SOCIO-ECONOMIC DETERMINANTS OF PARTICIPATION IN NON-FARM INCOME GENERATING ACTIVITIES AMONG HOUSEHOLDS IN ABIA STATE, NIGERIA

[1]Nmeregini, D.C. and [2]Udoka, B.U.
[1]Department of Agricultural Extension and Rural Development,
Michael Okpara University of Agriculture Umudike, Abia State, Nigeria
[2]National Root Crops Research Institute, Umudike, Abia State, Nigeria
Corresponding Author's email: d.cnmeregini@yahoo.com

Abstract
Recently, there is an upsurge in the involvement of rural households in non-farm income generating activities. While several literatures have reported the role of non-farm income generating activities in improving livelihood of rural households, there seems to be very few studies on determinants of non-farm income. Hence, the study assessed the socio-economic determinants of participation in non-farm income generating activities among households in Abia State Nigeria. Specifically, the study described the socio-economic characteristics of rural households, ascertained the factors motivating households' involvement in non-farm activities; and analyse the socio-economic factors influencing non-farm income. A multi-stage sampling procedure was used to select 160 respondents. Data were collected using questionnaire and analyzed using descriptive (such as frequency, percentages and mean) and inferential (ordinary least square regression analysis) statistics. The study showed that majority of the respondents (71.25%) was married. The mean years in school and mean age of the respondents were approximately 41years and 11 years respectively. The foremost perceived factors motivating involvement in non-farm income generating activities were inadequate land to practice farming as a main occupation (2.93), higher income in non-farm activities (2.91), and less fatigue in non-farm activity relative to farming (2.71). Education (0.376[**]), household size (0.205[**]), membership to cooperatives (0.277[***]), and years of experience (0.188[**]) were the significant factors influencing non-farm income generating activities. The study recommends the need for policies aimed at free and affordable education, encourage the formation of cooperatives to enhance non-farm income earning activities. Extension massages should integrate the promotion of diversification into non-farm income activities as an alternative and support to farming and basic infrastructure such as electricity, good access roads, portable drinking water, and health facilities should be provided.

Introduction
The rural households make a living by engaging in several activities which include: crop production, rearing of livestock animals, fisheries, hunting, agro – forestry production, trading, artistry, and even migration to distant cities and countries in an effort to ensure household food security and poverty reduction (Obinna, 2014). Owing to the risks and uncertainties that characterize agriculture, attention of most farming households in developing countries is gradually shifting to non-farm activities (Odoh and Nwibo, 2017). Therefore, the income earning portfolio of households cut across farm, non-farm and off-farm activities. According to Odoh and Nwibo (2017), non-farm income has become an essential component of livelihood strategies among rural households. Richmond and Patrick (2013) noted that participation in non-farm income activities is as a result of push and pull factors. Push factors (or necessity) are the involuntary

and sometimes desperate reasons to diversify; they include income risk management, coping mechanisms, diminishing or time-varying returns to productive assets, long-term constraints or smoothing household consumption. While pull factors refer to incentives that attract households to the non-farm sector, when non-farm activities offer higher returns compared to farming. Poor households will most likely be attracted to low-risk rural non-farm employment in order to decrease income variability, even though they might have low returns. Wealthier households on the other hand, will be less diversified in their income sources because risk aversion motivation declines as wealth increases under perfect market conditions (Richmond and Patrick, 2013). Rural farm families usually engage in different non-farm income generating activities apparently to balance the shortfall of income due to the seasonality of primary agricultural production and create a continuous stream of income to cater for the various household needs

(Ovwigho, 2014).

Non-farm income generating activities include all economic activities in rural areas except agriculture, livestock, fishing and hunting. It encompasses all economic activities except the conventional crop production and livestock rearing (Agbarevo and Nmeregini, 2019). Rural non-farm income sector as described by Kazungu and Guuroh (2014) include: household and non-household manufacturing, trade, handicrafts, repairs, constructions, processing, transportation, communication, mining, and quarrying, as well as community and personal services in rural areas. According to Ovwigho (2014), the types of rural non-farm income generating activities differ across geopolitical locations and countries, which explain the apparent difficulties in the delineation of the effects of non-farm income generating activities on welfare of farmers. Involvement in non-farm activities provides employment options outside the farm; reduce rural urban migration, promote income distribution and diversification and inter–sectoral linkages capable of leading to a vibrant rural economy. It also enables the farmers handle the problems arising from seasonality of agricultural production as it concerns labour, output and income (Odoh and Nwibo, 2017). According to Richmond and Patrick (2013), involvement in non-farm income generating activities, as a livelihood strategy among poor rural households, play a vital role in promoting growth and welfare; and offers a pathway out of poverty if the opportunities provided by non-farm activities can be harnessed by the rural poor.

Agriculture has remained a major source of livelihood in Nigeria, especially in the rural areas, where over 70% were engage in the agriculture sector mainly at a subsistence level (FAO, 2021). Despite agriculture being the major occupation, non-farm sector plays several roles in the development of the rural sector (Oyakhilomen and Kehinde, 2016). The agricultural sector is plagued with problems which include soil infertility, infrastructural inadequacy, risk and uncertainty and seasonality, among others. Thus, rural households are forced to develop strategies to cope with increasing vulnerability associated with agricultural production through moving into non-farm income generating activities (Adepoju and Obayelu, 2013). Hence, households' decision to participate in non-farm income generating activities generally involves several factors. While some might be attracted by the incentives offered and labour availability, others might be pushed into the non-farm sector due to lack of opportunities in agriculture. Moreover, the characteristics of farm households also contribute to the participation in non-farm economic activity (Richmond and Patrick, 2013). Given the corollary and intricacies surrounding the participation of households in non-farm income generating activities, there is need for more empirical studies on factors determining participation of households. Furthermore, despite the myriads of studies on non-farm income generating activities, there seems to be very few empirical studies on the socio-economic

determinants of household non-farm income in Abia State, Nigeria. Hence, the aim of the study is to analyse the socio-economic determinants of non-farm income among households in Abia State, Nigeria. Specifically, the study described the socio-economic characteristics of the rural households; ascertained the factors motivating households' involvement in non-farm income generating activities; and analyse the socio-economic factors influencing non-farm income.

Methodology
The study was conducted in Abia State. The State is one of the nine constituent states of the Niger Delta Region of Nigeria. Abia State lies between Longitude $04^0 45'$ and $06^0 17'$ North, and Latitude $07^0 00'$ and $08^0 10'$ East. The State is located within the forest belt of Nigeria, and the temperature ranges between 20^0 C and 36^0 C. The 2016 population of the State is estimated as 3,727,347 persons (NBS, 2017). The State comprises of seventeen (17) Local Government Areas (LGAs), with Umuahia as its capital. The State is divided into three (3) Agricultural Zones, namely; Aba, Ohafia and Umuahia Zones. Agriculture is the major occupation of the people, especially in the rural areas, involving over 70% of the population. A multi-stage sampling procedure was used in selecting sample for the study. The first stage involved a simple random selection of 4 Local Government Areas out of the 17 LGAs in the State. The selected LGAs were Ikwuano, Umuahia North, Bende, and Isiukwuato. In the second stage, four autonomous communities were randomly selected from each of the selected LGAs. In the third stage, ten (10) households were randomly selected from each of the selected autonomous communities: the household member who manage the non-farm income generating activities were selected, thus a total of 160 households constituted the sample for the study. Primary data used for the study were obtained through interviewed schedule with the aid of structured questionnaire. The interviews were conducted by the researchers themselves on the non-farm respondents selected for the study. Data were analysed using descriptive statistics (percentages, mean) and inferential statistics (ordinary least square regression analysis). The factors motivating respondents to engage in non-farm income generating activities were calculated with a four points scale categorized as: 4 = strongly agree, 3 = agree, 2 = disagree, 1 = strongly disagree. The midpoint of 2.5 was obtained thus: 4+3+2+1/4. The upper limit of 2.55 (i.e 2.5 + 0.5) was used as the bench mark. The hypothesis for the study was tested at 5% level of significance using ordinary least square regression analysis specified thus:

$$Y = b_o + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + e$$

Where: Y = dependent variable (non-farm income in Naira)
b_o = Intercept
b_1 - b_8 = parameters to be estimated
X_1 = Marital Status (1 = married, 0 = single)
X_2 = Educational level (no. of years spent in school)

X_3 = Age (years)
X_4 = Gender (1 = male, 0 = female)
X_5 = Household size (No of persons living together)
X_6 = Co-operative membership (Yes = 1, No = 0)
X_7 = Years of non-farm experience (years)
X_8 = Access to credit (Yes = 1, No = 0)
e = error term

Results and Discussion
Socio-economic characteristics of the respondents
The socio-economic characteristics of respondents are shown in Table 1. The result of analysis on marital status revealed that majority of the respondents (71.25%) were married, 21.25% single, while 5.63% were widowed. This shows that majority of the respondents were married. This is expected as most of the respondents who are married would need extra income for family up-keep. Moreover, Agbarevo and Nwankwo (2019) also observed that majority of off-farm respondents are married. The distribution of respondents by educational status shows that 58.75% of the respondents attained at least secondary education, 23.13% had primary as their highest educational qualification, while 16.25% had tertiary education. Meanwhile, the mean years in school of the respondents was found to be approximately 11 years. The result therefore implies that there was high literacy level among the respondents. The respondents can therefore said to have enhanced social and human capital base since they have high literacy rate (Awoniyi and Salman, 2011). Education is the most important tool for developing human skills, knowledge and liberating people from poverty (Katega, 2014). About 33.13% of the respondents were within the age range of 31-40 years, 25.00% within 21-30 years, while 19.38% were within 41-50 years. The result also shows that the mean age of the respondents was approximately 41 years. This implies that the respondents are still in their active and productive years, hence are able to engage in agricultural production and non-farm economic activities that will contribute to enhancing the household purchasing power and consequently improve their welfare status. The result of the study shown in Table 1 also reveals that 55.63% the respondents were male, while 44.38% were female. This implies that men are engaged more in economic activities than the female respondents. The findings of Obinna (2014) reported more men in non-farm activities and more women in farming. The distribution of respondents according to household size shows that 52.50% of the respondents have household size of between 4 and 6 persons, while 24.38% have between 7 and 9. However, the mean household size is approximately 6 persons, which is relatively large. Large household size could confer positive implication as the household members will provide veritable source of labour for the non-farm income generating activities. The result in Table 1 also reveals that 61.25% of the respondents engage in non-farm income generating activities as their major occupation, 34.38% and 4.38% have crop farming and livestock respectively as the major occupation. This shows that a larger proportion of the respondents are engaged in non-farm income generating activities. The engagement of the respondents in non-farm income generating activities is expected to increase their income earnings and hence improve their living conditions. The distribution of respondents according to years of experience in non-farm activities was also shown. The result reveals that 24.38% of the respondents have years of experience less or equal to 5 years, 23.13% have between 6 to 10 years, while 15.63% have between 16 to 20 years. The mean years of experience of the respondents were approximately 14 years. This shows that the respondents have relatively worked for a considerably length of time and could have gained a reasonable level of experience that will help them tackle certain technical and managerial challenges that could emerge from their non-farm income generating activities. Majority of the respondents (85.63%) do not belong to co-operative society, while only 14.38% of the respondents do; from where they derive mutual benefits. Membership to co-operative society is expected to increase the interaction among members which would increase their capacity to access current information on economic activities within their localities and even beyond. This also has the tendency to enhance the rewards made from their non-farm income generating activities and farm income generating activities, which will enhance their welfare status (Awoniyi and Salman, 2011). Majority of the respondents (76.88%) had no access to credit, while 23.13% had access. This implies that the respondents have minimal capacity to expand their livelihood base. According to Osondu *et al.* (2014), inadequate capital is a major problem confronting small-scale enterprises in Nigeria. However, lack of access to credit facilities constitutes a constraint in purchasing raw materials and other enterprise inputs. Meanwhile, access to credit is regarded as one of the key elements in raising productivity (Anyiro and Oriaku, 2011).

Motivating factors to involvement in non-farm income generating activities
Table 2 shows the results of the factors motivating respondents' involvement in non-farm income generating activities. The results in Table 2 reveals that the important factors motivating involvement in non-farm income generating activities were inadequate land to practice farming as a main occupation (2.93), higher income in non-farm activities (2.91), and less fatigue in non-farm activity relative to farming (2.71), which ranked 1st, 2nd and 3rd respectively. Inadequate land to practice farming is a major motivating factor for involvement in non-farm income generating activities. Farming, especially crop production, mostly require large expanse of land. Hence, individuals who do not have enough land or capital to acquire land for farming venture into non-farm income generating activities as a better alternative. This finding corroborates with those of Katega, (2014), where low income from farming activities and land inadequacy were shown as the major factors that cause households to participate in non-farm activities. Furthermore, the enormous tasks and unfavourable environmental exposure associated with farming makes it very stressful. This therefore, prompts

individuals especially the youths to venture into non-farm income generating activities. Moreover, the steady stream of income from non-farm income generating activities makes it to be considered as a better income earning option over farming. The failure of agriculture to deliver improved income (2.64) and quest for steady stream of income (2.59) were also identified as factors motivating involvement in non-farm income generating activities.

Determinants of non-farm income

Table 3 shows the result of the ordinary least square regression analysis of the determinants of non-farm income. From the Table, the Cobb-Douglas functional form was chosen as the lead equation based on predetermined econometric parameters such as the high magnitude of the coefficient of determination and the F-ratio and the number of significant variables. From the Table, the coefficient of determination (R-square) of 0.746 entails that 74.6% variation in the non-farm income were explained by the socioeconomic variables under consideration. The F-ratio of 4.327 which is significant at 1% significant level shows the goodness-of-fit of the model. Results show that education, household size, membership of cooperatives, and years of experience were significantly related to participation in non-farm income generating activities. The coefficient of education (0.376) was positive and significantly related to participation in non-farm income activities at 5% level. This entails that respondents with higher educational attainment are likely to have greater income from non-farm income generating activities. This corroborates with the findings of Odoh and Nwibo (2017), where education was found to have significant positive relationship with non-farm income. Osondu *et al.* (2014), in a similar study noted that as an individual increases his educational attainment, his entrepreneurial quest and skill increases, thus expanding his knowledge base which makes him alert to new opportunities, and increases the opportunity cost of being self-employed. Similarly, Korie (2011) asserted that higher educational attainment leads to higher non-farm income. The coefficient of household size (0.205) was positive and significantly related to non-farm income at 5% level. This implies that as the household size increases, the income from non-farm income generating activities also increases. This could be due to the support in terms of man power being supplied by the household members. Hence, larger household size creates an avenue for more support from the household members, which will invariably manifest in greater output and income. This is in line with Odoh and Nwibo (2017), who inferred that households that are large have the likelihood of diversifying their source of household income.

The coefficient of membership to cooperatives (0.277) was positive and significantly related to non-farm income at 1% level. This implies that there is greater tendency of having greater non-farm income with individuals belonging to cooperative societies. This could be due to the training and enlightenment given by co-operative societies to their members, which make them more receptive to several opportunities that could eventually translate to greater income. This is in line with Korie *et al*. (2011) who asserted that social organizations present the enabling environment for the rural populace to be informed and educated as well as interact with farmers and entrepreneurs in the locality. These are good sources of quality inputs, information on economic activities in the locality and beyond as well as organized marketing of products. This translated into higher efficiency in non-farm resource use to improve the rural livelihoods. The coefficient of years of experience (0.188) was positive and significantly related to non-farm income at 5% level. This implies that as the years of experience increases, the income from non-farm income generating activities also increases. This is due to the fact that as the years of experience in non-farm income generating activities increases, the technical and managerial skill as well as exposure of individuals also increases, resulting to greater proficiency and productivity; thus attracting more patronage, leading to greater income.

Conclusion

The study has shown that the foremost factors motivating involvement in non-farm income generating activities were inadequate land to practice farming as a main occupation, higher income in non-farm activities, and less fatigue in non-farm activities relative to farming. Education, household size, membership to cooperative and years of experience, were the significant factors influencing non-farm income. Farming should be made to be more profitable in order to enhance or increase the income from farming. This can be achieved by enlightening the farmers on improved production technologies and supplying farm inputs such as seedlings, fertilizer, herbicides and pesticides promptly and at subsidized rates. Agricultural extension service providers should integrate into their extension massages the promotion of diversification into various value chain activities to increase family income and revenue. This can help to improve farmers' capacity to diversify their livelihood sources and to cope with any shock or stress such as pest and disease, crop failure and food shortage. Basic infrastructure such as electricity, good access roads, portable drinking water, and health facilities, among others should be provided or improved by government and development agencies. This will help to facilitate more involvement in agro-based activities and hence reduce poverty through promoting transfer of technologies, efficient markets, improving the working mobility of people, resources and outputs. There is also need for policies on free education and encouraging farmers to form groups, this will enhance ability to access and process innovations that will enhance participation in non-farm activities for enhance income and livelihoods.

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Table 1: Distribution of respondents according to their socio-economic characteristics

Socio-economic variables	Frequency (n = 160)	Percentage	Mean
Marital status			
Single	34	21.25	
Married	114	71.25	
Widow	9	5.63	
Divorced/ Separated	3	1.88	
			10.74
Educational level			
No Formal Education	3	1.88	
Primary Education	37	23.13	
Secondary	94	58.75	
Tertiary	26	16.25	
Age			41.19
21 – 30	40	25.00	
31 – 40	53	33.13	
41 -50	31	19.38	
51 – 60	19	11.88	
61 and above	17	10.63	
Sex			
Female	71	44.38	
Male	89	55.63	
Household size			6.03
1- 3	21	13.13	
4- 6	84	52.50	
7- 9	39	24.38	
10 and above	16	10.00	
Major occupation			
Crop farming	55	34.38	
Livestock	7	4.38	
Non-farm activity	98	61.25	
Years of experience			13.63
≤ 5 years	39	24.38	
6 -10	37	23.13	
11 -15	24	15.00	
16 -20	25	15.63	
21 -25	12	7.50	
26 years and above	23	14.38	
Membership to co-operative			
Yes	23	14.38	
No	137	85.63	
Access to credit			
Yes	37	23.13	
No	123	76.88	

Table 2: Distribution of respondents according to perceived factors motivating their involvement in non-farm income generating activities

Motivating Factors	SA (4)	A (3)	D (2)	SD (1)	∑x	x̄	Std. Dv
Inadequate land to practice farming as a main occupation	196 (30.63)	204 (42.50)	58 (18.13)	11 (8.75)	469	2.93	0.583
Higher income in non-farm activities	168 (26.25)	219 (45.63)	66 (20.63)	12 (7.50)	465	2.91	0.438
Less fatigue in non-farm activity relative to farming	184 (28.75)	198 (41.25)	44 (21.88)	8 (8.13)	434	2.71	0.642
The failure of agriculture to deliver improved income	140 (21.88)	207 (43.13)	60 (18.75)	16 (16.25)	423	2.64	0.698
Quest for steady stream of income	116 (18.13)	186 (38.75)	86 (26.88)	26 (16.25)	414	2.59	0.328
To overcome risk and uncertainty associated with farming	94 (15.00)	111 (23.13)	122 (38.13)	38 (23.75)	365	2.28	0.496
Declining yields/ reduced productivity in farming	72 (11.25)	129 (26.88)	124 (38.75)	37 (23.13)	362	2.26	0.345
Low return/profit to inputs/cost associated with farming	56 (8.75)	111 (23.13)	134 (41.88)	42 (26.25)	324	2.14	0.564
Seasonality of farming	72 (11.25)	90 (18.75)	124 (38.75)	50 (31.25)	336	2.10	0.716
Grand mean						**2.51**	
Benchmark mean						**2.50**	

Table 3: Ordinary least square regression estimates of the determinants of non-farm income

Variables	Linear	Exponential	Semi-log	+Cobb-Douglas
Constant	146151.071 (6.619)***	12.246 (31.102)***	462154.325 (5.670)***	12.092 (10.648)***
Marital status	37654.951 (1.386)	0.062 (0.380)	8646.951 (0.986)	0.015 (0.788)
Education	19656.836 (1.750)*	0.030 (1.710)*	149984.191 (1.481)	0.376 (2.255)**
Age	-6662.645 (-1.523)	-0.010 (-1.397)	-244505.997 (-1.300)	-0.296 (-0.955)
Gender	50126.094 (0.631)	0.187 (1.408)	45064.804 (0.562)	0.177 (1.342)
Household size	31269.764 (1.923)*	0.043 (1.598)	143471.118 (1.734)*	0.205 (2.103)**
Membership to cooperative	244860.763 (2.132)**	0.307 (2.102)**	235199.686 (2.006)**	0.277 (3.435)***
Years of experience	10873.292 (1.776)*	0.016 (1.533)	122949.790 (1.737)*	0.188 (2.513)**
Access to credit	84424.987 (0.938)	0.227 (1.512)	90597.339 (0.997)	0.231 (1.545)
R-square	0.725	0.635	0.533	0.746
R- Adjusted	0.627	0.569	0.485	0.699
F-ratio	4.139***	3.908***	3.811***	4.327***

Source: Computed from field survey