CONTRIBUTIONS OF LIVELIHOOD DIVERSIFICATION TO HOUSEHOLD FOOD SECURITY AMONG RURAL DWELLERS IN OSUN STATE, NIGERIA

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ABSTRACT
Rural dwellers' livelihoods are primarily based on subsistence agriculture which often predisposes them to poverty, especially in situation when there is harvest failure. Livelihood diversification is considered a strategy that could serve as palliative and enhance access to food in rural households. In this study, contribution of livelihood diversification to household food security among rural dwellers in Osun State was investigated. A four-stage sampling procedure was used to select 165 rural dwellers. Structured interview schedule was used to collect data on respondents' socioeconomic characteristics, livelihood activities diversified into, and household food security status. Data were analysed using descriptive statistics, Chi square, PPMC and linear regression at p=0.05. Respondents were aged 36.96±12.79 years, with household size of 5.38±3.51 persons. Farming experience and monthly income were 9.10±11.42 years and ₦30,833.30±19,016.45, respectively. Most (62.9%) of the respondents diversified into non-farm activitiesand more than half (63.6%) of the respondents were food secure. They were however constrained to diversifyby inadequate capital (1.82±0.52), poor market access (1.47±0.68) and lack of access to credit facilities (1.17±0.76). Respondents' educational level (χ^2= 11.772) and years of farming experience (r= 0.229) were significantly related to household food security. Food processing (β = 0.199), crop farming (β = 0.036) and driving (β= 0.169) among diversified livelihood activities were found to contribute to household food security. Level of diversification was high among rural households and they were mostly food secure. Both state and non-state actors are enjoined to strengthen rural households in areas of processing and crop farming to further enhance their livelihood diversification.
Keywords: Livelihood diversification, Food security, Rural households

Introduction

According to Aduse-Poku, Nyantakyi, Atiase, Awuah, Mensah, Nyantakyi, Owusu and Agyenim-Boateng (2003), the concept of livelihood has remained a subject of utmost importance due to its inevitable role in human existence. The term livelihood attempts to capture not just what people do in order to make a living, but the resources that provide them with capability to build a satisfactory living, the factor they must consider in managing their resources, the institutional and policy context that either help or hinder their pursuit of an improved living (FAO,2016). In the opinion of Oyesola and Ademola (2011), livelihood implies people's means of living including the activities they carry out to sustain themselves. Diversification on the other hand, can be referred to as action undertaken by an individual or a household to find new ways of survival to raise income and endure shocks such as disasters and disease outbreaks (Khatun and Roy, 2012; Anderzén *etal.,* 2020). Diversification can as well be viewed as a set of changes to existing livelihood patterns in order to increase household income, or to reduce income variability. It is aimed at securing better living standards by reducing risk, vulnerability and poverty, increasing income, enhancing security and increasing wealth (Svanidze*etal.,* 2019; Kiros *etal.,* 2021, Mengistu, Degaga and Tsehay (2021). Svanidze, Götz, Djuric and Glauben (2019) see food insecurity as a situation where people do not have physical and economic access to sufficient, safe, nutritious and culturally acceptable food to meet their dietary needs to live a healthy and active life. Pinstrup-Andersen (2009) opines that a household is considered food secure if it has the ability to acquire the food needed by its members to be food secure.

Rural livelihood diversification from farming is one of the rural households' strategies for survival in developing countries like Nigeria (Anderzén *etal.,* 2020; Kiros *etal.,* 2021). The rural people diversify into non-farm activities to explore opportunities through which they increase and stabilize their incomes or to supplement farming to access food and improve the welfare or living standard of their households. In Osun state as well, rural dwellers diversify or engage in other income generating activities as a way of avoiding risk from agricultural disasters or failure. Anecdotal evidence reveal that livelihood activities in which rural households diversify into are transportation, tailoring, plumbing, trading, knitting, plaiting of hair/barbing, while others engage in civil service jobs in order to have access to adequate food for their households. Since it has been established that rural dweller diversify to escape impoverishment as a result of several shocks resulting from their primary engagement and those that may be foisted by natural occurrences, it is pertinent to establish how this has helped the food security situation among rural dwellers in the study area. It is against this backdrop that this study sought to assess the contribution of livelihood diversification to household food security among rural dwellers in Osun State, Nigeria. The specific objectives were to:

i. identify the socioeconomic characteristics of rural dwellers in the study area,

ii. examine the livelihood diversification activities by the rural dwellers;
iii. ascertain the reasons for livelihood diversification among rural dwellers;
iv. identify the constraints to livelihood diversification among rural dwellers; and
v. determine the food security status of rural dwellers.

The study hypothesized that:

H_01: There is no significant relationship between selected socioeconomic characteristics and their household food security.

H_02: There is no significant contribution of livelihood diversification to household food security.

METHODOLOGY

The study was carried out in Osun State, Nigeria. Osun State is an agrarian state with over 70% of the population directly or indirectly engaged in agriculture. It has an area of 9,251 kilometre square and falls in the latitude 7°10' to the north and 4°30' to the east. The major occupations are cash crop farming in the south, while majority of the people in the northern part of the state engage in arable farming. Other livelihood activities of the rural households are weaving, processing, blacksmith, leather working, food vending, livestock rearing and gathering of Non-Timber Forest Products (NTFPs). The study population comprised all rural dwellers in Osun State, Nigeria. Multistage sampling procedure was used to select the sample for the study. In the first stage, 19 rural Local Government Areas (LGAs) were purposively sampled. Twenty percent of the rural LGAs were randomly selected to give three LGAs in the second stage. In the third stage, two percent of the villages in each rural LGAs were randomly selected, while at the last stage, ten percent of rural households were randomly selected to give 165 respondents. Primary data were collected for this study through the use of a well-structured interview schedule. The dependent variable for this study was household food security of rural dwellers. The food security status of the respondents was measured using FANTA scale with a list of nine questions based on beneficiaries' anxiety over food, fluctuations in the quality of food for adults and children according to FANTA's Household Food Insecurity Access Scale (HFAIS) of the United States Agency for International Development (2012). Four response options of "never", "rarely", "sometimes" and "always" were used and scores of 4,3,2,1 were assigned, respectively. The maximum and minimum scores obtainable were 36 and 9, respectively. An index of food security was calculated by adding all the responses and the mean obtained was 26.1. Those above mean were categorized as food insecure and those below the mean were deemed food secure. Data were analysed using descriptive (mean, frequency distribution, coefficient of variation and percentages distribution) and inferential (such as Chi-square, Pearson Product Moment Correlation (PPMC) and Linear regression) statistical tools.

RESULTS AND DISCUSSION

Socioeconomic characteristics

The age distribution of respondents as shown in Table 1 was found to be between the age range of 15 – 80 years. The result shows that 73.9% of the respondents were between ages 15 – 44 years. The mean age was 37.0±12.8 years which indicate that most of them are still in their youthful and productive age. This makes them to easily engage in variety of livelihood activities both agricultural and non-farm economic activities that will contribute towards improving their household food security. Age is an important factor when considering livelihood activities. This is because education, skills and access to capital assets vary across age groups.

Entries in Table 1 further reveal that 62.4% of the sampled households had a household size of 1 – 5 people, while 4.8% had a household size of 11 and above members with mean household size of 5.4±3.5 persons. The result indicates that household size is fairly large. This implies that a fairly large member of household in the study area is likely to have more diversified income sources if all the members are working and contributing to household welfare (Mathew and Adesope, 2007).

Table 1 also shows that 57.6% of the respondents had varying years of farming experience, while 42.4% had no experience in farming perhaps due to their involvement in other activities. Mean years of farming experience was 9.1±11.4 years. Adebayo (2006) noted that the longer a person stays on a particular job, the better his job performance.

Data on monthly income of the respondents reveals that 40.0% of the respondents had monthly income less than ₦20,000, while 28.5%, 19.4% and 10.9% earned between ₦20,000 - ₦39,999, ₦40,000 – ₦59,999 and ₦60,000-₦79,999, respectively (Table 1). The mean income was ₦30, 833.3±19016.45, while a few respondents (1.2%) earned income greater than ₦79,999. This is an indication that the monthly income of the respondents in the study area is low. The result is however consistent with that of Oyesola and Ademola (2011), who reported a low mean income level of ₦35, 000 among rural households in Osun State. This result indicates that the respondents are likely be more inspired to diversify their livelihoods in order to generate more income to alleviate poverty and reduce food insecurity which is one of the aims of rural livelihood diversification. It is also envisaged that this low level of income may likely reduce respondents' access to livelihood assets.

Table 1: Distribution of respondents by socio-economic characteristics (n= 165)

Variables	Frequency	Percentage	Mean	SD
Age (years)				
15-29	48	29.1		
30-44	74	44.8		
45-59	26	15.8	37.0	12.8
60-74	16	9.7		
>74	1	0.6		
Household size				
1-5	103	62.4		
6-10	54	32.7	5.4	3.5
11-15	2	1.2		
>15	6	3.6		
Years of farming experience				
0	70	42.4		
1-10	48	29.1		
11-20	24	15.5	9.1	11.4
21-30	15	9.2		
>40	3	1.8		
Monthly income				
< ₦20000	66	40.0		
₦20000- ₦39999	47	28.5		
₦40000- ₦59999	32	19.4	30833.3	19016.45
₦60000- ₦79999	18	10.9		
> ₦79999	2	1.2		

Source: Field Survey, 2019

Respondents' livelihood diversification activities

Analysis of results in Table 2 shows that 62.9% of the respondents were involved in multiple farm activities by owning crop, livestockand fish farms. This implies that rural people may not leave farming even when the income from it is not much, as long as they can get food to feed their family members and are likely to be food secure. This agrees with the classifications of livelihood activities to farm and non-farm as identified by Fabusoro, Omotayo, Apantaku and Okuneye (2010) with nonfarm livelihoods contributing 63 % of household income.

The result also reveals that 45.4% were engaged in non-farm activities like carpentry, tailoring, hair dressing, plumbing, welding, vulcanizing and transportation, while 28.7% were involved in local trading. More than one-third (37.5%) of the respondents were also involved in off-farm activities like oil-palm processing, cassava processing, hunting and night guard. It could be further implied that the rural dwellers always find a means of meeting the needs of the family adequately which leads to continuous engagement in various livelihood activities.

Table 2: Distribution of respondents based on livelihood diversification activities

Livelihood category	Livelihood activities	Frequency	Percentage
Own farm	Livestock farming	39	23.6
	Crop farming	41	24.8
	Fish farming	24	14.5
Non-farm	Artisan	68	41.2
	Driving	7	4.2
Local trade	Trading	47	28.7
Off-farm	Food processing	43	26.0
	Hunting	13	7.9
	Night guard	6	3.6

Source: Field survey, 2019

Reasons for livelihood diversification

Results in Table 3 show the reasons for livelihood diversification. The major reasons for diversification were to improve welfare (1.90±0.32), food security (1.87±0.38) and to generate sufficient and constant flow of income (1.81±0.48). This implies that the respondents diversified in order to have money at hand always, so as to meet basic needs in the house and also to have access to food at the right time. Past researchers in rural livelihoods have indicated that rural economy no longer depends solely on agriculture, but rather on the concept of livelihood diversification as a strategy in meeting their basic needs in developing countries (Kiros *etal.,* 2021).

The finding therefore implies that the reasons for diversification vary across individuals. The findings of this study on the respondent's reasons for engaging in livelihood diversification are in agreement with the findings of similar studies carried out in other areas. The reasons include among others increase in income, ensure food security, risk associated with farming and meet family necessities (Sabo, 2017).

Table 3: Distribution of respondents based on reasons for livelihood diversification (n= 165)

Reasons	Not a reason	Mild reason	Strong reason	Mean	SD
Seasonal nature of agricultural produce	51.5	15.8	32.7	0.81	0.90
To cope with insufficiency	7.3	18.2	74.5	1.67*	0.61
Because of large family	72.7	10.9	16.4	0.44	0.76
To minimize risk	59.4	30.3	10.3	0.51	0.68
To compensate for failure of credit facilities	47.3	42.4	10.3	0.63	0.67
Because of limited agricultural income	54.5	25.5	22.0	0.66	0.79
For asset improvement	30.3	40.0	29.7	0.99	0.78
To acquire more skills	49.7	28.5	21.8	0.72	0.80
To secure food	1.2	10.9	87.9	1.87*	0.38
To generate sufficient and constant flow of income	3.6	11.5	84.8	1.81*	0.48
Availability of government grants	81.8	12.7	5.5	0.24	0.54
Unstable weather condition	44.8	32.7	22.4	0.78	0.79
To improve existing livelihood	13.3	20.6	66.1	1.53*	0.72
To cater for children	15.2	41.2	43.6	1.29*	0.71
To improve welfare	6.1	9.1	84.8	1.90*	0.32
Limited access to agricultural lands	60.6	35.8	3.6	0.43	0.57
Poor market and price fluctuation	21.2	46.7	32.1	1.11*	0.72
Destruction of farm produce by herdsmen	59.4	12.7	27.9	0.69	0.88

Source: Field survey, 2019

* Major Reasons

Constraints to livelihood diversification

Table 4 highlights some of the constraints to livelihood diversification in the study area. The severe constraints identified by the respondents were inadequate capital (1.82±0.52), poor market access (1.47±0.68), lack of access to credit facilities (1.17±0.76) and poor transportation system (1.03±0.72). The implication of this is that lack of capital to add additional portfolio to an existing livelihood is a serious challenge to rural dwellers and they do not also have access to credit facilities in which they can borrow money in order to start up a new livelihood activity.

Table 4: Distribution of respondents based on constraint to livelihood diversification (n= 165)

Constraints	Not a constraint	Mild Constraint	Strong constraint	Mean	SD
Inadequate land	73.4	13.3	13.3	0.40	0.71
High cost of labour	43.6	32.7	23.6	1.67*	0.79
Lack of access to credit facilities	21.8	39.4	38.8	1.17	0.76
Lack of input	41.8	32.7	25.5	0.84	0.79
Lack of information	67.9	21.8	10.3	0.42	0.62
Inadequately water supply	56.4	24.8	18.8	0.64	0.77
Inadequate skills	69.7	20.0	10.3	0.41	0.61
Poor transportation system	24.2	48.5	27.3	1.03	0.71
Poor storage facilities	53.9	27.3	18.8	0.65	0.78
Pest and diseases	48.5	18.2	33.3	0.85	0.89
Lack of basic infrastructures	26.1	49.7	24.2	0.98	0.71
High cost of fertilizer	54.5	26.1	19.4	0.65	0.76
Inadequate capital	6.1	5.5	88.5	1.82*	0.52
Poor market access	10.3	32.1	57.6	1.47*	0.68
Unstable weather condition	33.9	44.8	21.2	0.87	0.74

Source: Field survey, 2019

Household food security

Table 5 shows that 63.6% of respondents were food secure. This is an indication that respondents' resolve to diversify was justified and shows that rural households embrace livelihood diversification as a means for food security. In the corollary, the food security situation could have been worse, if they had not embraced one form of livelihood diversification or the other. This strengthened the position of this study that earlier indicated that respondents diversified into various form of activities to sustain themselves.

Table 5: Distribution of respondents based on their household food security status

Food security status	Frequency	%	Mean
Food secure	105	63.6	25.5
Food insecure	60	36.4	

Source: Field Survey, 2019

Relationship between respondents' socio-economic characteristics and household food security

Table 6 shows that there were significant relationships between respondents' sex (χ^2=7.021, p= 0.008), educational level (χ^2= 11.772, p=0.019) and household food security. This means that sex is a factor when considering issues relating to household food security. This suggests that the livelihood activities in which the rural household heads engage based on their sex can determine the food security of the household. Education is also an important factor as it helps to bring about change in knowledge, attitude and skills. This suggests that the higher the level of education, the likelihood of households to be food secured. Level of literacy can encourage rural households to see diversification of livelihood as a means through which they can be food secure and also expose rural households to better opportunities with high income. This is in agreement with the study's *apriori* expectation since the level of education could positively affect the income earning capacity. Fabusoro *et al*. (2010) implicated education among other factors as significant predictors of diversification. The result coincides with those of Adebayo (2012) and Adepoju and Adejere (2013). Table 6 further shows that there was a significant association between respondents' years of farming experience (r= 0.229, p = 0.001) and household food security. This implies that years of farming experience have an effect on household food security and by extension suggests that the longer the farming experience of the respondents, the more food secure their households.

Table 6: Relationship between selected respondents' socio-economic characteristics and household food security

Variables	χ^2	Df	r-value	p-value	Decision
Sex	7.021	*1*		0.008	S
Educational level	11.772	*4*		0.019	S
Years of farming experience			0.251	0.001	S

S= Significant NS= Not Significant

Contributions of livelihood diversification to household food security

Table 7 shows that food processing (β = 0.199, p=0.017), crop farming (β = 0.179, p=0.0.025) and driving (β = 0.169, p=0.0.036) positively contributed to household food security. This implies that households that diversified into livelihood activities like crop farming, driving and food processing are more likely to escape food insecurity and have access to food. The result further implies that increase in the number of means of livelihood also increases their income level with a consequent tendency towards food security. This suggests that an increase in livelihood activities will increase the chances of food security. It therefore shows that households that diversifyare more income stable and food secure than those that do not diversify.

Table 7: Contributions of livelihood diversification to household food security

Variables	B	T	p-value	Decision
Livestock farming	0.036	0.431	0.667	NS
Crop farming	0.179	2.220	0.025	S
Driving	0.169	2.112	0.036	S
Artisan	-0.020	-0.214	0.830	NS
Food processing	0.199	2.408	0.017	S
Hunting	0.035	0.400	0.690	NS
Trading	0.019	0.209	0.835	NS
Fish farming	-0.034	0.386	0.700	NS
Night guard	0.037	0.443	0.658	NS

Source: Field Survey, 2019

R^2=0.092 Adjusted R^2= 0.039 F-ratio= 1.736 F-proportion=0.085

CONCLUSIONS AND RECOMMENDATIONS

The study concludes that most rural dwellers in the study area are still in their youthful and productive age, with fairly large family size. They mostly diversified into non-farm activities and a reasonable proportion are food secure. However, inadequate capital, poor market access and lack of access to credit facilities seriously constrained their livelihood diversification bid. Food processing, crop farmingand driving contributed to household food security. It is recommended that both state and non-state actors should synergise to strengthen rural households in areas of processing and crop farming to further enhance their livelihood diversification.

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