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SOCIO-ECONOMIC DETERMINANTS OF FARMERS' PARTICIPATION IN OFF-FARM INCOME ACTIVITIES IN EZZA SOUTH LOCAL GOVERNMENT AREA OF EBONYI STATE, NIGERIA

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ABSTRACT

The socio-economic determinants of farmers' participation in off-farm income activities in Ezza South Local Government Area of Ebonyi State, Nigeria were examined. The specific objectives were to describe the socioeconomic characteristics of the farmers, describe the off-farm income activities being undertaken by the farmers, identify the determinants of farmers' participation in off-farm income activities and identify the limiting factors of farmers' participation in off-farm income generating activities in the study area. A two-stage random sampling procedure was used to selected respondents for the study. One hundred and twenty (120) farmers were randomly selected for the study. Data collected were analyzed using descriptive statistic and inferential statistics. Objectives (i) and (ii) was captured using percentage response and frequency distribution. Objective (iii) was realized using logistic and objective (iv) was captured using Mean score. The findings revealed that the farmers that participated in off-farm income activities were mainly male (55.8%) that were married (68.3%) with the household size of 1-10 persons (32.5%). Aged farmers both male and female (42.5%) participated more in off-farm income activities with 30.0% of educational qualification, farming experience of 44.2% and medium farm size of 60.83%. The result further revealed that high proportion (35.83%) of the respondents engage in civil service, unskilled wage work contributed over 14% of the off-farm work engaged by the respondents. Result of logistic regression analysis on the determinants of farmers participation in off-farm activities showed R^2 value of 0.60, which implies that about 60% variation in participation of the farmers in the off-farm activities were due to the variables included in the model. Factors limiting farmers' participation in off-farm activities such as Poor credit facilities, increase in age, low level of education, Poor extension services and so on were identified. Finally, recommendations were made to encourage farmers' participation in off-farm activities in the study area such as: Farmers should be encouraged to take up off farm activities to argument their income, which will improve their production output and raise their standard of living; Creation of accessible credit schemes can facilitate the establishment of off-farm businesses among others.

Key words: farmers' participation, off-farm income, socio-economic determinants.

1. INTRODUCTION

Off-farm incomes are those incomes that are being generated from activities outside farm work. Several studies suggest that participation in off-farm activities are initiated by two conventional factors, namely pull and push factors. The push factors are mandatory factors that force farmers to participate in off-farm activities in order to manage income risk and in this case, off-farm income is used as a coping mechanism. These factors include shortfalls of agricultural production resulting from temporary failures due to, unexpected drought or long term factors such as shortage of farm land, absence of crop insurance, failures in input and credit markets and others (Reardon *et, al.*, 1998). On the other hand, the pull factors are incentives that attract households to non-farming sectors when non-farm activities offer higher return than the farm activities (Barrett *et al.*, 2001).

Also, Off-farm income has become an important component of livelihood strategies among rural farmers in most developing countries (Babatunde, Olagunju, Fakayode & Adejobi, 2010).

Decline in farm income and the desire to insure against agricultural production and market risk have been advanced as the reasons for participating in offfarm employment. For instance, when farming becomes less profitable and riskier due to population pressure as well as crop and market failures, farm households would be pushed into off-farm activities. When a return to off-farm employment is high small holder farmers would be pulled into off-farm work (Ellis & Freeman, 2004). Off-farm income had been found to contribute significantly to total small holder farmers' income and most especially in resourcepoor farm households in developing countries (Bjorsen & Mishra, 2012).

However, younger farmers are more likely to engage in off-farm activities because they believe that off farm work is less stressful and more profitable to them (Ahituv & Kimhi (2002), McNamara & Weiss (2005); Benjamin and Kimih (2006)). Lagerkvist *et al.*, (2006) opined that larger farm holders might be more likely to rely on off-farm income because the family could operate the farm as well as have one or more family members left to work off-farm.

Godwin and Bruer (2003) explained that farmers operating larger farms might be less likely to seek off-farm income, as the time required to operate large farms could be enormous. Lagerkvist *et al.*, (2006) remarked that many part-time farm households relied on off-farm income compared to full-time operators or larger farm units.

Furthermore, Mishra and Sandretto (2001) found that off-farm income lowered total variability in smallholder farmer's income. In addition, the marginal propensity to consume out of non-farm income is larger than the propensity to consume out of farm income (Carriker, Langeneier, Schroeder & featherstome, 1993). This is consistent with the potential role of off-farm income as a short-term supplement to farm income. Ahituv and Kimhi (2002) reported that off-farm income constitute between 20 percent and 70 percent of total household income, emphasizing the role of capital investments in the development process and the transition from industrial to society. Labour-saving rural technologies, in particular, have allowed farm household members to increase income by seeking off-farm employment (Mishra and Holthausen, 2002). The implicit view is often that the two moved in opposite directions, so that non-farm and farm income essentially offset each other.

Also, Rahman (2007) reported that smallholder productions are generally characterized by low access to improved technologies, financial services, modern inputs, agricultural markets and irrigations services that attributed to variability of earnings from the farming sector. As a result, farmers are forced to participate in off-farm activities to overcome these obstacles.

However, even though household participation in off-farm activities has considerable effects on the productivity of the farming sector, the possible impact is not clear Yue and Sonoda, (2012). As documented in different studies, it can be positive or negative or not depending on where incomes from off-farm activities are invested. Yue and Sonoda (2012)) confirmed that farmers with off-farm wage are more efficient than those without off-farm wage. In developing countries, like Nigeria where income from farm activities varies considerably, farm households usually participate in off-farm activities to supplement their agricultural income (Beyene, 2008). Hence, off-farm income is expected to enhance production and productivity in farming in Ezza South which is part of Nigeria.

Consequently, a little or none study has been done on the socio- economic determinant of off-farm income activities participation by the small holder farmers in Ebonyi State and in Ezza south local government area in particular, hence the need for this study becomes pertinent.

Specifically, the study (i) described the socioeconomic characteristics of the farmers, (ii) identified the off-farm income activities participated by the farmers, (iii) accessed the determinant of farmers' participation in off-farm income activities and (iv) identified the limiting factors of farmers' participation in off-farm income in the study area.

2.

MATERIALS AND METHOD

The study area is Ezza South Local Government Area; it is one of the 13 Local Government Areas in Ebonyi State of Nigeria. The study area is geographically located between Latitude 60⁰.8'N and 60⁰.13'N and Longitude 80⁰E and 80⁰.5'E. The area is generally cold during rainy season and harmattan. It has a mean temperature of 21°C during cold period and the mean annual rainfall is approximately 1200mm. the study area has a population of about 133,625 people and an area or land mass of 324KM² (NPC, 2006).

The major crops grown in the area are yam, cassava, rice, cocoyam, and sweet potatoes. Other cash crops produced in the study area are Oil palm, coconut, orange, pears, mango and bush mango etc. The farming operation is by traditional method using cutlass, hoes, and other crude implements. The farming system pre-dominantly practiced is mixed farming by combining crop and animal production together. People also practice mixed livestock farming like goat, sheep and cattle breeding combine with semi- intensive poultry management. Forests are equally found there that provides all their forest resources in the study area.

2.1 Sampling Procedure

A two-stage random sampling procedure was used to select respondents for this study. In the first stage, six (6) communities were randomly selected from the thirteen (13) communities that make up the local government area. In the second stage, two (2) villages were randomly selected from each the six communities selected above. Finally, ten (10) farmers were randomly selected from each the twelve (12) villages to make up one hundred and twenty (120) farmers for this study.

2.2 Data Collection

Data for the study were obtained mainly from primary source using structured questionnaires to elicit information on the socio-economic determinants of farmers' participation in off-farm income activities in Ezza south local government area of Ebonyi state, Nigeria.

2.3 Data Analysis

Both descriptive and inferential analytical statistics were used to analyze data in this work. Objectives (i) and (ii) were captured using percentage and frequency distribution. Objective (iii) was realized using binomial logistic and Objective (iv) was captured using mean score.

For estimating the model, the general function for logistic model is given as follows;

LnY=In $(pi/1-pi)=b_0+b_1x_1+b_2x_2+b_3x_3....b_{10}x_{10},$ (1)

Where Yi shows off- farm participation, Y = 1, if a farmer involves in business and economic activities other than his farming and Y = 0, if a farmer does not work. Pi= probability of involvement in off farm activities. B0= constant, B1-B10= Logistic regression coefficients X_1, X_2, \dots, X_{10} , show various socio-economic factors. The dependent variable in the model is binary or qualitative in nature.

Therefore,

Y = participation in off-farm activities (dummy; yes = 1, No = 0)

 X_1 =Gender (dummy variable: Male=1, Female = 0)

 X_2 = Age of respondent (years)

 X_3 = Marital status (Dummy; 1 if married, otherwise 0)

 X_4 = Household Size (number of persons living in the household)

X₅= Educational qualification (years spent in school)

 X_6 = Farming Experience (years)

 X_7 = Farm size (hectares)

 X_8 = Membership of Cooperative Society (Dummy; 1 if member, otherwise 0)

 X_{9} = Access to credit very unacceptable way of measuring access to credit.

 X_{10} = Access to extension services (1 if access, otherwise 0)

Where,

X = Mean score

 \sum = Summation

FX = Likert nominal value of response

N = Number of observations

3. **RESULTS AND DISCUSSIONS**

3.1 Socio-Economic Characteristic of Farmers

The result on Table 1 shows that 55.8% of the farmers that participate in off-farm income activities

in the study area were male while 44.2% participants were female. That is to say, that the greater percentage of male farmers were majorly involved in off-farm activities in the study area than their female counterparts.

The result shows that 2.5% of farmers that participate in off-farm activities were less than 20 years while greater percentages (42.2%) are above 41. This implies that farmers above 40 years participate in off-farm activities mostly in the study area and age of a farmer may be a determinant factor of participating in off-farm activities. This may be attributed to the farmers' experience on crop failures and other push factors as reported by Reardon *et al.*, (2001) in their work.

Majority of the respondent (68.3%) were married followed by the widow (17.5%) whereas single farmers in the study area were the least (14.2%). This implies that the married farmers participate more in off-farm activities in the study area. Similarly, Babatunde *et al.*, (2010) reported that the married households dominated off-farm participants in Nigeria.

The result shows that 32.5% of the farmers had household size of 7-10 persons at average and the least were those with 1-3 persons (13.3%). This implies that the greater numbers of farmers in the study area have large household size and that is increase in responsibilities for the farmers which is enough reason for them to engage in off-farm income to solve their problems. This finding was in line with Zahonogo (2011) who stated that household size was among the determinant factors in participating in off-farm activities.

Result equally shows the number of years the farmers spend in acquiring education. It showed that higher percentage (30%) of the respondents spent 7-12 years in school, whereas the least were those who had no formal education. However, it is expected that a farmer who spent between 1-6 years in schools attended primary school; 7-12 years attended secondary school and so on. This implies that majority of the farmers in the study area were educated. This is an indication that education attainment is determinant factor for participating in off-farm activities. This is in agreement with the findings of Haggblade *et al.*, (2010).

Also greater percentages (44.2%) of farmers that participate in off-farm income activities had farming experience range of 11-15 years while the least (3.3%) had from 1-5 years experiences. This implies that majority of the farmers in the study area are well experienced in farming.

Majority of the respondents (60.83%) had farm size of the range 2-4 acres of land. Whereas below 2 acres was the least. This implies that access to land could not be a factor to participate in off-farm activities.

Access to extension services increased farmers' knowledge about best practices hence increases their

productivity. The Table 1 shows that half of the respondents had access to extension service delivery. The result also shows that majority of the respondents (65.83%) did not belong to any cooperative society at all while 34.17% belonged to one form of cooperative society or the other. Cooperative memberships create access to networks and opportunity to diversify and be engaged in other activities and increase income as well.

The results also showed the distribution of respondents according to their participation in off farm activities. From the Table 1, majority of the respondents (74.17%) participated in off farm activities. This implies that the farmers in the area adapt to their responsibilities by participating in off-farm activities as a way of earning extra income. In addition, this may lead to an increase in production if the income is channeled into their production. This finding is against that of Barrette, Bezuneh, and Aboud (2001), who concluded that in areas of low agricultural productivity, increasing off farm employment results in labour transfer out of farming and leads to reduced farm incomes and production.

Table 1: Socioeconomic Distribution of Respondents
Variables

Variables	frequency	Percentage	Mean
Gender			
Male	67	55.8	
Female	53	44.2	
Age			
20 and below	3	2.5	
20-30	29	24.2	43
31-40	37	30.8	
41and above	51	42.5	
Marital status			
Single	17	14.2	
Married	82	68.3	
Divorced	0	0	
Widowed	21	17.5	
Household size			
1-3	16	13.3	
4-6	38	31.7	12
7-10	39	32.5	
11 and above	27	22.5	
Education level (number of years) frequency			
Non formal education	22	18.3	
1-6	33	27.5	12
7-12	36	30	
13-17	29	24.2	
Farming experience (years)			
1-5	4	3.3	
6-10	18	15	
11-15	53	44.2	17
16 and above	45	37.5	
Farm Size			
Small (less than 2 acres)	8	6.67	
Medium $(2 - 4 \text{ acres})$	73	60.83	
Large (5 and above acres)	39	32.5	
Access to extension service			

Access	60	50
No access	60	50
Cooperative society membership Member	Frequency 41	Percentage 34.17
Non-member	79	65.83
Participation in Off-farm activities Yes	Frequency 89	Percentage 74.17
No	31	25.83

Source: field survey, 2018

3.2 Off-farm income activities participated by the farmers

Study conducted by Ruben and Van den Berg (2001) showed that farmers engage in off farm activities for various reasons. The study showed that interviewed respondents embarked on other non-farming activities for cash, to keep them busy, for averting risks and for controlling contingencies. The distribution of respondents based on the off-farm activities engaged is presented in Table 2.

The results presented in Table 2 include multiple responses, as each respondent could be engaged in more than one off farm activity. The Table shows that high proportions (35.83%) of the respondents were engaged in the civil service. The interviewed respondents reported that engaging in civil service gives them the time they need to cultivate in their farms. This suggests that the farmers have the ample time to combine civil service and farming activities. The result is in line with the findings of Ruben *et al.*, (2001), who reported that most civil servants always have additional stream of income.

Unskilled wage work contributed over 14% of the off-farm work engaged by the respondents. Unskilled work is the segment of workforce associated with a

limited skill set or minimal economic value for the work performed (Ruben *et. al.* 2001). Unskilled labour is generally characterized by a lower educational attainment, unlike secondary school or university graduates. This suggests that most of the respondents with little or no informal education could engage in off-farm activity. This means that education might not necessarily be a deterrent to engaging in off farm activities as they can engage in unskilled off farm activities.

The result also shows that 10.83% of the rice farmers engaged in trading. Trading simply involves the act of buying and selling (Ruben *et al.*, 2001). Trading actually forms a common activity for individuals in the study area. Therefore, it is common for some of the farmers to be engaged in trading as both secondary and even primary occupation. The Table also shows driving and mechanic as one of the off farm activities engaged by the farmers. The commercial motorcycle riders commonly known as 'Okada' (2.31%) and the tricycle drivers (4.23%) known as 'Keke' are part of the off farm business for the farmers in the area. Also, 4% are mechanics. These results imply that majority of the farmers engage in one form of off farm or the other.

Off – farm activities	Sub activities	Frequency	Percentage
Unskilled	wage works	17	14.17
Civil comico		13	35.83
Trading		13	10.83
Driving			
	Okada riding	3	2.31
	Tricycle riders	6	4.23
	Bus drivers	2	1.99
Weaving		10	8.33
Palm wine tapping		3	2.50
Craft making			
_	Woodandcalabash carving	0	0
	Carpentry	1	0.88
	Pot making	0	0
	Leather work and weaving	0	0

Table 2:	Distribution of	of Responden	ts based on t	the Off-Farm	Activities engaged in
Lable 2.	Distribution	л Kesponden	to based off t	inc on-raim.	Activities engaged in

	Hair saloon	5	4.33
Mechanics			
	Bicycle repairers	0	0
	Vulcanizes	0	0
	Tricycles repairers	1	0.88
	Motorcycle repairers	0	0
	Car repairers	3	3.33
	Electronic repairers	0	0

Source: field survey (2018)

Multiple Responses

3.3 Determinants of farmers Participation in Off-Farm Activities

The determinants of participation in off-farm activities were assessed; the result is presented in Table 3. The binary logistic model predicted 58% of the sample correctly. The likelihood ratio test showed a significant value of-24.98 and chi-square value of 0.00, implying that the estimated model is statistically significant. Hence, the model is considered to be a good fit and equally consistent with theory. R^2 implies that about 60% of the farmers participate in the off-farm activities were due to the variables included in the model. This implied that the model consists of most of the determinant for participation in off-farm activities.

Therefore, among the variables tested logit coefficient of household size was positive and significant at 1% level of probability. This implies that farmers with higher household size had the more need to participate in off-farm activities. In the same way coefficient of educational level was positive and significant at 10% level of probability. This shows that the educated farmers had the greater participation in non-farm activities. The coefficients of farming experience and farm size were positive and statistically significant. This implies that the farmers with larger farm size and had been in the system for long has every need to diversify into offfarm activities to generate more income.

However, coefficient of cooperative society was negative and significant. This implies that farmers in the cooperative had pulled resources into the farming and may not find it necessary to engage in off-farm activities. This finding is in conformity with that of Rahman (2013) who reported similar finding. However, these results are expected but are contradictory with studies by Reardon (1998) who reported that the coefficient of farm size is unexpectedly negative as there may be reason of spending more time in farms

Table 3: Logistic Result on the Determinants of Participation in Off-F	arm Activities
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Table 5: Logistic Result on the Determinants of Participation in On-Farm Activities			
Tested variables	Coefficient	z- value	
Constant	-11.6917	-2.35**	
gender	0.2662274	0.30	
age(years)	-0.2077789	-0.47	
marital status	-0.0035257	-0.01	
household size	1.160292	2.57***	
educational qualification	0.7516297	1.81*	
с · · ·	1.265012	0 10++	
farming experience	1.365013	2.18**	
farm size	3 25060	3 50***	
	5.25707	5.50	
membership of cooperative	-2 385489	-1 75*	
membership of cooperative	2.000 109	1.70	
access to credit	0.9735004	1.41	
access to irrigation facilities	-0.3247014	-1.47	
-			

Source: field survey (2018)

Psudo R² = 0.6018 Prob > Chi = 0.0000 LR Chi (10) = 75.48, Log likelihood = -24.98, sample predicted correctly=58%

***, ** and * shows significant at 1%, 5% and 10% level of probability respectively.

3.4 Constraints to Participation in Off-Farm Activities

Analysis of the constraint was done by means of mean score of a critical mean of 2.5 and above. The factors hindering the farmers' participation in off farm activities in the study area are presented in Table 4. The identified constraints include: Poor credit facilities (3.0) and this indicates that many farmers in the study area lack adequate capital to either operate their farms profitably, expand them or to start up another business. This might be due to unwillingness of financial institutions to grant loans to the farmers or high interest rate of the loans when given

Age of the farmers is one of the major (2.9%) constraints to participating in off farm activities. This confirmed the findings of Barrett *et al.*, (2001). According to Barrett *et al.* (2001), farmers who are advanced in age are not usually willing to take up additional off farm activities. Conversely, the younger farmers can easily multitask and work as many jobs as possible.

Low standard of education is one of the major (2.8%) challenge facing farmers in engaging in off farm activities. According to Barrett *et al.*, (2001), education exposes farmers to the awareness of diversifying and the skill to successful engagement in multiple businesses profitably. Most of the farmers in the area were in the agreement that lack of education proves to be a limiting factor in diversifying and engaging in off farm activities. The result of the regression also concurs to this fact as increase in educational attainment leads to increase in the output of rice produced by the farmers, which may be as the result of engaging in off farm activities, from which he could earn extra income for the procurement of production inputs.

Poor extension services (2.8) and this indicates that extension services should be intensified in the area to encourage them and bring to their knowledge the improved varieties which can aid their farming activities in the area and so on.

Tuble 4. Constraints to Furtherpution in On Further Activities.				
Constraints	Mean Score	Decision		
Poor credit facilities	3.0	Accepted		
Ill health of the farmers	2.5	Rejected		
Old age	2.9	Accepted		
Low standard of education	2.8	Accepted		
Poor extension services	2.8	Accepted		
Seasonality of agricultural product	2.6	Accepted		
Shortage of farm land	2.5	Accepted		
Failure in input & credit market	2.6	Accepted		
Poor/high cost of farming price	2.5	Accepted		
Fluctuations of market price	2.7	Accepted		
Limited time	2.5	Accepted		
Unavailability of off-farm work	2.6	Accepted		
High yield of crop	2.6	Accepted		
Unsuitable government policy	2.7	Accepted		
Poor communication network	2.7	Accepted		
Inadequate power supply	2.6	Accepted		
G (* 11 (* 10)				

Source: field survey, 2018.

4. CONCLUSION RECMMENDATIONS

AND

Based on the findings, majority the farmers in the study area engaged in off-farm income activities. The finding also showed that most of the farmers that participated in off-farm income activities were male that were married. Aged farmers both male and female participated more in off-farm income activities and were educated.

Household size, education level, farming experience, farm size and membership of cooperative societies were the major determinants of participation in offfarm activities among the farmers in the study area.

Poor credit facilities, increase in age, low level of education, Poor extension services, Seasonality of agricultural product, Shortage of farm land, failure in input or credit market, Poor/high cost of farming, Fluctuations of market price, Limited time, Unavailability of off-farm work, high yield of crop, Unsuitable government policy, Poor communication network and Inadequate power supply were the limiting factors of participation in off-farm activities identified.

Based on the research findings, the following recommendations were made;

- i. Farmers should be encouraged to take up off farm activities to argument their income, which will improve their production output and raise their standard of living.
- ii. Creation of accessible credit schemes can facilitate the establishment of off-farm businesses

- iii. Farmers should be encouraged to belong or form cooperative societies to enable them have access to extension services and as well pull their resources together to access some government credits available for the farmers in the area.
- iv. Some of the constraints highlighted such as health status can be improved on, through provision of well resources equipped hospitals and clinics within the rural areas by the various levels of government, where the farmers can afford proper check-up bills.

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