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Analysis of Factors that Motivate Agricultural Extension Agents in Abia State Agricultural Development Programme (ADP)

Arisa, J. I[1]. and *Osondu, C. K[2]

[1]*Extension Department, Abia State Agricultural Development Programme Headquarters, Ossah Road Umuahia, Abia State, Nigeria*

[2]*Department of Agricultural Economics and Extension Abia State University, Umuahia Campus, PMB 7010, Umuahia, Abia state, Nigeria. *Corresponding author e-mail: osonducharles87@gmail.com*

Abstract

The study analyzed factors that motivate agricultural extension agents in Agricultural Development Programme of Abia State. Primary data were collected from 96 extension agents in Abia State, Nigeria who were selected using multi-stage random sampling technique. Data were analyzed using descriptive statistics, mean score, ordered logit and spearman rank correlation. It was revealed that 58.3% of the extension agents were in medium motivation level. Result of the ordered logit regression revealed that salary, work incentive, job security and allowance exerted positive significant influence on extension agents' motivation level, while work load exerted a negative significant influence. The spearman rank correlation analysis revealed that level of motivation of extension agents was positively correlated with their age and education level but negatively correlated with their home distance from work location at 0.01. Constraints faced by majority of the extension agents were delay/infrequent payment of salary (84.34%), poor linkage between research centers and extension organizations (78.12%), illiteracy among farmers (72.92%), inadequate funding (72.92%) and inadequate equipment/tools (71.88%). It was recommended that the management board of extension agencies in Abia State in collaboration with the state government should design appropriate incentive mechanism for extra working hours and weekend tasks of extension agents and also create a system whereby excellent job performance by extension agents could be rewarded and motivated. These will attract, retain and motivate extension agents to better performance.

Keywords: Agricultural development programme, Extension agent, Motivation.

1. Introduction

Agriculture was the main stay of Nigerian economy until early 70s when oil took over. As a result, financial allocation to the agricultural sector decreased steadily and the contribution of agricultural exports to the Gross Domestic Product (GDP) declined. The country's gates were thrown open for food importation and local food production declined as a result of depressed domestic prices (Iroegbu, 2015).

To ameliorate the situation a number of agricultural programmes were embarked upon by successive Nigeria governments. The Ministry of Agriculture and Natural Resources (MANR) was created to serve as a supervisory ministry to most of the programmes. One of such programmes under the supervision of MANR is the Agricultural Development Programme (ADP) (Anyanwa, 2001). Abia State Agricultural Development Programme is aimed at achieving increased food production and effect changes in farming activities of small scale farmers in the rural areas by reaching them through the training and visit farming system of extension service (Chukwuemeka 2004). This revitalized agricultural extension system (Training and Visit Extension), integrates the extension workers training, regular visit to farmer and two way communications between farmers and researchers (Ajayi, 2001). He noted that extension agents' commitment is central in

the effort of any extension organization towards reaching the target audience.

According to Ani (1992) field extension agents occupy a key position in the transfer of production recommendations to the farm families. They provide the actual contact point between the extension service and the clientele or the target audience. They exhibit the following roles in the extension agency: formation of circles and sub-circles, selection of contact farmers, organization of field days, organization of farmers meeting, oversee that production recommendations (on improved farm practices) are effectively taught to farmers, and passing field problems to the appropriate authorities for solutions. Adegebo (1993) enumerated the roles of extension agents to include, getting farmers in the right frame of mind to accept technological packages, helping farmers gain managerial skills to operate in a commercial economy by providing training and guidance to them in decision making on farm management and profitability, disseminate to the farmers the results of research and carry farmers production constraint back to research organization for solution.

The major objective of extension agents is to increase agricultural production of farmers in the country and to raise living standard of the rural population (Unamma, 2004). This objective is to be achieved through the transfer of new technologies in agriculture to the rural farmers who operate mostly at small scale, using functional extension delivery system of which the extension agents are at the fore-front. According to Ajayi (1996), insignificant agricultural service can be as a result of adverse influence of one or more agency factors like delayed and in adequate payment of salaries, field allowances, which make the extension agents not to perform their duties well. Considering the pivotal roles extension agents have to play, Marshal (2001) noted that lack of attention to agricultural sector by the government of developing countries that have liquid and solid mineral resources, has resulted to extension agents not being properly encouraged to perform their duties very well in extension agencies,. He stipulated the negative agency factors that affect field extension agents to include; lack of incentives for extension agents living in rural areas which normally lack amenities necessary for comfort and safety, non-payment of transport allowances, non-provision of housing facilities, no logistics for extension work, and low salary structure of extension workers which causes them to wallow in financial problems and perform other secondary activities in place of the actual extension work. Furthermore, Okwu and Ejembi (2006) noted that extension agencies in the country are not adequately supported and are beclouded by lack of mobility and inputs. Poor remuneration could result in low morale and high rate of absenteeism among extension agents which would make extension rural campaign unachievable.

There is general consensus that dedication or commitment to duty is a function of level of motivation. Employees that have a high level of motivation care more about the quality of their work and, therefore are more committed to their organization (Oladele and Mabe, 2010). To ensure high levels of motivation, administrators need to know and understand what their employees want from work to develop better in-service training programs designed to enhance motivation and reduce job dissatisfaction (Scott *et al.,* 2005).

Bindlish and Evanson (1993) noted that extension alone can contribute as much as an additional 2 percent annually to agricultural growth. This is regarded as a very high pay-off far above the investment made in putting in place the reformed extension system. Benor *et al,*. (1984) stressed that the role of extension was not simply to make farmers produce more, but also to earn more and live better. It has been recognized that adoption of improved agricultural technologies leads to increased productivity and higher income for farmers. Such adoption could increase the income of farmers and reduce the price paid by consumers for agricultural products and thus, generate greater economic efficiency and overall growth in the national economy. This can only be achieved if extension agencies are well equipped, and extension agents who provide the actual contact point between the extension service and farmers are well motivated to undertake the delivery services to the downstream level (Unamma, 2004). Therefore, there is need to understand the factors that would motivate extension agents to carry out extension roles properly. The study therefore has its specific objectives to:

i.Describe the socio-economic characteristics of the extension agents in Abia State ADP.

ii. Ascertain level of motivation of extension agents in the study area.

iii. Determine agency factors that motivate extension agents in the study area.

iv. Analyze relationship between socio-economic characteristics of extension agents and level of motivation.

v.Identify problems encountered by extension agents in performing their duties in the study area.

2. Materials and Methods

2.1 Study Area

This study was conducted in Abia State of Nigeria. The study population was made up of all

field extension agents in Abia State Agricultural Development Programme (ADP).

2.2 Sampling Technique and Data Collection

Multi-stage random sampling technique was used to select sampling location and sample for the study. First, 2 agricultural zones were randomly selected from the 3 agricultural zones in the State. Secondly, 8 extension blocks were randomly selected from the two selected agricultural zones, to give 16 extension blocks. One extension block is usually made up of 8 extension circles, and each circle is controlled by an Extension Agent (EA). Lastly, 6 extension circles were randomly selected from the 16 extension blocks, to give 96 extension circles. Extension agents in charge of each of the selected circles served as respondent for the study. Thus, 96 extension agents were sampled for the study.

Primary data were used in this investigation. Data were collected from extension agents using structured questionnaire that was administered through interview method. Data were collected on the extension agent's socio-economics characteristics, level of motivation, as well as challenges they face in the course of performing their duties.

2.3 Analytical Technique and Model Specification

A number of analytical techniques were employed in analyzing collected data. Descriptive statistics such as mean, percentages and frequencies were used to analyze objectives (i) and (v) and part of objective (ii). Mean score was used to analyze part of objective (ii). Objective (iii) was analyzed with the aid of ordered logistic regression. Spearman Rank Correlation was used to analyze objective (iv).

To facilitate realization of objective ii, extension agents level of motivation were measured with the aid of mean score graded on 5 point Likert rating scale as follows: very highly encouraging = 5, highly encouraging = 4, moderately encouraging =3, highly discouraging = 2, and very highly discouraging = 1. The Likert scaling is a method of ascribing quantitative values to qualitative perception to make it amenable to statistical analysis. The sum of the values of the responses adds up to 15, which gives a mean of 3 when divided by 5. The cut off point for motivation is 3.0. Following Machiadikwe *et al,*. (2016) the mean was further modified thus: <3.0=low motivation, 3.0 – 3.9=moderate motivation, and > 3.9 = high motivation.

Mean (X) of each item was computed by multiplying the frequency of positive response to each question with its appropriate likert nominal value and the sum was divided by the sum of the number of the respondent to the items. This is summarized with the equation below:

$X = \sum fn/N.$

Where

X = mean score;

$\sum$ = summation sign;

F = frequency or number of respondents who responded positively;

n = Likert nominal value;

Following Yohannes (2009), Zelalem (2011), Tesfaye (2012) and Debebe *et al*. (2016) the individual extension agent level of motivation will be computed with the aid of a five point likert scale graded thus: very highly encouraging = 5, highly encouraging = 4, moderately encouraging =3, highly discouraging = 2, and very highly discouraging = 1. Each extension agent's overall motivation will be computed and summed up to obtain the mean score and standard deviation. Extension agents whose motivation score falls within the sum of the mean and standard deviation will be classified into medium level motivation. While those whose motivation score falls below or above the sum of the mean and standard deviation will be classified into low level motivation or high level motivation respectively. Thus, the categorization of the extension agents into low, medium and high motivation levels reflected the base for their deviations from the actual mean score distribution (that is, Actual mean ± Standard deviation =38.73 ± 6.14).

In order to realize objective (iii) ordered logistic regression model was considered appropriate. Ordinal Logit econometric model was used for this study because response categories (motivation levels) are ordered but do not form an interval scale. Responses like these with ordered categories cannot be easily modeled with ordinary linear regression because of the non-interval nature of the dependent variable. Also, multinomial Logit or Probit models would fail to account for the ordinal nature of the dependent variable (Green, 2000). Ordered Logit or Probit econometric model was therefore, deemed appropriate to analyze the data.

Following Liao (1994), Green (2000) and Wooldridge (2002) the functional form of ordered logit model is specified as follows:

$$y* = \Sigma_{k=1}^{k} = \beta_k + X_k + \varepsilon \quad (1)$$

y* = is unobserved and thus can be thought of as the underlying tendency of an observed phenomenon.

ε = is assumed to follow a certain symmetric distribution with zero mean such as normal or logistic distribution. What is observed is

$y = 1$ if $y^* \leq \mu_1$ (=0)

$y = 2$ if $\mu_1 < y^* \leq \mu_2$

$y = 3$ if $\mu_2 < y^* \leq \mu_3$ (2)

$y = j$ if $\mu_j - 1 < y^*$

Where y is observed in j number of ordered categories, μs are unknown threshold parameter separating the adjacent categories to be estimated with βs. The general form for the probability that the observed y falls into category j and the μs and the βs are to be estimated with an ordinal logit model is

$$Prob\ (y = j) = 1 - L\ [\mu_{j-1} - \sum_{k-1}^{k} + \beta_1 X_1\ \ldots\ + \beta_n X_n] \quad (3)$$

Where L (·) represents cumulative logistic distribution

Y = Motivation of extension agents (low = 1, medium = 2 and high = 3)

X_1 = Salary (Naira) X_2 = Allowances (Naira)

X_3 = Training (Number of times since employment)

X_4 = Work incentive (adequate = 1; otherwise = 0)

X_5 = Work load (ratio)

X_6 = Staff promotion (regular = 1; otherwise = 0)

X_7 = Job security (adequate = 1; otherwise = 0)

X_8 = Suspension (adequate = 1; otherwise = 0)

β_1 – β_n are estimates of the coefficients

Marginal effects on the probabilities of each work motivation category were calculated by

$$\frac{\partial\ prob\ (y=j)}{\partial\ X_k} = [\ f(\mu_{j-1} \sum_{k-1}^{k} \beta_k X_k) - f\ (\mu_j \sum_{k-1}^{k} \beta_k X_k)]\ \beta_k \quad (4)$$

Where $f(\cdot)$ represents the probability density function. Like logistic regression, ordered logit uses maximum likelihood methods, and finds the best set of regression coefficients to predict values of the logit-transformed probability that the dependent variable falls into one category rather than another. Logistic regression assumes that if the fitted probability, p, is greater than 0.5, the dependent variable should have value 1 rather than 0. Ordered logit doesn't have such a fixed assumption. Instead, it fits a set of cutoff points. If there are r levels of the dependent variable (1 to r), it will find r-1 cutoff values K_1 to K_{r-1} such that if the fitted value of logit (p) is below K_1, the dependent variable is predicted to take value 1, if the fitted value of logit (p) is between K_1 and K_2, the dependent variable is predicted to take value 2, and so on (Green, 2000) .The interpretation of the marginal effects for the first alternative (low work motivation level) and the third alternative (high work motivation level) are straightforward. For the low work motivation level, a positive value for the marginal effect means the probability of being low motivated whereas, a negative marginal effect means the probability of shifting out of the low level into higher categories increases. Shifting out of the low level does not necessarily mean moving into the next level but simply means a probability work motivation shifts into higher categories (Borooah, 2001). In the case of the high level, a positive marginal effect implies an increased probability for the extension agents' work, whereas a negative marginal effect indicates increased probability for extension agents to move into lower level of work motivation.

In order to analyze objective (iv), spearman rank correlation analysis was adopted. The implicit model for the correlation analysis is given as Y = (X_1,X_2,X_3,X_4,X_5,X_6, X_7). Where:

Y = Extension agents motivation level (Low motivation = 1; medium motivation = 2; high motivation = 3)

X_1 = Gender (male = 1; female = 0)

X_2 = Age (years)

X_3 = Household size (number)

X_4 = Working experience (years)

X_5 = Marital status (married = 1; otherwise = 0)

X_6 = Education (schooling years)

X_7 = Distance to job location (Km)

The spearman rank correlation coefficient r can take any value between -1 and +1. A statistically significant correlation coefficient in the range $0 < r \leq 0.3$ is regarded as weak correlation coefficient, $0.3 < r \leq 0.6$ was regarded as moderate correlation and $0.6 < r \leq 1$ was regarded as strong correlation.

3. Results and Discussion

3.1 Socio-economic characteristics of the Extension Agents

The distribution of the extension agents according to their socio-economic characteristics as presented in Table 1 shows that 40.6% of the extension agents were within age range of 36 to 43 years. The mean age of the respondents was 41 years. This indicates that the extension agents in the study area were still young and energetic. Hence, if well motivated can perform excellently in ensuring agricultural extension service goal which is to provide research-based information, education programmes and technology transfer focused on the issues and needs of farmers are achieved (Long and Swortzel, 2007). This finding compares favourably with Ezeh (2013) who got mean age of 40 years among extension agents in south-eastern Nigeria. Also, the table shows that greater percentage (67.7%) of the extension agents were male. This is probably because extension service operations were initially male oriented and women had little to do with extension service directly (Okwoche *et al.,* 2015). Ezeh (2013) and Okwoche *et al.,* (2015) also had similar findings in south-eastern Nigeria and Benue state respectively. With respect to education level, it is seen in Table 4.1 that 50.0% and 30.2% of the extension agents had Bachelor of Science/Education/Agriculture degree and Higher National Diploma degree respectively. About 13% of the extension agents had Master of Science degree, while, 7.3% of the extension agents had Ordinary National Diploma degree. This indicates that the

extension agents were well learned and thus, capable of adequately transferring research innovation to the farmer clientele. Literacy is an advantage in the extension service because agents must first understand subject matters before being able to teach farmers.Table 1also shows that 64.6% of the respondents were married. This shows that there was preponderance of married extension agents in the extension service system. Bezu *et al*. (2016) asserted that married extension agents are more responsible and committed to extension work than their unmarried counterparts.The table further shows that 38.5% of the extension agents had extension work experience of between 6 and 10 years. The mean years of extension work experience among the extension agents was 8 years. This shows that most of the extension agents were highly experienced in extension service work. Work experience has being shown to be positively correlated with extension agents' job performance, commitment and motivation (Okwoche *et al.,* 2015). It was also shown in Table 1 that 38.5% of the extension agents home were between 4 to 6 Km from their work location, while, 29.2% of them lived at about between 7 to 9 Km from their work location. The mean home distance from work location of the extension agents was 6.4 Km. According to Desalegn (2013) the proximity of extension agents home to the work area decreases the stress associated with extension work. Lastly, with respect to household, Table 1 shows that 47.9% of the extension agents had household size of between 5 to 8 persons. The mean household size of the extension agents was 5 persons. The present economic crises and deepening poverty levels have forced many households to embark on family planning measures to reduce their number of children. Lower household size could imply lesser expenditures. Hence, an extension agent with low household size could be more able to meet his needs better than one with higher household size *ceteris paribus.* This scenario is expected to occur in cases where other household members are economic dependents. Ezeh (2013) obtained a similar finding among extension agents in South-eastern Nigeria.

Table 1. Distribution of Extension Agents according to Socio-economic Characteristics in Abia State

Variables	Frequency	Percentage	Mean
Age			41.37
28 – 35	23	24.0	
36 – 43	39	40.6	
44 – 51	31	33.3	
52 – 59	3	3.1	
Gender			
Male	65	67.7	
Female	31	32.3	
Education Level			
Ordinary National Diploma	7	7.3	
Higher National Diploma	29	30.2	
Bachelor of Science/Education/Agriculture degree	48	50.0	
Master of Science degree	12	12.5	
Marital Status			
Single	17	17.7	
Married	62	64.6	
Widowed	14	14.6	
Divorced/Separated	3	3.1	
Working Experience			8.4
1 – 5	18	18.8	
6 – 10	37	38.5	
11 – 15	28	29.2	
16 – 20	5	5.2	
Above 20	8	8.3	
Distance from work Location			6.4
1 – 3	18	18.8	
4 – 6	37	38.5	
7 – 9	28	29.2	
Above 9	13	13.5	
Household Size			5.2
1 – 4	39	40.6	
5 – 8	46	47.9	
9 – 12	11	11.5	
Total	96	100.0	

Source: Field Survey, 2016

3.2 Level of Motivation of Extension Agents in Abia State

3.2.1 Level of motivation of Extension Agents according to motivation components

Distribution of the extension agents' level of motivation according to motivation components is shown in Table 2. The table shows that the extension agents had high level of motivation from job security (4.16), payment of salary advance (4.07) and payment of transportation allowance. All these motivation components had mean scores that are greater than the threshold score for moderate motivation (3.9). This implies that the extension agents in the area were highly motivated by the current status of these components as practiced in extension agency.

Table 2 also shows that the extension agents were moderately motivated through supervision (3.54), promotion (3.27), work incentive (3.30) and amount of salary (3.32). All these motivation components had mean scores that are within the threshold score for moderate motivation (3.0 - 3.9). This implies that extension agents could be motivated more and perform better if these components (supervision, promotion, work incentive and amount of salary) are improved upon. The current economic situation in the country necessitates the need to review the amount of salary, work incentive and frequency of promotion accruable to extension agents. According to Boeree (2006) the only way management can ensure that workers are committed to organisation goals is to provide them with the right working conditions and operational methods to enable them achieve their goals through the direction of their efforts to meet objectives of the organization (Boeree, 2006).

Lastly, it is further seen from Table 2 that the extension agents exhibited poor/low motivation to agency motivation components such as work load (2.73), training (2.54), non-delay in salary payment (2.54), reward for good performance (2.73), payment of meal allowance (2.76) and availability of vehicle purchase loan (2.70). With respect to work load, the ratio of extension agents to farm families as recommended by Food and Agricultural Organisation (2012) is 1:250. However, Haruna and Abdullahi (2013) posited that the average ratio of extension agents to farm families in Nigeria is 1:3011 which is considered one of the highest in the world. This could have increased the work load among extension agents leading to low motivation. The grand mean score of the extension agents' motivation was 3.25 implying that there was overall moderate level of motivation amongst the extension agents.

3.2.2 Level of Motivation of Extension Agents

Distribution of the extension agents' according to their level of motivation is shown in Table 3. The table shows that 58.3% of the extension agents fell into medium level motivation. About 30% and 12% of them fell into low and high motivation levels respectively. Cumulatively, majority (88.5%) of the extension agents were identified to be below the desired high level of work motivation.

Table 2. Distribution level of motivation of Extension Agents in Abia State according to Motivation Components.

Motivation components	5	4	3	2	1	Total	Mean
Work load	65 (13.5)	84 (21.9)	60 (20.8)	22 (11.5)	31 (32.3)	262	2.73
Training	65 (13.5)	80 (20.8)	54 (18.8)	19 (19.8)	26 (27.1)	244	2.54
Supervision	110 (22.9)	160 (41.7)	42 (14.6)	16 (8.3)	12 (12.5)	340	3.54
Promotion	100 (20.8)	112 (29.2)	57 (19.8)	32 (16.7)	13 (13.5)	314	3.27
Work incentive	135 (28.1)	68 (17.7)	69 (24.0)	32 (16.7)	13 (13.5)	317	3.30
Job security	225 (46.9)	124 (32.3)	39 (13.5)	8 (4.2)	3 (3.1)	399	4.16
Amount of salary	105 (21.9)	88 (22.9)	84 (29.2)	34 (17.7)	8 (8.3)	319	3.32
Non-delay in salary payment	45 (9.4)	80 (20.8)	51 (17.7)	36 (18.8)	32 (33.3)	244	2.54
Reward for good performance	70 (14.6)	60 (15.6)	72 (25.0)	34 (17.7)	26 (27.1)	262	2.73
Payment of meal allowance	50 (10.4)	108 (28.1)	57 (19.8)	20 (10.4)	30 (31.3)	265	2.76
payment of salary advance	215 (44.8)	128 (33.3)	24 (8.3)	22 (11.5)	2 (2.1)	391	4.07
Transportation allowance payment	200 (41.7)	124 (32.3)	39 (13.5)	20 (10.4)	2 (2.1)	385	4.01
Availability of vehicle purchase loan	65 (13.5)	76 (19.8)	63 (21.9)	24 (12.5)	31 (32.3)	259	2.70
Grand mean score							3.25

Decision Rule < 3.0 = low motivation, 3.0 – 3.9 = moderate motivation, and > 3.9= high motivation
Figures in parentheses are percentages.
5=Very highly encouraging, 4=Highly encouraging, 3=Moderate encouraging, 2=Highly discouraging, 1=Very highly discouraging
Source: Field Survey, 2016

3.3. Agency factors that motivate Extension Agents

Estimates of ordered regression model on agency variables hypothesized to influence motivation of extension agents are shown in Table 4. Overall, the model posted a pseudo R^2 value of 0.7813, a log likelihood value of -22.6128 and a goodness of fit chi-square value of 161.6008 which was statistically significant at 1.0% probability level. Overall, the model fitted 72.3% of the data correctly.

Table 4 shows that five out of the eight agency factors significantly determined level of motivation of the extension agents. The most significant ($P < 0.01$) of the five factors that positively determined level of motivation of the extension agents are salary and work incentive. These are followed by job security ($P < 0.05$) and allowance ($P < 0.10$). Only work load was a negative significant determinant of extension agents' level of motivation at $P < 0.05$.

Specifically, the coefficient of salary (0.0003) was positive and statistically significant at 1.0% alpha level. The sign is in agreement with *a priori* expectation. It implies that an increase in extension agents' salary increased their motivation. The marginal effect result also suggests that all other variables being constant, a unit increase in salary of the extension agents decreased work motivation at low motivation level by 1.51% and increased work motivation for medium and high motivation levels among the extension agents by 0.28% and 1.25% respectively. Herzberg's motivational theory posits that salary was the most important factor influencing work motivation of employees in the work place (Herzberg, 1968; Desalegn, 2013). According to Desalegn (2013) low work motivation among extension agents is aggravated by the poor salary structure of extension organizations as compared to what other workers with similar educational level working in private and agricultural research institutions receive. Mowbray (2002) found that insufficient pay is the leading agency factor contributing to an extension agent's decision to leave the extension service system.

The coefficient of allowance (0.0001) was positive and statistically significant at 10.0% alpha level. The sign is in consonance with *a priori* expectation. It implies that an increase in extension agents' allowance increased their motivation. The marginal effect result also shows that a unit increase in allowance paid to the extension agents decreased work motivation at low motivation level by 1.48% and increased work motivation for medium and high motivation levels among the extension agents by 0.54% and 1.66% respectively.

Work incentive had a positive coefficient (0.0005) that was significant at 1.0% alpha level. The sign of the coefficient is in tandem with *a priori* expectation. This implies that level of motivation of the extension agents increased with increase in their work incentive. The result of the marginal effect shows that a unit increase in work incentive decreased work motivation at low and medium levels by 3.71% and 0.46% respectively, but increased work motivation for high level by 3.09%. Bavendam (2000) concluded that employees who get performance incentives care more about the quality of their work and are committed to their organization. In the same vein, Ajila (2007) found out that workers who received incentives performed better than those who did not. According to Dessalegn (2014) inadequate incentive system is the most observed and over-emphasized reason given by extension workers for low motivation in their work.

Work load had a negative coefficient (-3.4098) that was significant at 5.0% alpha level. The sign of the coefficient is in agreement with *a priori* expectation. This implies that level of motivation of the extension agents decreased with increase in their work load. The result of the marginal effect reveals that a unit increase in work load decreased probability of extension agents belonging to high motivation level category by 6.44%, but increased probability of their belonging to low and medium level motivation level categories by 0.42% and 3.36% respectively. Job security (1.6337) was another motivational factor, which had a significant positive impact on work motivation of the extension agents at 5.0% significance level. The sign of the coefficient is in tandem with *a priori* expectation and suggests that an increase in perceived job security by the extension agents increased their level of motivation. The marginal effect of a unit increase in perceived job security was 1.17% and 1.07% decrease the categories of low and medium motivation levels respectively and 2.08% increase in high motivation level category. The implication is that perception of extension work as a permanent and rewarding job by the extension agents increases their dedication to duty. The result supports Harpaz (1990) and Debebe *et al.* (2016) finding that there exist a strong positive relationship between motivation and job security of extension agents.

3.4. Relationship between Extension Agents' socio-economic characteristics and level of motivation

Table 5 shows the correlation matrix of the relationship between gender, age, household size, work experience, marital status, educational level and home distance from work location of extension personnel in Abia state and the level of motivation.

The table shows that age, and education level of the extension agents were positively related to their level of motivation at $p < 0.01$. While, home distance from work location of the agents was negatively related to their level of motivation at $p < 0.01$. The positive significant moderate correlation of age of the extension agents and their level of motivation implies that the older the extension agents, the higher their level of motivation. This result agrees with Desalegn (2013) who posited that most aged extension agents are highly tolerant and not eager to leave the extension system even when the working environment becomes challenging. Because of such reasons, older extension agents in the study area have high work motivation than the younger agents. This result is consistent with Bowen *et al.* (1994) and Paynter (2004) which indicated that older workers are more motivated in their work than younger workers. However, some studies have shown that a negative relationship between work motivation and age, indicating that younger workers are more motivated in their work than older workers (Yohannes, 2009).

In terms of education level, it is revealed in Table 5 that there exists a strong significant positive correlation between education and motivation at $p < 0.01$. Thus, the extension agents with higher education level had higher level of motivation. Education level enhances extension agents' ability to understand and adequately transfer research innovations to farmers. Ifenkwe (2012) showed that educational level had a positive relationship with extension agents' motivation level. The finding is similar to Okwoche *et al.* (2015) finding among extension agents in Benue State.

Home distance from work location was significant ($p < 0.01$) and negatively correlated with motivation level. This implies that the farther the home distance from work location of the extension agents the lower their motivation level. According to Debebe (2016) the proximity of extension agents from their residence to their place of duty decreases stress. Debebe (2016) had a similar outcome in Ethiopia.

3.5. Problems encountered by Extension Agents

The distribution of the extension agents according to problems encountered is shown in Table 6. As shown in the table, constraints faced by majority of the extension agents are delay/infrequent payment of salary (84.34%), poor linkage between research centres and extension organizations (78.12%), illiteracy among farmers (72.92%), inadequate funding (72.92%) and inadequate equipment/tools (71.88%). Other constraints to performance as reported by many of the extension agents include inadequate budgetary provision (61.46%), poor transport system (60.42%) and inadequate training (51.04%). About 45% and 32% of the extension agents perceived poor conducive work environment and lack of clearly stated project as constraints encountered in performance of their duty. According to Chizari *et al.* (1998) inadequate equipment, poor funding, poor linkage between research institutes and extension organizations and illiteracy among farmers were the major obstacles encountered by extension agents.

Table 3. Distribution of Extension Agents in Abia State according to level of motivation.

Motivation Level Category	Score	Frequency	Percent
Low level motivation	20 - 32	29	30.2
Medium level motivation	33 - 45	56	58.3
High level motivation	46 - 58	11	11.5
Total		96	100.0

Mean = 38.73; Standard deviation = 6.14, Source: Field Survey, 2016

Table 4. Maximum likelihood estimation of ordered Logit model for agency variables influencing work motivation of the Extension Agents in Abia State

Variable	Coefficient	Std. Error	z-Statistic	Prob.	Marginal effect		
					Low	Medium	High
Salary	0.0003***	6.99E-05	4.10001	0.0000	-0.0151	0.0028	0.0125
Allowance	0.0002*	0.0001	1.6620	0.0965	-0.0148	0.0054	0.0166
Training	0.1178	0.4111	0.2866	0.7744	-0.0268	0.0052	0.0245
Work incentive	0.0005***	0.0002	2.6419	0.0082	-0.0371	-0.0046	0.0309
Workload	-3.4098**	1.3369	-2.5506	0.0108	0.0042	0.0336	-0.0644
Staff promotion	0.1215	0.8460	0.1436	0.8858	-0.0366	0.0062	0.0252
Job security	1.6337**	0.7753	2.1071	0.0351	-0.0117	-0.0107	0.0208
Suspension	-0.6074	0.8432	-0.7204	0.4713	0.0244	0.0169	-0.0327
Log Likelihood	-22.6128						

LR Chi^2=161.6008***, Pseudo R^2=0.7813, Correctly predicted=72.3%, Prob (LR Chi^2)=0.0000, Number of obs=96
***, **, and * statistically significant at 1.0%, 5.0% and 10.0% alpha levels of probability respectively.

Table 5. Correlation matrix of selected individual variables and motivation of the Extension Agents in Abia State

	M	G	A	Hs	We	Ms	El	Dw
M	1.000							
G	0.048	1.000						
	(0.641)							
A	0.516***	0.175	1.000					
	(0.002)	(0.088)						
Hs	-0.012	0.030	0.004	1.000				
	(0.905)	(0.774)	(0.966)					
We	-0.023	0.002	0.189	0.077	1.000			
	(0.827)	(0.997)	(0.065)	(0.455)				
Ms	-0.059	0.50	0.026	-0.077	0.301***	1.000		
	(0.571)	(0.631)	(0.804)	(0.458)	(0.003)			
El	0.668***	0.124	0.512***	-0.208	-0.142	-0.027	1.000	
	(0.008)	(0.230)	(0.000)	(0.042)	(0.169)	(0.795)		
Dw	-0.659***	0.064	-0.658***	-0.074	-0.018	0.142	-0.509***	1.000
	(0.000)	(0.537)	(0.001)	(0.471)	(0.865)	(0.168)	(0.000)	

M=Motivation, G=Gender, A=Age, Hs=Household size, We=Work experience, Ms=Marital status, El=Education level, Dw=Distance from work

*** and ** indicate variables significant at $p < 0.01$ and $p < 0.05$ respectively.

Figures in parenthesis are p-values

Source: Field survey data, 2016

Table 6. Distribution of Extension Agents according to problems encountered in performance of duty in Abia State

Constraints	*Frequency	Percentage
Lack of clearly stated projects	31	32.29
Inadequate equipment/tools	69	71.88
Unavailability of technical help	23	23.96
Inadequate budgetary provision	59	61.46
Poor conducive work environment	43	44.79
Poor transport system	58	60.42
Inadequate training	49	51.04
Poor supply of relevant information	26	27.08
Inadequate funding	70	72.92
Infrequent payment of salary	81	84.38
Poor linkage between research organization and extension	75	78.12
Illiteracy of farmers	70	72.92

* Multiple responses recorded

Source: Field Survey, 2016

4. Conclusion and Recommendations

From the result it is concluded that the extension agents fell into different levels of motivation with few of them being highly motivated. The extension agents faced many constraints in their field work which must be looked into and solutions found for the extension service to achieve its goals. Also, many agency factors: salary, work incentive, job security and allowance exerted positive significant influence on level of motivation of extension agents, while, work load exerted a negative significant influence on level of motivation of extension agents. The extension agents' age and educational level were positive correlates with their level of motivation, while home distance from work location was a negative correlate with their level of motivation.

Drawing from the findings of the study, the following recommendations are made:

1.Work incentive was a significant positive determinant of extension agents' motivation. Therefore, the management board of extension agencies in Abia State in collaboration with the state government should design appropriate incentive mechanism for extra working hours and weekend tasks of extension agents and also create a system whereby excellent job performance by extension agents could be rewarded and motivated. These will attract, retain and motivate extension agents to better performance.

2. The state government should promote capable extension workers who are below the cadre of extension agents to extension agents and recruit capable hands into the extension service organisation. The more the number of extension agents the lesser the ratio of extension agents to farm families. This will reduce the over stretched work load of the extension agents and increase their motivation level and performance in the extension service.

3. The level of formal education attained has been seen as having a great positive relationship with extension agents' motivation. This underscores the need for high academic standards to be maintained in the institutions where extension agents are trained.

4. The management board of agricultural extension organizations in the state should understand the importance of extension agents in achieving the goals of the extension service system, and that motivating these workers is of high importance in effectively fulfilling the missions of extension organizations.

5.The salary structure of extension agents in the state should be reviewed and improved upon as this will enhance the level of motivation of extension agents.

6. As a matter of urgent policy unnecessary delay in payment of extension agents/workers salary in the state should be avoided as this demoralizes the extension agents and limits their performance.

7. Deliberate policy aimed at revamping the state's agricultural extension service system and properly equipping the extension service system with all necessary tools/equipment that will foster the transfer of research innovations to farmer clientele should be made.

8. Extension agents sent to rural locations that are very far from their homes should be given appropriate transport allowance or provided with a means of transportation at subsidized price.

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