

**YOUTHS AND OFF-FARM ECONOMIC EMPLOYMENTS: A CASE STUDY OF YOUTHS IN THE RURAL AREAS OF AKWA IBOM STATE, NIGERIA.**

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**Abstract**

The study identified policy variables that modeled rural youths' decision and participation in non-farm economic activities in the Southern region of Nigeria. The study used descriptive tools and regression analyses to analyze data collected from respondents. Combination of sampling methods was employed to select 300 youths used in this study. Structured questionnaire and focus group discussion with key informants were used to record information needed for this study. The Logit model estimates revealed that the decision of rural youths to engage in non-farm income activities is positively determined by the marital status of youths, level of education, amount of non-farm income generated and family dependent ratio; while greater male composition in the youth, increase in age, membership in a social organization, access to ICT facilities, number of agricultural extension visits, and farm income were negative determinants. The Tobit model estimates showed that, more male composition in the youth, increase years of formal education and high cost of hired labour were positive drivers of rural youth participation in non-farm income generating activities. On the contrary, factors that reduce actual participation of rural youths in non-farm activities were: the marital status, membership in a social group, number of hours spent in farm per day, access to ICT, farm size cultivated, farm income, extension agent visits, commercial purpose of farming and number of category of crop and animal owned. Based on the findings, it is recommended that, rural youths should be encouraged to form social organization and ICT facilities should be provided in the rural areas of the State. Rural communities should provide more lands to youth farmers in the region; while agricultural extension system should be strengthened to deliver effective and efficient services to youth farmers in the region. Government as a matter of policy should motivate successful youth farmers through merit awards in agricultural production.

**Keywords:** Youths, Non-farm income, Agricultural activities, Rural areas, Rural development, Nigeria.

**Introduction**

In recent years, the Southern region of Nigeria has witnessed massive infrastructural development

especially in road construction (Isa et al., 2013 and Akwa Ibom State Government Report, 2015). This phenomenon has opened up most of the rural areas and farm settlements to fast developing urban and sub-urban centers. It has also introduced new job opportunities in non-farming businesses to rural youths in the area. This development drive has brought challenges in the agricultural sector of the region. Among these challenges are issues related to agricultural diversification or off-farm income generating activities among rural youths and rural-urban migration (Inoni et al., 2006; Oluwasola et al., 2006; Akpan, 2010; Nchuchuwe and Kehinde 2012). Economists have postulated that, continuous agricultural diversification could negate the traditional role of agricultural sector as a reservoir of employment for youths in the rural areas especially in the developing economies (Akpan, 2010; Akpabio 2012, Naglers and Wim 2014; Temirbulatova and Moara 2015). The attendance consequences include: reluctance of youths to engage in farming due to comparatively low returns, youths' restiveness, criminalities, high labour cost, and under-employment of agricultural resources (Akpan, 2010; Ajufo, 2013 and Adebayo, 2013). Apart from inducing development; many analysts have also attributed increase in off-farm income activities among rural youths to increase income volatility arising from economic pressure (Onemolease and Alakpa 2009; Food and Agricultural Organization Reports 2014, Afande et al., 2015). In most rural communities in the region, off-farm economic activity is one of the important components of livelihood activities or survival strategies among rural farming households. Many studies have shown substantial and increasing share of off-farm income in the total rural household income in Nigeria and other developing societies (Gordon and Craig 2001, Huggblade and Peter 2007; Babatunde, 2008; Babatunde et al., 2010, Egyei and Patrick 2013 and Ogbanji et al., 2015). This constitutes a serious setback to agricultural development in its primary constituency and equally raised the need to devise ways to encourage rural youth participation in agricultural activities. This is justified by the fact that, currently the average age of farmers in Nigeria is around 50 to 55 years, and it is expected to rise to around 75 years in 2030 (Akpan, 2010; Akpabio, 2012). The situation is worsened by the fact that by 2030, an

estimated 50% more people will migrate to urban areas. It is doubtful if the present crop of ageing farmer can produce enough food to feed the anticipating population of 230 million in 2030. Secondly, the current level of youths' unemployment in Nigeria is alarming. Youths' unemployment incurred costs to the economy, society and families (Ajaegbu, 2012; Central Bank of Nigeria Reports, 2014).

States in the Southern region of the country have attempted to stimulate youths' interest in agricultural production in order to reduce the menace of unemployment and its attendant poverty among its active labour force. For instance, in 2008, the Akwa Ibom State Government initiated integrated farming scheme for agricultural graduates and set up a micro credit scheme to assist youths engaged in the agricultural production. In 2011, a gender specific skill development scheme was enunciated to help improve the wellbeing of enterprise female youths in the state, through the provision of soft loans to beneficiaries. Despite these incentives and the expanding markets for the primary and secondary agricultural commodities in the State; the employment of youths in agricultural production has steadily declined in recent years and the off-farm income activities among rural youths has risen instead. The over-all impact of the scenario is the disguised unemployment generated among youths in the urban centers and the underutilization of farm resources in the rural area (Akpan et al., 2015).

One of the attendant consequences is the continuous dependent of the State and the region from other regions for supply of basic food stuffs. To salvage the deteriorating food security situation in the region, there is a compelling need to search for appropriate policy variables that could optimally intervene to reverse the current trend of agricultural diversification among rural youths in the State. The issue of increasing agricultural diversification among rural youths could be an indication of dissatisfaction of youths engaged in agriculture in the State. To hasten the agricultural development process will require motivating rural youths to become active participants in the sector. Thus investigating issues concerning youths' engagement in off farm income activities in the rural area is a necessity.

Based on this pertinent issue concerning youths and agriculture; several studies have delved into issues related to off farm income and agricultural activities among rural households in Nigeria. For instance, Amao (2008) analyzed off-farm engagement attitudes among farming households in Oyo State. The result showed that, educational level of farmers, wife's educational level, hired labour and distance to the farm were significant

determinants of off-farm participation. Oluwatayo (2009) studied the determinants of diversification using Tobit model. Data were collected from a random sample of 420 households selected from six States (one state from each of the six geopolitical zones) of the country. The result of the Tobit regression model showed that the coefficients of gender, household size, poverty status and access to credit facility were positive. Further, the coefficients of years of formal education, income, marital status, primary occupation and location were negative. Later Ibekwe et al., (2010) carried out an empirical research on the determinants of farm and off-farm Income among farm households in South-Eastern Nigeria. Primary data were collected and multiple regression analysis based on Ordinary Least Square estimation method was used to analyze data collected. Results showed that: Farm size, age, education, occupation and hours spent on farm were important explanatory variables that influenced both farm and off farm incomes. Similarly, Babatunde *et al.* (2010) examined determinants of participation in off-farm employment among Small-holder farming households in Kwara State, Nigeria. Probit model estimates identified the following determinants: household size, gender of household head, education of household head, education of other household members, amount of productive assets, access to electricity, pipe-water and distance to the nearest urban market. Idowu et al., (2011) empirically identified the impact of non-farm income through non-farm activities in alleviating poverty among rural farm households in Yewa part of Ogun State, Nigeria. The finding revealed that, participation in non-farm activities was significantly determined by household size, age, education and gender. Also, Osondu et al., (2014) analyzed determinants of decision of women to participate in non-farm entrepreneurship in Ikwuano Local Government Area of Abia State. The Probit regression analysis revealed that age, household size, primary occupation, farm income, accessed to credit, farming experience and membership in cooperative societies were significant determinants of women farmers' decision to embark on non-farm enterprise. Msoo and Goodness (2014) examined the socioeconomic characteristics that influence the decision to diversify and also the welfare effect of diversification on farm households in Makurdi, Benue State. The Logit model results showed that, a male-headed household, level of education and credit availability increase the probability of diversification while farming experience and accessed to market decrease the probability of diversification.

From the few literature cited, it is obvious that, similar study has not been conducted in the southern region of Nigeria. Also, youths has not

been given due consideration in the literature as a center pivot in an attempt to revitalize agricultural sector in the country. The objective of this paper is designed as an attempt to fill these vacuums in the literature and generate reliable policy variables in the quest for sustainable agricultural sector and rural development in the Southern region of Nigeria. Hence, based on this premise, the study specifically identified factors that affect the decision or probability of youths to engage in non-farm economic activities in the rural areas of the State. It also determined factors that model their actual participation in non –farm economic activities in the rural areas.

**Materials and Methods**

**The Study Area**

The study was conducted in Akwa Ibom State. The State is located in the Southern region of Nigeria. It is located between latitudes 4°32<sup>1</sup> and 5°33<sup>1</sup> North and longitudes 7°25<sup>1</sup> and 8°25<sup>1</sup> East. It has a total land area of 7,246km<sup>2</sup>. The state is bordered on the East by Cross River State, on the West by Rivers State and Abia State, and on the South by the Atlantic Ocean. Akwa Ibom State has a population of about 3,902,051 and a population density of 634 persons per square kilometers (National Population Commission, 2006). The state is basically an agrarian society where crops like maize, okra,

**Empirical Model**

A binary Logit model was used to identify significant factors that influence youth decision to engage in non- agricultural activities in the rural areas of the State. Implicitly, the specified model is shown in equation 1 as thus:

$$\begin{aligned}
 &DOF \\
 &= \left( \frac{P_i}{1 - P_i} \right) = Z_i = \beta_0 + \beta_1 GEN + \beta_2 AGE \\
 &+ \beta_3 MAR + \beta_4 EDU + \beta_5 SOC + \beta_6 ICT \\
 &+ \beta_7 LAO + \beta_8 NFB + \beta_9 PPF + \beta_{10} AAP \\
 &+ \beta_{11} MPP + \beta_{12} COS + \beta_{13} DEP + \beta_{14} FIN \\
 &+ \beta_{15} EXT + \beta_{16} PUR \\
 &+ \mu_i \dots \dots \dots (1)
 \end{aligned}$$

The marginal effect of the Logit model measures instantaneous effect that a change in a particular explanatory variable has on the predicted probability (i.e. the likelihood that a youth in the rural area will choose to involve in non-agricultural activities or not); when the other covariates are kept fixed. They were obtained by computing the derivative of the conditional mean function with respect to explanatory variables.

$$\begin{aligned}
 \frac{\delta P_i}{\delta X_i} &= \frac{E\{Y|X\}}{\delta X_i} = f(Z_i)\beta_i \\
 &= f(X\beta_i)\beta_i \dots \dots \dots (2)
 \end{aligned}$$

Variables used in equation (1) are defined as follows:

waterleaf, cassava, yam and rice are cultivated in large quantities. Fishery including aquaculture; livestock and poultry businesses thrives well in the State. The State was picked among other States in the region because of it rich agricultural potentials and is generally peaceful.

**Data Source and Sampling Procedures**

Primary data were used and respondents were youths. For the purpose of this paper and in accordance with the Nigeria’s National Youth Development Policy, the age category 18 to 35 years is defined as a Youth. Combinations of sampling methods were used to select respondents. Firstly, two local government areas with clearly distinct rural areas were purposively selected from each of the Senatorial district in the State. A total of six (6) local government areas were selected and used for data collection. In the second stage, five rural villages were randomly sampled from each of the six local government areas selected. A total of thirty rural villages were randomly sampled from the six local government areas used for data collection. In the third stage, ten (10) rural youths were randomly picked from each of the sampled village. Hence, a total of three hundred (300) rural youths were randomly sampled and used for data collection.

- DOF = Youth decision to participate in non-farm occupation (1 for yes and 0 for no)
- GEN = Gender of the farmer (1=Male, 0 otherwise)
- AGE = Age of youth farmer (years)
- MAR = Marital status of a youth farmer (1 for married and 0 otherwise)
- EDU = Formal educational (years)
- SOC = Membership of social group (number of years)
- ICT = Access to ICT (Number of times youth farmer browse internet in a week)
- LAO = Land tenure (1 for owned land and 0 otherwise)
- NFB = Non-farm income of rural youth per month (Naira)
- PPF = Perceived price of fertilizer (1 for high and 0 for normal)
- AAP = Youth access to State owned agricultural programme(s) (Number of programmes accessed)
- MPP = Membership of a political party (dummy, 1 for Yes and 0 for No)
- COS =Average wage rate per day of hired labour (₦)
- DEP = Dependent ratio (number of Children less than 15 years plus adult greater than 65 year divided by the household size)
- FIN =Last season farm income (₦)
- EXT=Number of times in contact with an extension agent in the last farming season

PUR =Purpose of farming (1 for commercial and 0 for family used)  
 U = stochastic error term  
 P<sub>i</sub> = Probability to engage in agricultural activity  
 Ln = Natural logarithm function

**To estimate the determinants of youths participation in non- agricultural activities**

The total non-farm income earned in the previous month prior interview visit was used to measure the level of youth participation in non- agricultural activities. Tobit model was used to determine factors that influence off-farm participation among rural youth in the study area. The model is explicitly shown as thus;

$$\begin{cases} Y_i = X'_{2i}\beta_2 + V_i, & \text{if } Y_i^* > 0; V_i \sim N(0, \delta^2) \\ 0 = X'_{2i}\beta_2 + V_i, & \text{if } Y_i^* \leq 0; V_i \sim N(0, \delta^2) \end{cases} \dots (3)$$

Y<sub>i</sub> is the observed non-farm income of a youth. Y<sub>i</sub> could be a discrete or continuous variable when a youth is involved in non-farm occupation. Y<sub>i</sub><sup>\*</sup> is the level or amount of non-farm income earned by a youths in the previous month. When Y<sub>i</sub><sup>\*</sup> > 0, it implies that Y<sub>i</sub> is observed whereas the reverse is the case when Y<sub>i</sub><sup>\*</sup> ≤ 0. On the other hand, X<sub>i</sub> is a vector of explanatory variable, β is a vector of unknown coefficient or parameter and U<sub>i</sub> is an independently distributed error term. Implicitly the Tobit model used in this study is expressed as thus;

$$\begin{aligned} NFB = \phi_0 + \phi_1 GEN + \phi_2 AGE + \phi_3 MA \\ + \phi_4 HHS + \phi_5 EDU + \phi_6 SOC \\ + \phi_7 ICT + \phi_8 PPF + \phi_9 AAP \\ + \phi_{10} MPP + \phi_{11} HRS \\ + \phi_{12} COS + \phi_{13} FAS + \phi_{14} FIN \\ + \phi_{15} EXT + \phi_{16} NRC \\ + \phi_{17} PUR + U_i \dots \dots \dots (4) \end{aligned}$$

Where;

- NFB = Observed non-farm income of rural youth per month (Naira)
- GEN = Gender of youth (1 for male and 0 for female)
- AGE = Age of a youth (years)
- MAR= Marital status of a youth (1 for married and 0 otherwise)
- HHS= Household size of a youth (number)
- EDU= Youth years of formal education
- SOC = Membership of a social group (number of years)
- ICT= Access to ICT facilities (dummy, 1 for yes and 0 for No)
- PPF = Perceived price of fertilizer (dummy, 1 for high and 0 for normal)
- AAP = Access to State owned agricultural programme(s) (number)
- MPP = Membership of a political party (dummy, 1 for Yes and 0 for No)
- HRS = Number of hour(s) spent in the farm (discrete number)
- COS = Average wage rate per day of hired labour (₦)
- FAS = Farm size (hectare)

FIN = Last season farm income (₦)  
 EXT = Number of times in contact with an extension agent in the last farming season  
 NRC= Number of category of crops planted and category of economic animal kept  
 PUR= Purpose of farming (1 for commercial and 0 for family used)

**Verification of Multicollinearity among Explanatory Variables used in the Analysis**

Multicollinearity is among the commonest econometric problems of the cross sectional data analysis. This property of econometric was verified among explanatory variables to ensure the econometric stability and reliability of the regression estimates. The Variance Inflating Factor (VIF) was estimated and used to verify the presence of the multicollinearity among the explanatory variables. For VIF, the minimum possible value is 1.0; while value greater than 10 indicates a probably collinearity between the specified explanatory variable in question and the rest of the predictors in the model. According to Gujurati and Dawn (2009), VIF is estimated using the formula stated below:

$$VIF_j = \{1/1 - R_j^2\} \dots \dots \dots (5)$$

Where R<sub>j</sub><sup>2</sup> represents the multiple correlation coefficient between one of the explanatory variable (designated as dependent variable) and the other specified explanatory variables in the study. The explicit model explaining the above mechanism is shown in equation 6.

$$X_j = \phi_0 + \phi_1 X_1 + \phi_2 X_2 + \dots + \phi_n X_n + \epsilon_n \dots \dots \dots (6)$$

**Results and Discussion**

The descriptive statistics of respondents (rural youths) is shown in Table 1. The result revealed an average age of about 30 years for youth in the study area. This means that, most youths in the rural areas are in their active ages. An average period of formal education stood at 12.4 years. This connotes that, most youth in the rural areas are educated, and there is high possibility of agricultural innovation adoption among them. About 53.30% of the respondents were male youths.

Result also showed that, 79.70% of youth interviewed were married. Social capital formation among youth was low in the study area, as shown by an average of 2 years in social organizations. Only 10.70% of the rural youth sampled had accessed to ICT facilities. The result also showed that, about 40.30% of youth owned farm land. The rest acquired farm lands through lease and borrowed arrangement among others. About

74.30% of youth in the sampled area perceived that, fertilizer price was high. An average of 5

hours was spent daily in the farm by youth in the area.

**Table 1:** Descriptive Statistics and socio-economic of youth in the Rural area of Southern Nigeria

Variable	Mean	Minimum	Maximum	Std. Dev.	C.V.
GEN	0.583	0.00	1.00	0.494	0.846
AGE	30.00	19.00	35.00	6.273	0.182
MAR	0.797	0.00	1.00	0.403	0.506
HHS	5.113	0.00	14.00	2.399	0.469
EDU	12.433	0.00	16.00	4.223	0.339
SOC	2.097	0.00	15.00	3.699	1.764
ICT	0.107	0.00	1.00	0.309	2.899
LAO	0.403	0.00	1.00	0.491	1.218
NFB	23047.2	0.00	364000	42487.8	1.844
PPF	0.743	0.00	1.00	0.438	0.589
AAP	0.759	0.00	5.00	1.121	1.477
MPP	0.173	0.00	1.00	0.379	2.188
HRS	5.380	0.00	14.00	3.086	0.574
COS	1179.67	0.00	5000.00	931.744	0.789
FAS	0.487	0.00	3.00	0.300	0.616
DEP	0.455	0.00	2.00	0.326	0.716
FIN	116192.	0.00	2.00e+006	232659.	2.002
EXT	4.937	0.00	40.00	8.127	1.646
NCR	4.100	0.00	8.00	1.971	0.481
PUR	0.687	0.00	1.00	0.465	0.677
OFE	0.443	0.00	1.00	0.498	1.122

**Source:** Computed by authors and data from field survey, 2015. Note monetary value is expressed in Naira. Variables are as defined previously.

In addition, about 68.70% of youth engaged in agricultural activities for commercial purpose. Credit accessibility was very poor among youth in the area. The result revealed that, only 10.70% of the youth have accessed to credit facilities in the area. An average cost of hired labour stood at ₦1179.7 in the study area. Previous farming season income stood at ₦16000 on average; while extension agent visit average at 5 times per season.

#### Test result to verify collinearity among specified explanatory variables used

Table 2 presents the result of Variance Inflation Factor (VIF) test used to verify the status of the collinearity of explanatory variables used in the Logit and Tobit regression models. The result reveals that there was no serious or significant collinearity among explanatory variable in both models. For instance, the estimated VIF with respect to each variable was greater than unity, but less than the threshold value of 10.

**Table 2:** The Variance Inflation factors (VIF) test result

Logit Model		Tobit Model	
Variables	VIF estimates	Variables	VIF estimates
GEN	1.242	GEN	1.208
AGE	1.582	AGE	1.722
MAR	1.501	MAR	1.555
EDU	1.158	HHS	1.596
SOC	1.260	EDU	1.192
ICT	1.197	SOC	1.200
LAO	1.437	ICT	1.186
NFB	1.161	PPF	1.200
PPF	1.121	AAP	1.390
AAP	1.360	MPP	1.199
MPP	1.217	HRS	1.241
COS	1.182	COS	1.091

<b>DEP</b>	1.293	<b>FAS</b>	1.383
<b>FIN</b>	1.195	<b>FIN</b>	1.287
<b>EXT</b>	1.297	<b>EXT</b>	1.510
<b>PUR</b>	1.221	<b>NCR</b>	1.442
		<b>PUR</b>	1.251

**Source:** Computed by authors using gretl software.

The result suggests that, the explanatory variables specified in each model do not cluster together or exhibited multi-collinearity tendencies. This implies that the estimates of the two models to an appreciable extent are consistent and unbiased. In other words, the estimates of the two models are stable over time.

### Factors that Modeled Youths Decision to involve in non-farm economic activities

The Logit model estimates used to identify determinants of youths decision to engage in non-farm economic Activities is shown in Table 3. The diagnostic statistics of the estimated model revealed the log likelihood test ratio of 360.435 and is significant at 1% probability level. This indicates that the specified Logit model has a strong explanatory power, hence goodness of fit. The pseudo  $R^2$  of 0.8773 shows that about 87.73% of variability in the decision of the rural youths to

engage in non-farm economic activities is associated with the specified independent variables. This means that, most of the variables that influenced rural youths' decision to favour non-farm occupation are included in the specified model.

The empirical result revealed that, the log odd coefficients of youths' marital status (MAR at 1%), years of formal education (EDU at 1%), non-farm income (NFB at 1%) and dependent ratio of youths' families (DEP at 10%) are positive and statistically significant with respect to the decision of rural youths to engage in non-farm economic activities in the study area. The odd interpretation implies that, for every unit increase in youth's marital status (MAR), the odd in favour of youths decision to engage in non-farm economic activities increases by 1.5207 or about 52.07% compared to a unit decrease in the marital status.

**Table 3:** Estimates of the Logit Model (Determinants of decisions of Youths to engage in off-Farm Employment in Akwa Ibom State)

Variable	Coefficient	Log odd coefficient	Marginal Effect	Z-values
Constant	-1.9966	—	—	-0.447
GEN	-2.5166	0.1358	-3.4576e-05	-2.804***
AGE	-0.1698	0.8438	-2.2307e-06	-2.063**
MAR	0.4192	1.5207	0.0004	7.278***
EDU	0.0489	1.0501	6.4267e-07	6.316***
SOC	-0.6036	0.5468	-7.9284e-06	-2.555**
ICT	-9.5541	7.0909e-05	-0.0625	-3.182***
LAO	0.1197	1.1272	1.5553e-06	0.069
NFB	0.0008	1.0008	1.0719e-08	3.485***
PPF	-0.3606	0.6973	-4.3638e-06	-0.270
AAP	0.0550	1.0565	7.2276e-07	0.103
MPP	0.8955	2.4486	9.0803e-06	0.972
COS	-0.0006	0.9994	-8.2807e-09	-0.978
DEP	0.1281	1.1367	4.1087e-05	1.833*
FIN	-5.2414e-06	1.00001	-6.8846e-011	-2.116**
EXT	-0.3639	0.6949	-4.7802e-06	-2.409**
PUR	0.5577	1.7467	8.2295e-06	0.320
Log Likelihood	-25.2085		Log ratio test (16)	360.435***
McFadden $R^2$	0.8773		Correct prediction	98.000%
Akaike Criterion	84.4171		Schwarz Criterion	147.325

**Source:** Computed by authors using gretl software, data from field survey 2014. Asterisks \*, \*\* and \*\*\* represent significant levels at 10%, 5% and 1% respectively. Variables are as defined in equation 1.

Similarly, increase in the rural youth's level of formal education (EDU) will result in about 1.0501 or about 5.10% increase in the log odd in favour of

youth's decision to engage in non-farm economic activities compared to those with lower years of formal education. Also, increase in non-farm

income (NBF) will lead to about 1.0008 or 0.080% increase in the log odd in favour of youth's decision to engage in non-farm economic activities compared to those who do not earned non-farm income. In a similar manner, about 1.1367 or 13.67% increase in the log odd in favour of youth's decision to engage in non-farm economic activities will occur for a unit increase in dependent ratio of youth's family compared to youth who do not have individuals that depend on them. The result implies that increase in marital status of rural youth (Mar); years of formal education (EDU), non-farm income (NFB) dependent ratio (DEP) will increase the youth chances to make positive decision to engage in non-farm economic activities in the study area. In other words and using marginal effect results, a unit increase in MAR, EDU, NBF and DEP of youths in the rural area of the State will increase the chance or probability of them engaging in non-farm economic activities by marginal values.

The positive determinants of probability of rural youths to engage in non-farm economic activities are in line with *priori* expectations. For instance, increase in youths' marital status implies, increase in additional responsibilities such as family expenditure and other social costs. It is believed that, farming business in developing society like Nigeria does not always produced sufficient income to take care of the family needs; as a result, non-farm engagement became the best and available option. In addition, raising family in African setting also implies that, extended family responsibilities are carried alone. In order for married youths to meet the magnitude of these responsibilities among others, additional source of income must come in to augment farm income. However, the result is contrary to Oluwatayo's (2009) finding.

The result in relation to years of formal education of youths implies that, education is one of the push factors in rural-urban youth migration in the study area. This means that, as the urge for higher education attainment grew among rural youths; the probability to take non-farm occupation rises too. Perhaps, this finding could be due to the expensive nature of higher education in Nigeria. This result corroborates the findings of Amao (2008); Ibekwe *et al.*, (2010) and Bababtunde *et al.* (2010) as well as Idowu *et al.*, (2011).

The relationship between the level of non-farm income and the probability of youths' involvement in non-farm economic activities only expressed the rational behaviour of rural youths in the area. If farm activities do not produce sufficient income to youths, then off-farm engagement is easily justifiable. Similarly, increase in the dependent ratio of youths' family means increase in household expenditure; and this will warrant higher income for family upkeep. In order to cope with the increase in household expenditure, youths' decision

to engage in non-farm economic activities will certainly be the best option

On the contrary, the marginal effect and the log odd coefficient of youths' decision to engage in non-farm activities with respect to gender (GEN), age (AGE), membership in a social organization (SOC), access to information and communications technology (ICT) and number of agricultural extension visits per farming season (EXT) and farm income (FIN at 5%) were negatively signed and statistically significant at 1%, 5%, 5%, 1%, 5% and 5% levels respectively. This means that increase in proportion of male in youth population, age of youths, years of membership in a social organization; access to ICT and number of visits of agricultural extension agent as well as farm income, reduce the probability of youths' decision to engage in non-farm economic activities in the rural areas of the State.

The result implies that a number increase in male youth reduces the odd in favour of increase youths' decision to engage in non-farm economic activities by 0.1358 times or about 86.42% compared to a number increase in female youth. Alternatively, a number increase in male youth increases the odds of reducing youth's decision to involve in non-farm economic activities by 86.42%. This result implies that, the probability that male youth will decide to engage in non-farm economic activity is less than the female youth. Hence, female youths are more likely to make decision to involve in non-farm economic activities compared to the male youth. This result might be related to the fact that, female youths are easily married and taken to urban areas or are likely more involved in family upkeeps than the male counterpart. Using the marginal effect with respect to gender (GEN); the result implies that, a number increase in male youth will result in a marginal reduction in the probability of rural youth to engage in non-farm economic activities. The finding inclined to result reported by Oluwatayo (2009), Babatunde *et al.*, (2010), Idowu *et al.*, (2011) and Msoo and Goodness (2014).

Similarly, a unit increase in the age of youth reduces the odd in favour of increase involvement of rural youths in non-agricultural activities by 0.844 times or about 15.60% compared to a reduction in age. Alternatively, a unit increase in the age of a rural youth reduces the probability or decision to engage in non-agricultural activities by marginal value of 0.000022%. The result suggests that, as youth gain more years, they tend to move out from the rural areas to search for greener pastures in the urban area; thereby abandoning farming activities in the rural areas. As pointed out by Akpan (2010), wage differential between the rural and urban areas is one of the motivating factors for youths abandoning agricultural activities in the rural areas and preferring non-farm occupations. This result is also in agreement with

the research findings of Ibekwe *et al.*, (2010), Osondu *et al.*, (2014) and Idowu *et al.*, (2011).

In a similar manner, the relationship between youths' years in social organization and the probability to engage in non-farm economic activities is indirectly correlated. That is, a year increase of youths in social groups reduces the log odd of Logit increase in youth decision to involve in non-farm activities in the rural area by 0.547 or about 45.30% compared to those that do not belong to social groups. In another way, there would be a marginal reduction in probability of rural youths to involve in non-agricultural production for a year increase of youths in social groups. The result means that, increase years of social capital formation among youths in the rural areas will lead to reduce decision to engage in non-farming activities. The likely reason for this result could be the social interaction and bond of unity and friendship that resulted from being a member of such social group. Members with common occupation are likely to share technology and experiences which help to sustain their occupation. Similar finding has been reported by Osondu *et al.*, (2014).

The coefficient of extension visit has a negative relationship with the decision of youths to engage in non-farm economic activities in the rural area. The odd interpretation implies that for every unit increase in extension agent visit (EXT), the odd in favour of youths' decision to engage in non-farm economic activities decreases by 0.695 or about 30.50% compared to a situation of no extension agent's visits or contact. This means that, a good agricultural extension system is one of the important pull factors to youth participation in agricultural activities in the rural areas of the State. This is because, more agricultural extension services will promote youth involvement in agricultural activities and reduce outward movement from the sector.

The association between access to ICT facilities and the probability to engage in non-farm economic activities by youth is inversely related. That is, a unit increase in access to ICT facility reduces the log odd of Logit in favour of increase in youths' decision to involve in non-farm activities in the rural area by 0.000071 or about 99.99% compared to those who do not have access to such facilities. Using the marginal effect result, the finding implies that, about 6.25% reduction in the probability of a rural youths decision to involve in non-agricultural production occurs for a unit increase in access to ICT facility. The result means that, increase access to ICT is the most important pull factors that lure youth population to agricultural activities in the rural areas of the State. The presence of ICT facilities in the rural areas will promote social capital formation and help widen

the knowledge base of youths in various areas of endeavors.

The relationship between youths' farm income and the decision to participate in non-farm economic activity is negatively correlated. That is, one Naira increase in youths' farm income reduces the log odd of Logit increase in youth's decision to involve in non-farm activities in the rural area by 1.00001 or about 0.003% compared to those who do not earned farm income. The result means that, increase in farm income of rural youths will lead to reduce decision to engage in non-farming activities. The likely reason for this result is embedded in the utility maximization theory. It is assumed that, if a youth farmer make sufficient return from farming activities, the probability of off-farm engagement will be reduce, accordingly. The need for additional income will arise if the farm return falls below expectation or the total expenditure. This result satisfies the *priori* expectation and is considered as one of the major determinants of, off-farm involvement of rural youths in the region. Similar finding has been reported by Oluwatayo (2009), and Osondu *et al.*, (2014).

#### **Factors that determine Participation of Youths in Non-farm economic activities in the Rural Areas of Akwa Ibom State**

Factors that influence rural youth participation in non-farm economic activities were determined using Tobit model and are presented in Table 4. The diagnostic statistics showed that, the Pseudo R-squared is about 0.7880, which implies that all the explanatory variables included in the model were able to explain about 78.80% of variability in the non-farm income generated by rural youth in the study area. The significant value of the normality test (34.819) attested to the normal distribution of the error term generated in the Tobit regression. The Chi square test (49.754) is statistically significant at 1% probability level, implying that the estimated Tobit regression has goodness of fit. However, the direct coefficient of the Tobit model does not represent the marginal effect of explanatory variable on the dependent variable. Hence, the study only used direction of effect attached to the Tobit estimates to discuss the result of the analysis in this sub section.

The empirical result showed that, the male composition of youth (GEN at 1%) has a positive relationship with the non-farm participation (proxy by the non-farm income of youth) of youth in the rural area of the State. The result implies that, as male population in youth increases, the youth participation in non-farm activities increases too. This means that in practice, male youths are more involved in non-farm income activities than women in the rural areas of the State. Similarly, years of formal education (EDU at 10%) of youths

positively influenced the non-farm participation of youths in the study area. This result connotes that; increase in year(s) of formal education of youths will lead to increase participation in non-farm income generating activities in the rural areas of the state. This result suggests that, formal education acquisition is among the push factors in rural-urban youth migration in the study area. Likewise, the cost of hired labour (COS at 5%) in the rural area has a positive correlation with the non-farm income of youths. This means that, as the wage rate of hired labour increases, more youths will diversify or participate in non-farm income activities. High inputs cost will reduce resource utilization, increase cost of farm production and reduce farm revenue as well as profit. The result suggests the importance of labour constraints in determining youth involvement in agricultural activity in the region. On the other hand, the coefficient of marital status of youths (MAR at 10%); year(s) of youths' in social organization(s) (SOC at 1%); access to Information Communications Technology facilities (ICT at 1%); hours youth spent per day in the farm (HRS at 1%); youth farm size (FAS at 5%); number of visits by agricultural extension agent (EXT at 5%); number of category of crops and

farm animals owned (NCR at 1%) and the purpose of involvement in farming (PUR at 1%) have significant negative relationship with non-farm income or youth participation in non-farm economic activities in the rural area of the State. The result for marital status of youths, suggests that, married youths in the rural areas have high propensity to stay in farming, much more than the unmarried ones. Also, youths engaged in social capital formation or involved in social organization(s) will reduce participation in non-farming activities compared to those who do not have affiliation with a social group. It is expected that, members in a social organization who shared the same occupation will improve information sharing, motivation and interactions. Increase accessed to ICT facilities also facilitates social capital formation and exposure to modern farm technologies. It is also an avenue for sourcing farm inputs and marketing of farm produce as well. Hence, increase access to ICT increases youths' opportunities to explore the globe on various issues related to their farm practices. This encourages them to stay put in their farming activities.

**Table 4:** Tobit Estimates on Determinants of Participation of Youths in non –farm Activities in Akwa Ibom State

Variable	Coefficient	Standard Error	z- values
Constant	-12480.1	38392.50	-0.3251
GEN	42544.63	11211.80	3.795***
AGE	1237.29	940.23	1.316
MAR	-22808.0	12752.80	-1.788*
HHS	2046.01	2948.30	0.694
EDU	2723.99	1603.67	1.699*
SOC	-821.65	298.78	-2.750***
ICT	-49322.0	14596.10	-3.379***
PPF	4677.00	12621.80	0.371
AAP	-2774.60	4334.32	-0.640
MPP	14605.10	12000.30	1.217
HRS	-1821.12	608.46	-2.993***
COS	11.26	5.3293	2.113**
FAS	-42261.00	19186.3	-2.203**
FIN	-0.01214	0.0034	-3.596***
EXT	-1550.20	641.93	-2.415**
NCR	-9104.18	3035.09	-3.000***
PUR	-58915.90	15598.40	-3.777***
Chi square (17)	49.7542***	Sigma	68810.30(10521.4)
Log Likelihood	-1709.384	F(17, 282)	3.090***
Normality test (error)	34.819***	Pseudo R <sup>2</sup>	0.7880

**Source:** Computed by authors using gretl software, data from field survey 2014. Asterisks \*, \*\* and \*\*\* represent significant levels at 10%, 5% and 1% respectively. Variables are as defined in equation 1.

The number of hours spent and the farm size of a rural youth have significant inverse correlation with the youths non-farm income or participation in non-farm economic activities in the rural area of the State. This connotes that, the more hours a

youth spent in his or her farm, the less non-farm income that is accrued to him or her. It means that, a farmer that spent more time in farming activities participate less in non-farm economic activities. Similar result is also applied to farm size. That is,

the larger the farm size owned by a youth farmer in the rural area, the less the non-farm income activities accessible by the youth. Hence, any technology that encourages more land to youth and allowed them to spend more of their time in their agri-businesses or farming activities will discourage non-farm economic activities. This result corroborates with the research findings of Ibekwe *et al.*, (2010).

Similarly, increase in extension agent visits and number of category of crops and animals owned as well as the commercial purpose of involvement in agricultural activities are disincentives to rural youth involvement in non- agricultural activities. Increments in these variables reduce the non-farm income of youths in the study area. For instance, more access to agricultural extension services will bring a youth farmer up to date information on farming. Also, when a farmer kept more economic animals and plant more economic trees, he or she needs more time and energy to monitor these farms to avoid risk inherent in agricultural production. Hence, opportunity to invest in non-farm income activities will reduce, drastically. Also, a rural youth who takes agriculture as a primary occupation and or as a business will not devote much of his or her time to non-farming activities. Furthermore, as expected, increase in youth farm income reduces the amount of non-farm income or non – farm economic participation by them. This result suggests that, rural youths are rational in behaviour, and will thus choose income source(s) that yield maximum satisfaction to those that give lower utilities. Hence, as a way to encourage rural youth in agricultural production, farming should be packaged and presented as the best option and as a profession or occupation that yields higher satisfaction compared to other options available. Oluwatayo (2009) and Osondu *et al.*, (2014) earlier supported this finding.

### Conclusion and Recommendations

Youth involvement in agricultural activities must be seen as one reliable option to revamp the relegated agricultural sector in Nigeria. It is also an instrument to fight food insecurity, social unrest, crime, drug abuse and combating extreme poverty. Though majority of our youths viewed agricultural sector as unattractive and lacking the necessary economic incentives to enhance well-being; however this perception is false owing to the fact that Nigeria is truly an agrarian society. The emergence of the oil sector downgraded agricultural sector to the trough. From history, Nigerians were better off before oil exploitation when compared to the available statistics now. The need to diversify the economic base of the country is more obvious now, due to continuous oil price volatility and exchange rate uncertainty. Therefore any attempt to revitalize agricultural sector is a

direct effort to improve Nigerians' well-being. Youths' involvement in agricultural activities is seen as one of the most reliable tools to rejuvenate agricultural sector in the country. To stimulate youths' involvement in agricultural activities will require a holistic policy package that will involve all stake holders in agricultural sector in the country.

In summary, the study has discovered that, the decision of rural youth to engage in non-farming activities is positively motivated by; their marital status, level of education, amount of non-farm income generated and family dependent ratio. On the other hand, factors that discourage rural youth's decision to engage in non-farm activities are: greater male composition in the youth, increase in age, membership in a social organization, access to ICT facilities, number of agricultural extension visits, and farm income. Also, actual participation of youths in non-farm activities was promoted by; more male composition in the youth, increase years of formal education and high cost of hired labour. On the contrary, factors that reduce actual participation of rural youth in non-farm activities were: their marital status, membership in a social group, number of hours spent in farm per day, access to ICT, farm size cultivated, farm income, extension agent visits, commercial purpose of farming and number of category of crops and animals owned

Based on findings of the research, the following recommendations were proposed: Youths should be encouraged to form social organizations in the rural area. ICT facilities should be provided in the rural areas of the State. As one of the ways forward, rural communities should provide more land to youth farmers in the region. Also, the extension system in the region should be strengthened to deliver effective and efficient services to youth farmers in the region. Empowering and strengthening of youth groups/social capital formation in the rural communities will also encourage greater youths' involvement in agricultural activities. In addition, enterprise development training in value addition activities through regular workshops, training courses, seminars and demonstration farms should be encouraged. These will motivate those youths already in agriculture and spur up interests of those outside agriculture to come in. Government as a matter of policy should motivate successful youth farmers through merit awards in agricultural production.

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