150mm in the northern areas to 2,000mm in the southern areas. The state enjoys luxuriant vegetation with a high forest zone (rain forest) in the south and a sub-savannah forest in the northern fringe (Ebonyi State Ministry of Information, 2011). The state is predominantly dominated by the Igbos with other minority ethnic groups from neighboring states. The people of the state are predominantly farmers and traders. The main crops produced in the state are rice, cassava, yam, palm produce, maize, groundnut, plantain, banana, fruits and vegetables (Esheya, 2021).

Sampling Method

A multi-stage sampling technique was used for the study. Using Yamane (1967) method at a precision level of 5%, data were collected from three hundred (300) randomly selected rural households from six selected local government areas of Ebonyi State (Ebonyi, Ohaukwu, Ikwo, Ishielu, Afikpo North and Onicha respectively) with the aid of a structured

questionnaire. Stage 1 involved the selection of two Local Government Areas from each of the three Agricultural zones in Ebonyi state. In stage 2, five communities were selected from each local government based on susceptibility to security threats. Stage 3 involved the selection of ten respondents from each community from the list of registered farmers obtained from the local government areas. This gave a sample of three hundred respondents (6 LGAs X 5 communities X 10 farmers = 300 respondents). However, only two hundred and eighty-eight (288) completed copies of the questionnaire were retrieved and used for the study.

Analytical Techniques

Descriptive and inferential statistical tools were used to analyze data. Frequency and percentage distribution were used for objective (i) while Likert rating scale was used to realize objective (ii). Ordinary Least Square (OLS) multiple regression model was utilized for analyzing objective (iii).

Model Specification

According to Gujarati and Porter (2009), the multiple regression analysis model is stated as follows;

Implicit function: $Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8)$

Explicit function: $Y = a_0 + a_1 X_1 + a_2 X_2 + a_3 X_3 + a_4 X_4 + a_5 X_5 + a_6 X_6 + a_7 X_7 + a_8 X_8 + e_t$

Where:

Y = Food insecurity

X_1 = Gender (dummy)

X_2 = Age (years)

X_3 = Marital status

X_4 = Educational qualification (years)

X_5 = Household size (number)

X_6 = Farming experience (years)

X_7 = Farm size (hectares)

X_8 = Access to credit (dummy)

e_t = error term

a_0 = constant

a_1 - a_8 = multiple coefficients

RESULTS AND DISCUSSION

Socio-economic features of respondents

Table 1 showed that the majority 75.7% of the respondents were males while 24.3% of them were

Table 1. Distribution of respondents by socio-economic features (n = 288)

S/N	Variable	Frequency	Percentage
1.	Gender		
	Male	218	75.7
	Female	70	24.3
2.	Age		
	10-20	12	4.2
	21-30	66	22.9
	31-40	126	43.8
	Above 40	84	29.1
3.	Marital status		
	Single	0	0.0
	Married	263	91.3
	Divorced	0	0.0
	Widowed	25	8.7
4.	Educational qualification		
	No formal Education	159	55.2
	Attended Primary	78	27.1
	Attended Secondary	51	17.7
	Attended Tertiary	0	0.0
5.	Household size		
	5-10	34	11.8
	11-15	106	36.8
	16-20	113	39.2
	Above 20	35	12.2
6.	Farming experience		
	1-10	29	10.1
	11-20	32	11.1
	21-30	140	48.6
	Above 30	87	30.2
7.	Farm size		
	1-2	91	31.6
	3-4	103	35.8
	5-6	53	18.4
	8-10	29	10.1
	Above 10	12	4.1
8.	Access to formal loan		
	Access	18	6.3
	No access	270	93.7

Source: Field survey, 2020.

females. This reveals that farming households in the study are dominated by male household heads. It

also shows that most of the respondents 66.7% fell within the age range of (21–40) years. This indicates

Table 2. Distribution of respondents by perception on factors promoting food insecurity.

S/N	Factor	SA	A	D	SD	MEAN	Decision
1.	Poverty	852	225	0	0	3.7	Agree
2.	Socio-political crises	460	318	84	25	3.0	Agree
3.	Environmental hazards	64	81	362	64	2.0	Disagree
4.	Poor extension services	96	114	406	26	2.2	Disagree
5.	Low literacy level	708	258	36	7	3.5	Agree
6.	Lack of governmental support	572	282	64	19	3.3	Agree
7.	Poor crop yields	696	303	26	0	3.6	Agree
8.	Scarcity of farmland	124	78	262	100	2.1	Disagree
9.	Pest/disease attack	392	438	80	4	3.1	Agree
10.	High cost of farm inputs	452	366	92	7	3.2	Agree
11.	Lack of improved crop/livestock varieties	660	264	70	0	3.4	Agree
12.	Low level of farm technology	76	69	288	102	1.8	Disagree

Source: Field survey, 2020. *Decision rule: Take 2.5 and above as agree, otherwise as disagree.

that the majority of them were still vibrant, active and productive in farming. According to Basudeb et al., (2007), most rural farmers were agile and physically disposed to pursue agricultural production and related activities. The result further reveals that the majority of the respondents 91.3% were married while 55.2% had no formal education. This finding shows the need to assist the farmers to improve their level of education to widen their knowledge and increase their flexibility in adopting modern farming methods. Again, a greater majority of the respondents 76.0% had a household size of between (11-20) persons. Large household size is an important factor in agricultural production for the supply of manual farm labour (Omotesho et al., 2010).

Also, 78.8% of the respondents had farming experience of 21 years and above. Thus, given the necessary support in terms of grants, inputs and subsidies, the respondents had adequate years of farming experience that enable them to engage in extensive farm production to avert hunger and undernourishment in their respective farm households. Results in Table 1 further reveal that a majority of the farmers produce at a subsistence level as 67.2% of them maintain farm sizes of between (1 and 4) hectares. This shows that they are mainly small-scale farm households. Small-scale farming affects human capital, labour requirement and land tenure arrangement, as it would not allow for meaningful investment and returns on agricultural

production. Finally, the result in Table 1 shows that a whopping percentage of the respondents 93.7% had no access to formal loans. This implies that they face financial incapacitation in carrying out agricultural production in the study area. Credit is an important factor in agricultural production especially in purchasing farm inputs and hiring of labour (Abah et al., 2020).

Factors promoting food insecurity

The distribution of respondents according to their perception of factors promoting food insecurity among farm households in Ebonyi state was analysed using a 4-point Likert rating scale as presented in Table 2. Following the decision rule, mean scores of 2.5 and above indicated agreement while those below 2.5 showed disagreement. Based on the result in Table 3, the respondents agreed that factors such as poverty (mean = 3.7), poor crop yield (mean = 3.6), illiteracy (3.5), lack of improved crop/livestock varieties (mean = 3.4), lack of governmental support (mean = 3.3), high cost of farm input (mean = 3.2), pests/disease attack (mean = 3.1) and socio-political crises (3.0) play critical role in promoting food insecurity in the study area. Table 2 further revealed that the respondents thought that factors such as low level of farm technology (mean = 1.8), environmental hazards (mean = 2.0), scarcity of farmland (mean = 2.1) and poor extension services had no pronounced influence on the promotion of

Table 3. Regression analysis on effects of socio-economic variables on the food security status of farming households.

Variable (symbol)	Variable (name)	Regression coefficient	Standard errors	T-value	Level of significance
X	Constant	1.573	.514	3.026	.005
X1	Gender	.107	.075	1.056	.027
X2	Age	.060	.080	.573	.008
X3	Marital status	.000	.085	-.003	.100
X4	Educational qualification	.133	.103	1.173	.023
X5	Household size	.010	.114	.089	.009
X6	Farming experience	.082	.084	.883	.041
X7	Farm size	.173	.091	2.020	.035
X8	Access to credit	.154	.106	1.448	.016
$R^2 = 78.2\%$ Adjusted $R^2 = 64.5\%$ F- Ratio = 1.34 Standard error value = 0.168					

Source: Field survey, 2020.

hunger and malnutrition in the study area. This finding agrees with that of Otaeha (2013) who opined that poverty, conflict, bad governance, natural disaster, high cost of farm input as well as low literacy level were the major factors promoting food insecurity in Nigeria.

Effects of socio-economic variables on food security

The result of the multiple regression analysis presented in Table 3 revealed that the coefficient of multiple determination (R^2) was 78.2%, while the adjusted (R^2) was 64.5%. This result implies that about 78.2% of the change in the dependent variable (food insecurity) was caused by the combined effects of the socio-economic variables included in the multiple regression model. The outstanding 21.8% variation was attributable to some variables that are relevant to it but were not incorporated in this multiple regression model. In comparison, the value of the coefficient of multiple determination R^2 (78.2%) is very close to that of the adjusted (R^2) indicating that the multiple regression model was not exaggerated. Again, the value of the F-ratio (1.34) is low which indicates statistical reliability as the value of the standard error estimates (0.168) was also low. The coefficients of gender (X_1) and age (X_2) were positive and statistically significant at a 1 % level

respectively. This is an indication that both gender and age have a positive influence on farm households' ability to provide for their families. Thus, this finding is in line with the apriori expectations (an a priori argument, reason, or probability is based on an assumed principle or fact, rather than on actual observed facts). The coefficients of marital status (X_3) and educational qualification (X_4) had both positive signs and were statistically significant at 10% and 1% levels respectively. This is in agreement with the findings of Emmanuel (2018), who observed that marital status and level of education have a positive influence on a family's food security. Besides, household size (X_5) was positive and significant at a 1% level, farming experience (X_6) was also positive and significant at a 1% level, farm size (X_7) is positive and statistically significant at a 1% level while access to credit (X_8) is positive and statistically significant as well but at 5% level. The above findings concurred with Okpolu et al (2018) who studied household food security among rural household in Afikpo North Local Government Area of Ebonyi state and obtained similar results.

CONCLUSION AND RECOMMENDATIONS

Food unlike other commodities is indispensable for man's existence. Thus, all efforts must be geared

towards improving its production and distribution on a sustainable basis in every household. Unfortunately, most of the food production activities in Nigeria are carried out by rural farmers who lack capital, skills, security, energy and other necessary inputs required for large-scale production. In line with the findings of this study, it was concluded that the socio-economic and political factors that pose threats to agricultural production such as poverty, poor crop yield, illiteracy, lack of improved crop/livestock varieties, lack of governmental support, high cost of farm input, pests/disease attack and socio-political crises should be addressed through the wholistic approach. Based on the findings of this research, I hereby recommend as follows:

1. Government should make free and compulsory out-of-school education programs a priority through adequate funding of agricultural extension services to improve the educational and associated features of the respondents in the study area.
2. Government should provide regular farm incentives such as grants, subsidized inputs, loans, improved crop/livestock varieties and modern farm equipment for the rural farming households.
3. Government should show genuine support for rural farmers to reduce poverty, the high cost of farm inputs and the lack of improved crop/livestock varieties

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