

**ANALYSIS OF THE EXTENSION AGENTS ROLE IN ENSURING INCREASED PRODUCTIVITY
FOR FOOD SECURITY IN OHAJI EGBEMA L. G. A. IMO STATE.**

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ABSTRACT

The study examines analysis of extension agents in ensuring increased productivity for food security in Ohaji egbema L.G.A. Ohaji Egbema was purposively chosen because it's an agrarian area, simple random selection method was used to select five communities, and simple random selection method was used to select 20 farmers from each of the 5 communities chosen. Data collection was facilitated by means of questionnaire and was analyzed using tables, frequency distribution, Logit regression and Ols multiple regression analysis techniques. From the result, female farmers dominated with 75%, the value for gross income X_1 , age X_2 , educational level X_3 , farm size X_4 and labour input X_6 are significant and positively related to extension contact in the study area at the log level of significance ($P \leq 0 + 10$). The result showed that all the variables have significant relationship with output Y. Farm experience (X_3) has a significant positive relationship with the output Y, Farm size (X_4) has a significant positive relationship with the output Y. Household size (X_5) has a significant positive relationship with the output Y. The role of agricultural extension in making any nation self sufficient in food production and national development cannot be over emphasized. The study recommend youths should be sensitized to study agriculture, more extension agents should be recruited for effective coverage of the L.G.A. Financial institutions should grant loan to farmers to encourage adoption of improved varieties of crops. Keynote: Extension agent, food security, farmers

INTRODUCTION

Agricultural extension is a system of disseminating of agricultural information from the research institutes to the farmers within the shortest possible time. More so, rural farmers are trained so as to acquire the necessary skills and knowledge required (Ayansina, 2013). Agricultural extension programmes in Nigeria started during the colonial era when the country was under British rule. They were initially using mass methods of extension communication through campaign to encourage people to grow cash crops for export (Ingawa, 2010). One of such methods was issuing instructions to the people through their chiefs and village heads. The crucial role of agricultural extension (i.e. farmer's education) in the social and economic development of the nation cannot be over emphasized. Never, before in Nigeria history has the necessity for

educating and increasing the productivity capacity of farmers been of such importance as it is today (Agbanu, 2014) increased agricultural productivity depends primary upon the acceptance of cultural and technological changes at the rural farm level. (Ayansina, 2012). Thus, for Nigeria agricultural to improve, our farmers have no alternative but to learn and adopt recommended scientific farming techniques in place of the traditional practices. Perhaps, the slow development of Nigeria agriculture can be attributed to the inability of the Nigeria farmers to respond positively to new ideas or innovations. For farmers to respond positively to new ideas, they must be properly educated on how best to apply the new ideas. The term "extension" here means advisory and other services help rural farmers to make the best possible use of the productive resources at their disposal (Kate, 2011). Agricultural extension brings about changes in household and national security, through education and communication in farmers attitude knowledge and skills (Koyenikan, 2010). The role of agricultural extension involves dissemination of information, building capacity of farmers through the use of a variety of communicating methods and help farmers make informed decisions. (Sinkeye, 2017). Agricultural extension services are one of the agencies transforming substance farming into modern and commercial agriculture which promotes household and national food security. Food security is an important theme in the debate of rural development and poverty alleviation policies in many developing countries. Despite the substantial increase in food production in many countries, 790 million people in developing world do not have adequate food to eat. Another 34 million people in the industrialized country and those in Transition also suffer from chronic food insecurity (FAO, 2010). If the entire world's under nourished people were gather together, the population of the continent of the hundred would dwarf that of every other continent except Asia (FAO, 2014). Food security means access to food by all people at all times to have adequate food for an active healthy life (World Bank, 2010). It entails both the availability of food and the ability of all members to have access to adequate amount of food. According to Alamgir and Aror (2013) food security means the assured availability of food for individual, households to draw on to meet their minimum consumption requirements during a given period. In Nigeria,

subsistence or traditional agriculture dominates the economy. For national progress to occur, changes in agriculture is essential substantial change needed if work are to be improved, if a surplus is to be produced for sale and if agriculture is to enter a phase of self sustained growth, change is needed not only to increase production but also to alleviate households from poverty and drudgery of manual labour decree C.D. 2013.

Over the years, rural farmers depend on indigenous or local knowledge for improved farming system and animal husbandry such knowledge refers to skill and experience gained through oral traditional practices over many generations. Acquisition of such primitive skill by rural farmers, (e.g. rural farmers in Ohaji/Egbema local government area in Imo State), has not helped to improve agricultural yield. Over the years, rural farmers in Nigeria have witnessed series of agricultural production problems ranging from poor farm yield, emergence of new crop and animal disease. Resistant plant weeds and pest that attack farm crops and old farm implement (Krishina, 2012). Agricultural innovation is always meant to get to rural farmers through extension officers, radio, television, agricultural pamphlets, state and local government agricultural agencies etc. rural farmers in their effort to access these agriculture knowledge and innovation from available resources for better farming system and improve the agricultural yield, are confronted with certain constraints. This study is design to identify the impact of agricultural extension in farmer's productivity in Ohaji/Egbema Local Government Area Imo State. Objectives of the study To examine the effect of extension contact on farmers productivity. To determine the productivity of the farmers in the study area. To identify the problem encountered by farmers in adoption of innovations and effective delivery system in Ohaji/Egbema local government area Imo State.

METHODOLOGY

This study was carried out in Ohaji/Egbema Local Government Area. It lies in the South/Western part of Imo State and shares common boundary with Owerri in the East. Oguta in the North and Ogbu/Egbema Ndoni in Rivers State in the South West. The rainfall varies between 3000mm per annum in the coastal area to 2000mm per annum in the Northern part and this occurs mainly between April to October. Harmattan is usually experience in the area from December to February as a result of the North East trade winds blowing from the Sahara desert South wards carrying with it dryness and dust (Narp 2010). The selected Local Government Area for the study is largely populated by Igbo Language speaking people. However, immigrants from different parts of the country are found scattered all over the area. The occupations of the inhabitants farming, fishing, palm oil processing, hunting and animal husbandry and vigorously practices.

Agricultural practices is still largely traditional indigenous and is characterized by small scale farming (1.2 hectare average holding). The use of simple tools such as hoe and cutlass, communal or family land holding and shifting cultivation are still predominant. Food crops cultivated include Yam, Cassava, Cocoyam, Maize, plantain, pineapple, leafy and fruit vegetables. Cash crop includes Cocoa, Kolanut, oil palm and rubber. Timber is also found in the forest in the area. The area of study, Ohaji/Egbema comprises of Umuagwo, Ohaba, Obile, Ikwerede, Obitti, Assa, Obiakpu, Obosima and Mgbirichi in Ohaji/Egbema L.G.A of Imo State. The area was chosen because it is an Agrarian area that harbours poor indigenous agricultural settlements which needs to be improved with the help of Extension services. Willson (2010) defines sample as a proportion of a target population selected using some systematic procedures for the study.

The first stage involves purposive selection of Ohaji/Egbema as the study area because of it's an Agrarian area that harbours poor indigenous agricultural settlements that needs the help of extension services to improve in their farming system and practices. The second stage involves random selection of five communities namely; Umuagwo, Ohaba, Obile and Ikwerede and Mgbirichi in Ohaji/Egbema L.G.A the third stage involves random selection of 20 farmers in each of the 5 communities. This brings the total number of respondents to 100. In this research the techniques that was used for data collection is primary and secondary source. Primary data was gathered directly from the farmer through the administration of well structured questionnaire which contained both open and closed ended question. Secondary data was obtained from journals, books periodicals and other publications on the role of agricultural extension on ensuring food security. Data were collected with the use of well structured questionnaire, which was used to collect data from farmers in the study area in which (1) to examine the effect of extension contact on farmer's productivity was analyzed using logit model. The model is as stated below.

$$\begin{aligned} \ln Y &= \ln (P/1-P) \text{ ----- } 1 \\ \ln (P/1-P) &= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \\ &+ \beta_5 X_5 \dots + \beta_8 X_8 \dots \dots \dots \text{ 2} \end{aligned}$$

- Where;
- Y = extension visit (1 = yes, 0 = otherwise),
- P = probability of farmer being visited by extension agent,
- 1-P = probability of farmer not being visited by extension agent,
- Ln = natural logarithm function,
- β0 = constant
- β1- β8 = logistic regression coefficients.

The detailed description of the variables is as shown below.

$$Y = \text{extension visit}$$

- X₁ = age (in years)
- X₂ = educational level (yrs)
- X₃ = farming experience (yrs)
- X₄ = farm size (hectare)
- X₅ = household size (number of persons)
- X₆ = income level (₦)
- X₇ = expenditure on planting materials (₦)
- X₈ = labour input (₦)

The logistic regression model expresses the qualitative dependent variable which in this study is dichotomous, as a function of several independent variables, both qualitative and quantitative (Gujarati, 2013 and Fox, 2014). Since P is the probability of the farmer being visited by extension agent, 1 – P is the probability of the farmer not being visited by extension agent, the ratio P/(1-P), known as the odds ratio, is the odd in favour of extension visit. The natural logarithm of the odds ratio is called the logit model which is estimated through the method of maximum likelihood since data will be collected on individual observations (Gujarati, 2013). (2) Productivity of the farmers in the study area was analyzed using Ols multiple regression analysis techniques in line with the use of the OLs multiple regression analysis technique. Four functional forms (linear, Cobb-Douglas, exponential and semi-log) were fitted to the data. The equation that gave the best fit was selected based on conformity with aprior expectations, the magnitude of the coefficient of multiple determinations (R²) and the statistical

significance of the parameters estimate (Olaiyide and Heady 1982).

The explicit forms of the functions are given

- as
- a) Linear: $Y = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n + e$ equation(3)
- b) Cob-Douglas: $\ln Y = \ln b_0 + b_1 \ln X_1 + b_2 \ln X_2 + \dots + b_n \ln X_n + e$ equation (4)
- c) Exponential $\ln Y = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n + e$ equation (5)
- d) Semi-log = $Y = b_0 + b_1 \ln X_1 + b_2 \ln X_2 + \dots + b_n \ln X_n + e$ equation..... (6)

Where

- Y = gross value of output (₦)
- X₁ = age of farmers (yrs)
- X₂ = educational level (yrs)
- X₃ = farming experience (yrs)
- X₄ = farm size (hectare)
- X₅ = household size (number of persons)
- X₆ = number extension contacts (number of visits)
- X₇ = expenditure on planting materials (₦)
- X₈ = expenditure on chemical fertilizer (₦)
- X₉ = labour input (men-days)
- E = random error term.

(3) Problem encountered by farmers in adoption of innovation and in implementation for increased productivity in Ohaji-Egbema L.G.A of Imo State was analyzed using descriptive statistics such as mean media chart table and percentage.

RESULTS AND DISCUSSION

Table 1: RESULT OF LOGIT REGRESSION ON THE EFFECT OF EXTENSION CONTACT WITH FARMERS IN THE STUDY AREA

	Coeff	S.E.	Z	P>Z
Gross income	.000	.000	4.274*	.039
Age	.000	.000	8.103**	.004
Edu level	-867	.268	10.490**	.001
Farm size	35.689	12.017	8.820**	.003
Hh size	-280	.211	1.769	.184
RLab input	-002	.001	6.136*	.013
Constant	10.183	3.786	7.235	.007

Source: Field survey data 2019

Log likelihood -74.7584

LR chi2 (9) 53.90

Pseudo R² 0.2650

Number of obs 100

Pseudo R² (.2650)

Number of abs 100

5% level of significance

1% level of significance

From the result of the analysis in table 1, the value for gross income X₁, age X₂, educational level X₃, farm size X₄ and labour input X₆ are significant and positively related to extension contact in the study

area. The result also showed that the value for gross income and labour input are significant at 5% level of significance while the rest are significant at 1%.

Table 2: THE RESULT OF MULTIPLE REGRESSION AND RESULT OF GROSS VALUE OF OUTPUT OF FARMERS

EXPLANABLE VARIABLES	LINEAR FUNCTION	SEMI-LINEAR FUNCTION	DOUBLE LOG FUNCTION	EXPONENTIAL FUNCTION
Age (X_1)	.03 (1.647)*	.000 (-13.815)**	.000 (-20.645)**	.000 (2.353)**
Education (X_2)	.012 (-2.552)**	.000 (-11.698)**	.000 (-21.496)**	.021 (-6.143)*
Farming experien (X_3)	.857 (-.180)	.000 (9.576)**	.000 (21.127)**	.000 (2.240)**
Farm size (X_4)	.000 (4.802)**	.000 (18.280)**	.000 (38.276)**	.028 (10.807)*
Households size (X_5)	.001 (-3.427)**	.002 (3.247)**	.000 (4.428)**	.000 (-7.199)**
Extension contact (X_6)	.000 (-5.341)**	.000 (-11.738)	.000 (-24.468)**	.000 (-9.900)**
Exp on plant mat. (X_7)	.000 (-5.341)**	.768 (-294)	.000 (-5.21)**	.000 (5.001)**
Labour input (X_8)	.000 (-2.470)**	.000 (-16.166)**	.000 (-33.045)**	.000 (-7.096)
Constance	1.281	15.119	37.966	55.817
R^2	.985	.989	.997	.991
F – Value	756.999	1023.783	4294.108	1199.371
N	100	100	100	100

Source: Field survey 2019

T – ratios are in parenthesis

*T – ratios significant at 0.05 level

** T – ratios significant at 0.01 level

From the result of the regression analysis (table), the double log model was chosen as the lead model since it has the highest coefficient of multiple determinations (R^2) of .997. This implies that the variability in the dependent variable Y (output) is explained by 99% of the combined effect of the dependent variables.

The result showed that all the variables have significant relationship with output Y.

Farm experience (X_3) has a significant positive relationship with the output Y. This means that the higher the household size the higher the output.

Farm size (X_4) has a significant positive relationship with the output Y. This means that the higher the farm size the higher the output.

Household size (X_5) has a significant positive relationship with the output Y. This means that the higher the household size the higher the output.

Age (X_1) has a significant negative relationship with the output Y. this means that the older the farmer the less productive the farmer is.

Educational level(X_2) has a significant negative relationship with the output Y. this means that the higher the educational level of the farmer the less productive the farmer is.

Extension contact (X_6), Expenditure on plant material (X_7) and Labour input (X_8) affect the farmers output negatively.

Table 3 FREQUENCY DISTRIBUTION OF FARMERS ACCORDING TO FACTORS MILITATING AGAINST FOOD CROP PRODUCTION

Reasons	Frequency	Percentage
Poorly organized extension system	70	70%
Poor skilled extension workers	50	50%
Unavailability of improved seed	85	85%
High cost of improved farming inputs	93	93%
Lack of commitment of extension workers	72	72%
Poor motivation of extension workers	94	94%
Lack of finance	96	96%
Scarcity of improved inputs	90	90%
Lack of storage facility	83	83%
Unavailability of manpower	70	70%
Inadequate infrastructural amenities	92	92%
a) road (b) health centre		
Lack of storage facilities	90	90%
Total	100	100

Source: field survey data 2019

According to table 3, shows that distribution of farmers according to factors militating against crop production in the study area by multiple response, those problems scoring from (75-100%) responds were considered and categorized as major problems facing farmers in the study area. While those scoring between (0-74%) response were considered as minor problems. From the table, it shows that lack of finance (96%) were most serious problems faced by the farmers, due to non-support from Government and financial Institutions. Poor motivation of extension workers (94%) is second as major problem facing the farmers. Then followed by high cost of improved farming inputs (93%).

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