ANALYSIS OF GRADUATE FARMERS' PARTICIPATION IN NATIONAL DIRECTORATE OF EMPLOYMENT AGRICULTURAL TRAINING SCHEME IN IMO STATE, NIGERIA

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Abstract

This study analyzed participation of graduate farmers in National Directorate of Employment Agricultural Training Scheme in Imo state, Nigeria. A multi-stage random sampling procedure was used to select the respondents. Data were collected through a structured questionnaire and analyzed using descriptive statistics such as frequencies, percentages, mean counts and probit regression model. The result from the study showed that 57.78% and 51.11% of the respondents were males and had secondary education respectively, with mean ages 43.40 years, mean farming experience of 14 years and household size of 6 persons. The result also indicates that the graduate farmers were actively involved in crop ($\bar{X}$*=2.5) and livestock* ($\bar{X}$*=2.5)components of the scheme. Probit regression analysis showed that gender, age, household size, education, cooperative membership and farming experience influenced graduate farmers participation in the scheme. It is therefore recommended that awareness on agricultural components; training and retraining of facilitators and proper funding to encourage the unemployed participate actively in the scheme.*

Key Words: *Graduate farmers, Participation, Agricultural, Training, NDE*

Introduction

The development of agricultural sector of Nigerian economy depends on young people, most especially the rural youths that represents the bulk of labour needs (Food and Agricultural Organization 2014). As a developing nation, Nigeria needs to develop an organized system of training for effective and adequate realization of the unemployed potentialities through alleviation or reduction programmes meant to reduce the level of poverty and serve as avenue wealth creation (Ogbonna and Nwaobiala, 2014). However, these programmes have not been successful because of the top-bottom programmes planning of the government (Nwaobiala, 2014). Participation in any development project is of importance and an obvious strategy for successful project execution, as it is a powerful tool; for mobilizing new and additional resources in the rural areas (Atameh, 2012; Ojo, Olujide, Adelakun, and Omisope (2017).

In development programmes participating farmers exhibit various attitudinal dispositions which may be favourable or unfavourable to innovation, person, institution or activities. It entails an action that enables individuals to make inputs and be part of any decision making process. In this vein, participation is very necessary and should be encouraged at all stages of the programme before success can be achieved (Adeboye, 2013). Over the years, Nigeria's perpetual food shortages have often been blamed on inadequate, overstretched, ill – motivated and ineffective extension services. Increased agricultural production and productivity is primarily hinged upon the acceptance of cultural and technological changes at farm level (Scoones and Thompson, 2000).

Farmers' participation in technological development and participatory extension approaches have emerged as a response to implementing government agricultural practices. Participation of farmers in agricultural programnes increases farmers' local indigenous knowledge, values ad belief systems on farming practices that are of great benefit to them (Apantaku and Kaothar, 2017). Farmers' participation is considered necessary to get support for agricultural development project (Cole, 2007) and its quality determines the success of organization/agency as well as its programmes (AESON, 2011). Aref (2011) opined that without participation, there are obviously no partnerships, no developments and no programme,

therefore, a lack of participation in the decision to implement an agricultural policy can lead to failure in the agricultural development.

In order to fast track the participation of unemployed in agricultural production in the country, the National Directorate of Employment through the Rural Agricultural Development and Training Scheme (RADTS) has the mandate to train unemployed the areas of crop production, livestock management, crop processing and preservation among others (NDE, 2010). Most of these programmes centre on community development approach rather than agricultural oriented strategies which have marginalized resource poor farmers thus causing them to be eluded from active participation in the programmes (Nwaobiala, Ezeh and Unamma, 2012). It is not certain since the establishment of programme, whether it has attained the stated mandates especially on participation of farmers in its agricultural training scheme. It is against this backdrop that the paper was undertaken to assess the participation of graduate farmers' in National Directorate of Employment Agricultural Training Scheme in Imo state, Nigeria.

The specific objectives were to

Describe socio-economic characteristics of beneficiary farmers in the study area.

Ascertain levels of participation of farmers in the training of NDE agricultural technology scheme; and

Determine socio-economic factors that influence graduate farmers participation in agricultural components of the scheme

Methodology

The study was carried out in Imo State. The state lies within latitudes 4^o 45'N and 7^o 15'N, and longitude 6^o 50'E and 7^o 25'E. It occupies the area between the lower River Niger and the upper and middle Imo River. The state is bounded on the east by Abia state, on the west by River Niger and Delta state; and on the north by Anambra State, while Rivers state lies to the south. The state is located within the rainforest belt of Nigeria, and the temperature ranges between 20^o C and 30^o C. Agriculture is the major occupation of the people. The major food crops produced include cassava, yam, cocoyam, maize, and melon. Imo state is made up of 27 Local Government Areas (LGAs) and three Agricultural zones of Okigwe, Owerri and Orlu.

The NDE beneficiaries were chosen from the list of trained beneficiaries of Rural Agricultural Development and Training Graduates of NDE. A multistage random sampling technique was used to select LGAs and respondents. First, six (6) local government areas namely Owerri North, OwerriWest, Isiala Mbano, Orlu, Ezinihitte Mbaise and Ohaji/Egbema, out of twelve (12) LGAs where the programme was located were randomly selected for the study. From the list, fifteen (15) practicing agricultural graduate trainees were randomly selected from six (6) Local government Areas giving a total of ninety (90) respondents. Data were analyzed by the use of descriptive statistics such as frequency distribution, percentages, means and tables and Probit regression analysis. Participation of respondents on the various agricultural components were derived using a 4-point Likert type scale on the levels of participation of respondents in each technology component of the scheme, rated as always = 4, occasionally = 3, rarely = 2, never = 1. Respondents mean scores was computed by adding the weights of 4, 3, 2, 1 and a mean score of 2.5 was used as a benchmark for decision. Respondents' scores that were equal or greater than 2.5 were regarded as high participation while respondents' scores lower than 2.5 were regarded as low participation.

Model Specification

The probit regression likelihood estimates model was used in analyzing the influence of socio-economic factors on graduate farmers' participation in the scheme and is expressed thus;

$Y_i^* = B^1 x_i + E$

$Y_i * = 0$ if $Y_i * = 0$

$Y_i = 1$ if $Y_i * = 0$

Where:

Yi* = an underlying latent variable that indexes the extent of farmers participation

$Y = f(X_1 + X_2 + X_3 + X_4 + X_5 + X_6 + X_7 + X_8 + X_9 + ei)$

Y= probability of graduate farmers' participating in the scheme ranges from 1 - 0.

X_1 = gender (dummy male = 1, female = 0)

X_2 = age (years)

X_3 = marital status (married = 1, otherwise = 0)

X_4 = household size (number of persons)

X_5 = education (years of schooling)

X_6 = occupation (full time farmer = 1, otherwise = 0)

X_7 = farm size (hectares)

X_8 = farming experience (years)

X_9 = membership of cooperative (membership = 1, otherwise = 0)

ei = error term

Results and Discussion

Selected Socio-economic Characteristics

Data in Fig 1 shows selected socio-economic characteristics of respondents in the study area.

The figure shows that mean ages of the respondents was 43.4 years, indicating that they were in their productive ages. This result concurs with Iwala, (2006) that farmer's age influences participation and productivity of agricultural promoted programmes. However, 63.33% were married, 51.11% acquired secondary education with mean household size of 6 persons and farming experience of 10.1 years. The education attainment of the respondents revealed that they were literates. Ayinde, Torimiro, and Koledoye (2014) in their study affirmed that literacy levels of farmers enhance their ability to accept or be receptive on a new technology. This was in consonance with Muhammad-Lawal, Omotesho and Falola (2009) as they assert that a range of 4 – 6 members constitute the modal household size among the rural farmers in Nigeria. The NDE arable crop farmers had farm size of 1.5 hectares while 62.4% belonged to cooperative societies.

The result suggests that the farmers had relatively small sized farms. Nwaobiala, (2013a) obtained a similar result among Cross River state IFAD farmers. Cooperative membership has proved to enhance farmers' productivity through input delivery (Sulaiman, Onoja, Shuaibu, Duniya and Tambari, 2015).

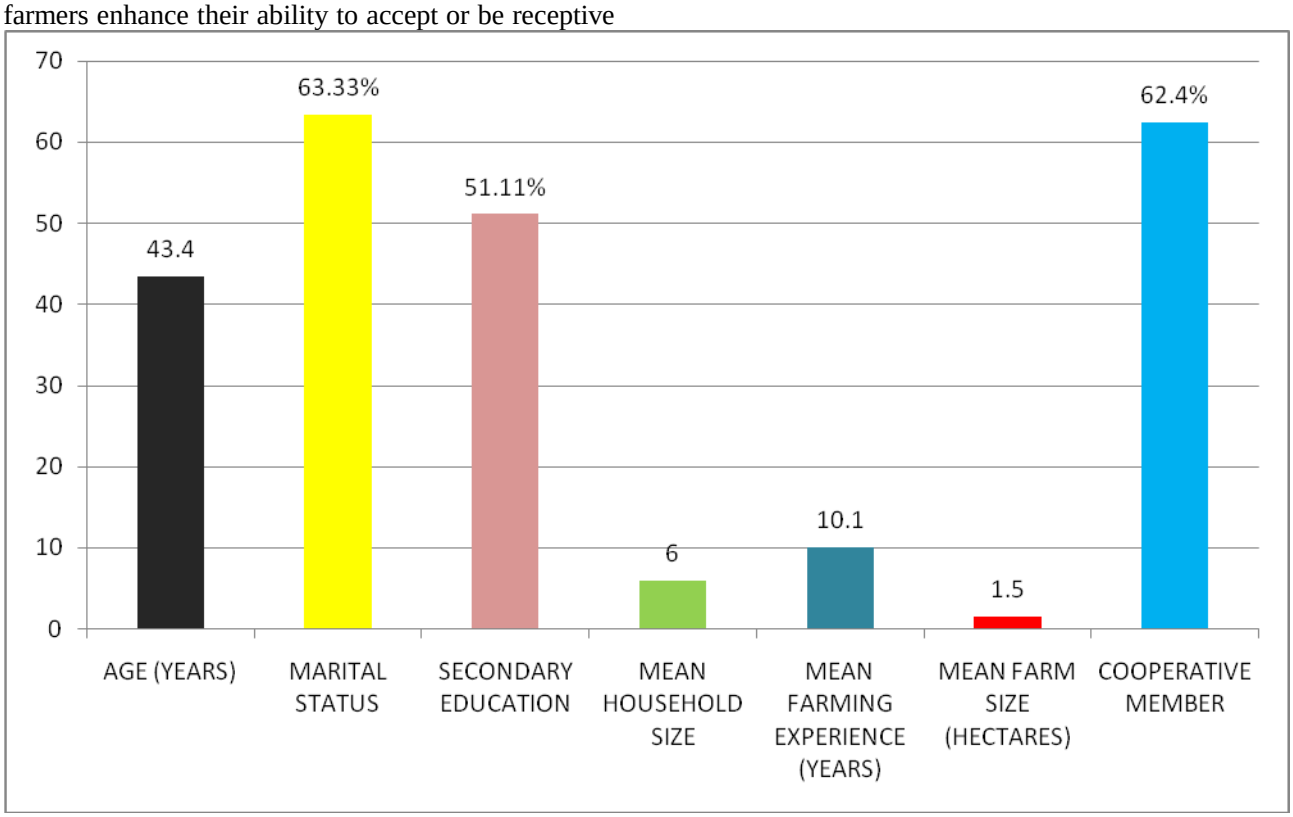

Fig 1:*Selected Socio-economic Characteristics of respondents in the study area*

Levels of Graduate farmers Participation in Agricultural Components of the Scheme

Graduate farmers Participation in Crop Technology Component

The distribution of beneficiaries according to their participation in the NDE Rural Agricultural Development technology components are shown in Table 1. The result show that the farmers participated in the crop production with a mean of 2.5 with standard deviation of 2.0. Since the mean score decision rule is 2.5, it means that the beneficiary farmers had a high participation in crop technology component of the programme. This result is not surprising because crop production (arable crops) is practiced by many farmers in developing countries, which serve as staple food and source of income for the rural poor farmers. Agbamu, (2009) opined that arable crop such as cassava is cultivated in Nigeria by more than 90% of rural farmers.

Graduate farmers Participation in Livestock Technology Component

Data on Table 1 indicates that the beneficiaries participated in livestock component of the programme, with a mean score of 2.5 and standard

deviation of 2.0.The mean score for beneficiaries was in tandem with the mean score decision rule, which implies that the beneficiaries participated actively in the trainings of livestock technology of the programme. Kryger, Thomsen, Whyte, and Dissing, (2010), observed that farmers' participation in livestock technology may be attributed to the protein needs of the farmers.

Graduate farmers Participation in Crop Processing Technology Component

Result in Table 1 shows that the farmers recorded a participation mean score of 2.4. The result implies that the beneficiary farmers did not participate actively in the training sessions of crop processing technologies of the scheme since the mid score decision rule of 2.5 is greater than the calculated mean score. The low participation of respondents in the technology may be due to gender sensitiveness of the technology transferred which is skewed to females who are involved in one processing activity or another. Gender promoted technologies such as cassava value addition is specifically conducted for women, which is targeted to supply family food needs and increase household income (Nwaobiala and Ahamefule, 2015).

Graduate farmers Participation in Crop Preservation Technology Component

Participation of farmers in crop technology components of the scheme (Table 1), indicate that the beneficiaries had a mean participation score of 2.3 implying that they were not actively involved in the trainings on crop preservation technologies of the programme. The reason for low participation of respondents in the technology may be attributable to immediate food needs of the crop produced especially cassava roots that do not require preservation except processed and consumed in form of gari (Okoroafor and Nwaobiala, 2014).

Table 1: Distribution of NDE Beneficiaries' According to their Participation in Technology Components of the Scheme

Technology Components	Mean Scores	Standard Deviation
Crop Production	2.5	2.0
Livestock Production	2.5	2.0
Crop Processing	2.4	1.9
Crop Preservation	2.3	1.8

Source: *Field Survey, 2015*

Decision Rule: 2.50 and above is high participation

Below 2.50 is low participation

Factors influencing Graduate Farmers' Participation in NDE Agricultural Training Scheme

The Probit regression estimates of determinants of farmer's participation in the scheme in Imo State, Nigeria are shown in Table 2. The Chi^2 (χ^2) is highly significant at 1.0% level of probability, indicating goodness of fit of the probit regression line. The coefficient for gender was positive and highly significant at 1.0% level of probability, indicating that males participated more in the scheme than their female counterparts. Gender participation in development programmes show mixed evidence regarding the different roles men and women play in the type technology disseminated. This result is in tandem with Nwaobiala (2013b); Uzokwe, Ofuokwu, and Dafe, (2017), who stated that males participated in selected agricultural development projects than their female counterparts in Abia and Edo states of Nigeria respectively. The coefficient for age was negative and significant at 1.0% level of probability. This implies that as the respondent's grow older, they tend to participate less or not in the scheme, whereas the younger ones have the probability of participating more. This is against *a prior expectation.* This disagrees with the findings of Tijani and Umeh (2016), that age has negative relationship with participation of farmers in Growth Enhancement Support Scheme in Oyo state, Nigeria. The coefficient of education was positive and highly significant at 1% level of probability. This is expected because, the more educated a farmer is, the higher the probability of participation. Education level of a participant increases his ability to process, obtain and use information relevant in his or her agricultural obtain process (Namara, Weligomafe and Baker, 2013). Membership of cooperative society was positive and significant at 5. 0% level of probability. This implies

that members of cooperative societies participate more than the non-cooperators in the scheme. Cooperative membership has shown to expose beneficiaries' the benefits accruing from the institution such as improved seeds, fertilizers, agrochemicals, market access and among others (Omoregbee and Okoedo-Okojie, 2012). The coefficient by farming experience was negative and significant at 1.0% level of probability. This is in disagreement with *prior expectation.* The negative sign implies that farmers who had less farming experience participated in the agricultural scheme components. This result contrast with Bonabana-Wabbi (2006) that positive effect of farming experience is thought to stem from accumulated knowledge obtained from years of observation and experimenting with various technologies. Household size was also positive and significant at 5% level of probability. This indicates that farmers with large household sizes were likely to participate in the scheme, since any farming activity requires cheap means of labour to breakeven. This result is in consonance with Thomas and Eforuku (2016) who found that household size significantly influenced intensity of participation of youths in agricultural programmes in Oyo state, Nigeria.

Table 2: Probit Regression Estimates of the Determinants of Graduate Farmers Participation in the Scheme in Imo State, Nigeria

Variables	Parameters	Coefficients	T-ratio
Constant	X_0	2.489	6.432***
Gender	X_1	0.114	3.501***
Age	X_2	0.112	-3.212***
Marital Status	X_3	-0.213	-0.151
Household Size	X_4	0.144	2.514**
Education	X_5	0.111	3.049***
Cooperative membership	X_6	0.133	2.011**
Farm Size	X_7	-0.321	-0.110
Farming Experience	X_8	0.132	2.18**
Chi^2	χ^2		74.812***

Source: *Field Survey Data, 2015* Significant at ≤ 10, ** P≤ 0.5 and *** P ≤ 0.

Summary, Conclusion and Recommendations

Conclusion

The study has shown that the farmers participated actively in crop and livestock components of the scheme. Socio- economic factors such as gender, age, household size, education, cooperative membership and farming experience influenced graduate farmers participation in the scheme.

Recommendations

Awareness and incentives should be intensified in crop processing and preservation components to encourage participation of more participant farmers in the scheme.

Proper funding of the scheme by government will help to train more unemployed youths in different agricultural components of the agency.

Educational programmes, training and retraining should be organized for the facilitators in order to improve on their training skills.

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