FACTORS INFLUENCING LIVELIHOOD DIVERSIFICATION AMONG FARMING HOUSEHOLDS IN EJIGBO LOCAL GOVERNMENT AREA OF OSUN STATE, NIGERIA

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Abstract

The study identified farming households' livelihood activities and reasons for their multiplication, determined the underlining factors for livelihood diversification, and examined the militating constraints faced. The study was conducted in the poverty-ladened Ejigbo Local Government of Iwo zone, Osun State. A multi-stage sampling procedure was employed for sampling households for data collection. A total of 130 households were selected for data collection from the household heads. Collected were subjected to descriptive analysis and logit regression analysis. The results showed that the mean farm size per household was 1.2±0.6 hectares just as the mean annual income was estimated to be ₦105,394±26,546. The off-farm livelihood activities identified include trading (28.4%) and carpentry (27.2%), among others. The foremost reasons for off-farm diversification were limited agricultural income (75.2%), large family (63. 3%), and poverty (60.6%). Indicated as influencing the household likelihood of off-farm livelihood diversification are household size (b=0.33), farming experience (0.049), and income (b=1.01). More so, households' livelihoods were constrained mainly by the unfavorable market price of a commodity (68.8%), inadequate credit access (64%) as well as insecurity (62%). It was concluded that trading and artisanal activities represented major off-farm livelihoods and their likelihood of exploration is chiefly underpinned by the household size, income, and farming experience. Rural markets development is recommended for capacitating the households to substantiate their farm and off-farm livelihoods.

Key words: *livelihood, farmers, rural households, off-farm diversification*

INTRODUCTION

Agriculture as a source of income is fraught with dangers and uncertainties, exposing farming households to low living standards, poverty, and lowering their country's food security position. The consequence of unanticipated shocks and unpredicted natural problems in agriculture drives farming household towards alternative methods of income generation [3]. According to [10], the smallholder farmers in rural Nigeria are confronting with the imminent agricultural risks which necessitate livelihood diversification. Increasing climatic circumstances such as erratic rainfall, rising temperatures, overgrazing in the far north, desertification, unending violent conflicts between ranchers and farmers, and the on-going Boko Haram insurgency in the North-East Nigeria can be addressed by livelihood diversification [17]. Moreover, the current global pandemic (Covid 19) forces poorer smallholder farmers to seek alternative sources of income in the non-farm sector. According to [23], diversification can be defined as the involvement of an individual in the series of economic activities with the shares in the unit's overall economic activity. Furthermore, according to [1], livelihood diversification is very important in the socio-economic life of the agricultural household. As a way of mitigating against risk from agricultural disasters or shocks compel farming households to engage in other income-generating activities. Livelihood diversification of rural farming households includes other agricultural sectors and non-

farm activities such as artisans and civil services. Depending on the economic opportunities and constraints, [18] classified rural households' diversification into three categories: (i) agricultural intensification (using productivity-enhancing inputs, mixed cropping, and rearing different kinds of livestock), (ii) non-farm diversification (skill acquisition, self-employment, and wage labor), and (iii) migration [5]. In Nigeria, [21] looked at factors such as inconsistent government regulations, inadequate processing techniques, poor storage facilities, weak road networks, and natural disasters, all of which have a detrimental influence on farmer production and drive livelihood diversification. Farmers are also finding it difficult to obtain high-quality agricultural inputs, such as seeds, insecticides, fertilizer, and financing, which they need to expand their farm operations [10]. In keeping with this, non-farm sector labor productivity per worker in Nigeria is almost three times higher than farm sector productivity, and non-farm sector average income is higher than farm sector income [11]. Affluent farming household head tends to be economical stable and may not involve in diversification unlike less affluent farming household head that may need diversification to survive, according to [13]. Several authors have engaged in a content duel to analyse the factors influencing the livelihood diversification. Gender, marital status, poverty status, principal occupation, and association participation are among the characteristics found by [6]. [5] found a favorable association between educational level and diversified livelihood, while [7] observed credit usage and accessibility has direct relationship. [13] concluded that the variables such as age, household size, primary occupation, farm income, access to credit, farming experience, and membership of cooperative society all have direct positive effect on non-farm diversification. [6] poised that those decisions on diversification to be seen as an adaptation strategy rather than alternative means of income generation. In the light of the aforementioned issues raised, it is imperative to examine the factors influencing the livelihood diversification of farming households in the study area. The specific objectives of the study are to, analyze the livelihood activities engaged by the farming household head and reasons for livelihood diversification, evaluate the determinants of livelihood diversification and identify the constraints limiting the diversification in Ejigbo Local Government Area of Osun State, Nigeria.

MATERIALS AND METHODS

Study Area
This study was conducted in Ejigbo. It is an ancient town in Yoruba land which is the headquarters of Ejigbo Local Government Area, one of the oldest local government areas in the state. The town is located by distance of 35 kilometers from Iwo at North-East, share boundary with Ogbomoso in the North in the distance of 30 kilometers, and located in the South-East of Ede with distance of 24 kilometers. It is also situated about 40 km North-West of Osogbo, the capital of Osun State, and about 95 kilometers North-East of Ibadan. It is part of the Ede North/Ede South/Egbedore/Ejigbo federal constituency. The average annual rainfall is 52.35 inches (1,330 mm), though there are great deviations from this mean value from year to year. Usually, the rainy season lasts from April to October. Usually, the rainy season lasts from April to October. They are major occupation is farming and drumming. The common crops planted are maize, cassava, and vegetables.
Sampling techniques and Data collection
The study made use of a multi-stage sampling procedure in the selection of the farming households. The procedure commenced with use of purposive sampling techniques in the selection of two (2) districts (Ilawo and Olla) from the four (4) districts (Ejigbo, Olla, Ilawo, and Ife-Odan) in Ejigbo local government based on the preponderance of farming activities. The second stage involved the simple random selection of 50% of the villages in each district which translates to ten (10) villages out of 20 in Ilawo and three (3) villages out of the 6 villages in Ola. The last stage involved a technique of randomly selection of ten (10) farming households from

each village to give a total of 130 respondents sampled. However, 109 questionnaires were used for the data analysis, 21 were dropped due to incomplete information and inconsistent data

Source and type of data
The primary data that were used for the study sourced with the structured questionnaires. The questionnaires captured data on socio-economic variables of the farming households, non-farm livelihoods activities engaged, and constraints to livelihood diversification.

Analytical techniques and models
The study engaged analytical tools based on the stated objectives. They include descriptive statistics and logit model.

The structure of the model
The variables determining livelihood diversification were evaluated using binary Logistic model. Adapting [13], the logistic (logit) probability model is expressed as:

$$P_i = b_o(b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + \ldots\ldots\ldots b_8x_8 + \varepsilon i) \ldots\ldots\ldots\ldots (1)$$

Where:

$P_i = 1$, if respondents diversify to non-farm income, while $P_i = 0$ if otherwise.
Y = livelihood diversification (1 if diversify; 0 if otherwise).
X_1 = Age (years)
X_2 = Sex (1 if male; 0 if female)
X_3= Level of Education (1 if no-formal education, 2 if primary education, 3 if secondary education and 4 if tertiary education)
X_4 = Household size (number of persons)
X_5= Farming experience (years)
X_6= Farm size (ha)
X_7 = Net farm income (₦)
X_8= Access to credit (1 if yes; 0 if otherwise)
εi= Error term

RESULTS AND DISCUSSIONS

Socioeconomic characteristics of the respondents
The results in Table 1 depict the socio-economic variables of head of farming households. Results show that few (14.6%) of the head of farming households were below the age of 39 while about three-quarters (68.0%) of them were between the ages of 40 and 59. Also, 17.4 percent were of age 60 years or more.

The average age of the head of farming households was 48.26±12.11 which implies that they were mature enough to manage their family independently. This result on age of the farmer agrees with [22] in a similar study in Southeast, Nigeria. More than half (50.5%) of farming households were male.

The majority (84.4%) of the head of farming households were married. Also, majority (84.4%) of the head of farming households had formal education. The implication of high level of literacy is that they will be enrich with knowledge to facilitate the decision-making process, managerial skills, and awareness about the best sources of credit facilities. Earlier similar findings by [8]; and [27] also agreed to these assertions. The results further revealed that half (52.3%) of the farming households had a household size of above 7 persons, less than half (45.9%) of the farming households had between 4 and 6 persons while few (1.8%) had less than 3 persons in their household.

The mean household size was 7.0±5.0 persons. This implies that the household size of the farming households was large enough which may assist them in livelihood diversification activities in supply of labour. This result agrees with the similar study of [12] that reported that household size influenced diversification in a rural household study in Abia State, Nigeria.

Results in Table 1 revealed that more than half (55.1%) of the farmers had a farm size of fewer than 2 acres of land for farming, 33.9 percent had between 3 and 6 acres, 7.3 percent had above 10 acres of land while 3.7 percent had between 7 and 9 acres of land. The average farm size was 1.2±0.6 hectares which implies that farming in Ejigbo Local Area of Osun State can be described as small-holding practices.

Table 1. Socio-economic characteristics of the head of farming households (n=109)

Characteristics	Frequency	%
Age (Years)		
< 30	2	1.8
30-39	14	12.8
40-49	40	36.7
50-59	34	31.3
60+	19	17.4
Mean = 48.26	S.D = 12.11	
Gender		
Male	55	50.5
Female	54	49.5
Marital Status		
Single	2	1.8
Married	92	84.4
Separate	10	9.2
Divorced	5	4.6
Level of Education		
No formal education	24	20.0
Primary	35	32.1
Secondary	36	33.0
Tertiary	14	12.9
Household Size		
≤ 3	2	1.8
4 – 6	50	45.9
≥ 7	57	52.3
Farm Size (Hectares)		
≤ 2	60	55.1
3 – 6	37	33.9
7-9	4	3.7
≥ 10	8	7.3
Mean = 1.2	S.D = 0.6	
Farming Experience (Years)		
≤ 5	16	14.7
6 – 10	21	19.3
11 – 15	10	9.1
≥ 16	62	56.9
Mean = 19.0	S.D = 12.42	
Access to Credit		
Yes	94.5	103
No	5.5	6
Non-farm livelihood diversification		
Yes	53.2	48
No	46.8	51
Annual farm income		
≤₦19,000	12	11
₦20,000 – ₦50,000	40	36.7
₦51,000 – ₦80,000	21	19.3
≥ ₦81,000	36	33.0
Mean = 105,394	S.D = 26,546	

Source: Field survey, 2021.

More than half (56.9%) of the farmers had more than 16 years of farming experience, with a mean of 19±12.42 years which implies that an average years of farming experience is about two decades which may be a deciding factor of an efficiency in agricultural production and the knowledge about non-farm income diversification of the farmers. The majority (94.5%) of the farmers had access to credit. This can however be used to diversify to other areas of agricultural venture or for the expansion of their current business. Households can use the credit for another income-generating venture especially when such is of less risk and there is a higher likelihood of higher returns. This conforms to the study of [4] and that of [15] that farmers have access to credit.

More than half (53.2%) of the farmers participated in the non-farm business. Few (11.0%) of the respondent earned ₦19,000 or less. Few (36.7%) of the farmers earned between ₦20,000 and 50,000 on annual basis, a few (19.3%) of the farmers earned an average of annual earnings of between ₦51,000 and ₦80,000, 33.0 percent earned above ₦81,000 as annual earnings. The mean farm income was estimated to be ₦105,394±26,546 which shows that the annual farm income was not substantial enough which may be among the motivating factor for the livelihood diversification. In contrast, [2] reported that agriculture contributed mostly to the total households' income.

Livelihoods activities engaged in by the respondents

Table 2 presents the information on the distribution of the farmers based on the livelihood activities they engaged in. The three most preferred activities were trading (28.4%), carpentry (27.2%), and bricklaying (15.6%). Other activities are undertaken to complement farming include basket making (11.0%) and public transport (8.3%). The least preferred activities by the farmers included sales and or renting of agricultural land (7.3%), Hairdressing/Barbing (5.5%), and shoemaking (3.7%). The table revealed that all the farming households engaged in two or more non-farm livelihood activities to enhance household income and reduce poverty. This is in tandem with the findings of [15] in a similar study in the Eastern Tigray Region of Ethiopia, [9] where a majority (83.1%) and 71.5% of the farmers diversified their livelihoods into either of the three livelihood diversification strategies (on-farm, off-farm, and non-farm). The study also

corroborates other studies that reported that livelihood diversification improved rural household income [16]; [20].

Table 2. Distribution of respondents by livelihood activities

Income source	Frequency	%	Rank
Trading	31	28.4	1st
Carpentry	30	27.2	2nd
Bricklaying	17	15.6	3rd
Basket making	12	11.0	4th
Public Transport	9	8.3	5th
Sales and or renting of agricultural land	8	7.3	6th
Hairdressing/Barbing	6	5.5	7th
Shoemaking	4	3.7	8th

Source: Field survey, 2021.

Reasons for non-farm livelihood diversification

Table 3 shows that the farmers had various reasons for diversifying into other activities. Some of these reasons included limited agricultural income (75.2%) which ranked 1st, large family size (63.3%) ranked 2nd, the reduced poverty level in the family (60.6%) ranked 3rd, and the well-being of the household (52.3%) ranked 4th.

Table 3. Reasons for non-farm livelihood diversification

Reasons	Frequency	%	Rank
Limited agricultural income	82	75.2	1st
Large family	69	63.3	2nd
Reduce poverty level in the family	66	60.6	3rd
For the well-being of the household	57	52.3	4th
Generate sufficient income	54	49.5	5th
High cost of labour	42	38.5	6th
High-cost farm input	42	38.5	6th
Availability of government grant	40	36.7	7th
Poor productivity	37	33.9	8th
Identification of market opportunities	34	31.1	9th

Source: Field survey, 2021.
*Multiple responses.

Others were to generate sufficient income (49.5%) ranked 5th, high cost of labour (38.5%) ranked 6th, high cost of farm input (38.5%) ranked 6th, availability of government grant (36.7%) ranked 7th, poor productivity (33.9%) ranked 8th and identification of market opportunities (31.1%) ranked 9th. This implies the main reasons for diversification reported by almost all the farmers in the study area were low agricultural income and large household size which is consistent with the results of some studies [15] and [19].

Factors influencing farming household livelihood diversification

Table 4 presents the result of the binary logit regression to investigate the variables determining the non-farm livelihood diversification of farming households. The diagnostics statistics indicated that the chi-square distribution to examine the overall model adequacy was significant ($\chi^2 = 8.51$, p<0.01).

The result also shows that the variables which include education, household size, years of farming experience, and annual farm income were all significant in determining the non-farm livelihood diversification of the farming household head in the study area. The coefficient of education was significant at 10% level and had a direct influence on livelihood diversification. Also, the coefficients of household size, years of farming experience, and annual farm income were all positive and significant at 5% level. This finding agrees with that of [12] in a similar study among farm households in Abia state, Nigeria who reported that diversification of livelihood means from agriculture to other sources was positively influenced by household size, amount of credit received, education of the household head and monthly income. [25] in an earlier study revealed that farm size, age, level of education, farm income, non-farm income, credit use, livestock ownership, household size, poverty status, and occupation were the significant determinants of income diversification

A variable that has a positive coefficient and significant at any level portends its higher values to increase the high probability level of livelihood diversification of farmers. Also, a negative value of a significant variable reflects its higher values of such variables concerned to reduce the likelihood of livelihood diversification. The probit results show that the coefficient of education was positive with a marginal effect of 0.7 percent which implied that a unit increase in the level

of formal education of farmers will increase the chance of farmer to diversify by 0.7%. It is expected that a higher level of education should have a direct positive effect on livelihood diversification of farmers in such a way that higher level of education will assist farmers in getting adequate information on available different sources of investment opportunities.

To corroborate this result, some studies reported that education has a tendency of increasing the livelihood diversification [15]; [26] while [9] holds a divergent assertion of negative influence.

Household size was positive signed with a marginal effect of 1 percent on livelihood diversification, indicating that an increase in the household by one person had a probability of increasing the livelihood diversification of farming households by 1.0%.

This implies that there is a likelihood of a household head with a larger household size to seek alternatives of catering for the family in diversifying the sources of income.

This finding conforms to those of [13].

In the same vein, years of farming experience has a positive effect with livelihood diversification and had a marginal effect of 4.9%.

This implies that a unit increase in the years of farming experience will increase the likelihood of diversification by about 5%. However, [24] had divergent assertion of inverse relationship between years of farming experience and livelihood diversification. The coefficient of farm income was in direct with livelihood diversification and a marginal effect of 10.6 percent which implies that a unit increase in farm income has probability of increasing livelihood diversification by 10.6 percent.

This finding implies that a farmer that makes a higher level of income will be encouraged to explore other income-generating ventures. An earlier study by [14] also reported that farmers' income positively and significantly influenced livelihood diversification.

Table 4. Binary logit regression analysis of factors influencing livelihood diversification

Variable	Coefficient	Std. Err.	P>|z|	Marginal effect
Age	0.1389	0.0022	0.415	0.0018
Sex	-0.0472	0.0335	0.995	-0.0002
Education	0.1587*	0.0040	0.079	0.0070
Household size	0.3284**	0.0078	0.012	0.0095
Farming Experience	0.0493**	0.0221	0.026	0.0493
Farm size	0.0350	0.0038	0.674	0.0016
Net farm income	1.0134**	0.0720	0.019	0.1057
Access to Credit	-0.5462	0.0001	0.142	-0.0002
Constant	-2.4822**	2.6839	0.026	
Number	103			
LR chi^2(7)	8.51			
Prob > Chi^2	0.0000***			
Pseudo R^2	0.2897			

Source: Field Survey Data, 2021.
*Significant at 10%; ** Significant at 5%;
*** Significant at 1%.

CONCLUSIONS

Rural households were opportune with off-farm income generation through engagement in trading and artisanal activities including carpentry, bricklaying, basket making among others. These were retorted to as a panacea to buffer the limited income accruing from their traditional engagement in agricultural production, the overbearing responsibility for catering for large households, and the associated poverty scourge among other reasons. In other words, household characteristics or capacities such as the relative size, annual income as well as members' farming experience positively dispose of household members' exploration of off-farm sources for livelihood generation. As such, conclusion is drawn that trading and artisanal activities were the main off-farm livelihoods and their likelihood of intensity was discovered to be affected by the factors such as the household size, income, and farming experience. Arose from the empirical findings of this study, it is recommended that the rural household heads should organize themselves under community assistantship groups to tackle the poor development of their local markets and their better inclusion in the pricing of agricultural products. This could as well be employed to provide cooperative

services especially credits provision to their members.

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