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Effect of income diversification on the livelihood of rural farming households in Kwara State, Nigeria

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Abstract

Challenges such as those poised by climate change and farmers-herdsmen conflicts have increased income diversification among farmers in Nigeria. While rural income diversification has been applauded as insurance against the risks inherent in farming, its potentials to compete for the resources and attention of farmers may have negative consequences for agricultural production food security, and the livelihood of rural households. Specifically, the study described the socio-economic characteristics of rural households in the study area, examined the number of income sources of rural households, determined the contributions of different income sources to the overall household income, and assessed the livelihood status of rural households. A three-stage random sampling technique produced a sample size of 160. Data was obtained through an interview schedule. Descriptive statistics and Pearson's Product Moment Correlation were used for data analyses. Findings revealed that rural household heads were predominantly male (85%), with a mean age of 51.6 years. The mean annual income and farm size were $2,002.57 and 3.3 acres respectively. The average number of income sources was 3.3 and farming contributed the most (40.4%) to household income. The Livelihood status of the respondents was low (mean = 1.77). At $p < .01$ households' number of income sources was inversely related to their livelihood status. The study concluded that the more diverse farmers' income, the lower their livelihood status. It is recommended that the number of their economic activities are kept at such that can be effectively managed for positive contributions to the livelihood of farming households.

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Introduction

As many as 1.4 out of 6.5 billion people around the world live on less than US$1.25 a day and are classified as extremely poor (United Nations Development Programme [UNDP], 2008). Poverty has been on a steady rise particularly in rural communities (UNDP, 2008) where farming as the primary source of earning has not assured sufficient livelihood (Babatunde, 2013). This is because Nigeria, like many other sub-Saharan African countries, has an agricultural sector that is highly characterised by a decline in farm sizes, reduced agricultural productivity, and a high degree of peasant farming (Jirström, Andersson Djurfeldt, & Djurfeldt, 2011). Diversification of rural households' income is vital to survival. Investigations into the nature of household income diversification help understand if promoting income diversification enhances livelihood and reduces poverty (Deininger & Okidi, 2000).

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Diversifying income sources helps in preparing for a failure in a certain activity, and it is a reflection of the conventional wisdom saying, "Do not put all your eggs in one basket". It is relevant in rural settings where irregular weather patterns and harvest performance makes it challenging to capture a fixed amount of regular income (Ellis, 2005). Income Diversification at the individual or household level refers to the addition of new activities to generate more earnings to sustaining household livelihood (Ersado, 2003). It is a source of income growth and a potential means of reducing rural poverty (Amanze, Ezeh, & Okoronkwo, 2015). Thus, many analyses of income diversification conceive diversification in terms of strategies employed to earn cash income in addition to primary production activities from a variety of sources. It is argued that this is a strategy primarily intended to offset risk (Bryceson, 2002; Dercon & Krishnan, 1996; Ellis, 2000). There is mounting evidence in literature that participation in non-farm activities creates enabling conditions for poverty alleviation and by extension, food security in rural areas. Okali, Okpara, and Olawoye (2001) reported that income from diversified sources had contributed significantly to farming households' welfare in Nigeria. Households' purposes for income diversification, as well as the opportunities available to them, differ across settings and income groups (Amanze et al., 2015; Joshi, Joshi, & Birthal, 2006). In addition to providing an employment option outside Agriculture, the non-farm sector encourages inter-sectoral linkages; reduces rural-urban migration; promotes equitable income distribution; broadens economic inclusion and enables the poor to smoothen inter-year and inter-season fluctuation of agricultural labour demand and income (Eboh, 2000).

There are conflicting views among extension experts on whether or not income diversification should be encouraged among rural households in Nigeria due to its perceived negative effects on agricultural production. It is believed that income diversification has the potential to divert resources and efforts away from agriculture. It is therefore important to assess the effect of income diversification on rural household livelihood. It is also important to estimate the contributions of the different income sources to the overall income of the households. It is against this background that the study assessed the effect of income diversification on the livelihood of rural farming households in Kwara State, Nigeria.

The Specific objectives of the study were to:

1. describe the socio-economic characteristics of rural households in the study area;
2. identify the number of income sources of rural households;
3. examine the contributions of each income source to the overall household income; and
4. assess the livelihood status of rural households in the study area.

Hypothesis of the Study

The hypothesis of this study was stated in the null form as follows:

$H0_1$: There is no significant relationship between the number of income sources and livelihood status of rural farming households.

Methodology

The Study Area

The study was carried out in Kwara State, Nigeria. The total landmass of Kwara State is 32,500 KM^2 and a population of about 2.5 million people. It lies between latitudes 7°45'N and 9°30'N and longitudes 2°30'E and 6°25'E. The state comprises 16 Local Governments, classified into four (4) zones for administrative ease by the Kwara State Agricultural Development Project. Agriculture is the mainstay of the economy and the cash crops grown include: cotton, cocoa, coffee, kola nut, tobacco, beniseed and palm produce. Other economic activities common in rural communities in the state include; trading, tailoring, agro-processing activities etc.

Participants

The population for this study consisted of all rural farming households in Kwara State, Nigeria. A three-stage random sampling procedure was used for the study. The first stage was the random selection of 50 percent (two of the four administrative zones in the state). The second stage involved the random selection of 30 percent of the blocks into which the zones were divided. The third stage was the random selection of 30 percent of the households in the selected blocks. A total sample size of 162 was used for the study. However, only 160 responses were analysable.

Data Collection and Analysis

The instrument for data collection was a structured interview schedule. Descriptive statistics involving the use of frequency counts, percentages and means were used. Household livelihood status was measured with the use of livelihood status measure model developed by Shehili (2012). However, the model was slightly modified to suit the study area. Livelihood Status Score was constructed using seven livelihood indicators namely, food availability, housing condition, water facilities, health situation, sanitation, participation in social activities, and freedom in cash expenditure. The total obtainable household livelihood score was derived by adding total actual scores on all the household indicators. Individual household scores were computed by dividing household obtained score by the obtainable score. The mean household score was generated by dividing the total individual households' score by the number of household indicators (7).

Food Availability: was measured on the basis of accessibility to basic food throughout the whole year for the family. Scoring for the availability of food was two (2) for adequate, one (1) for the inadequacy of food. The cumulative scores of twelve months were taken as the food availability status of a household. Therefore, the possible food availability score varied from 12 to 24, where 12 indicated the lowest and 24 indicated the highest level of food availability.

Housing Condition: six characteristics of houses were considered, namely roof, walls, floor, kitchen position, furniture, and general impression. The overall housing condition of each respondent was calculated by summing the score obtained

from these six characteristics of the house. The possible score varied from six (6) to 21, where six (6) indicated a very poor and 21 indicated a very good housing condition.

Water Facilities: was measured by three sub-dimensions, including water sources, drinking water availability and quality of drinking water. The score of water facilities of each respondent was calculated by summing scores of the above three sub-dimensions. Source of water was measured on the basis of the type of water source from where members of the household mainly draw water for cooking, drinking, bathing and domestic washing. The total number of water sources was four (4), the most available source will have a score of four (4), and the least available source scored one (1). Therefore, the possible score for water sources ranged from one (1) to four (4). Availability of drinking water was measured on the basis of abundance throughout the year. The scoring of drinking water availability for each month was two (2) for adequate and one (1) for the inadequacy of drinking water. The scores of twelve months obtained from each respondent were added to yield a drinking water availability score which varied from 12 to 24. Quality of drinking water was measured based on four (4) items and the possible score varied from one (1) to four (4). Finally, the scores of three sub-dimensions of water facilities were summed up. The score ranged between 14 to 32. Fourteen (14) indicated the poorest and 32 indicated the best water facility.

Health Situation: was measured by two sub-dimensions, namely health status; and the ability to get health treatment. The summation of two sub-dimensions' score will yield the health situation score. Health Status was measured on the basis of 5 items. The possible score of health status varied from one (1) to five (5). The opportunities for household members to get treatment from different treatment providers available in the study area was determined. The total number of health treatment providers was five. Scoring for the availability of health treatment providers was two (2) for frequently, one (1) for seldom and (0) for not at all. Health treatment ability was measured by summing scores of eight items and the possible score varied from 0 to10.

Considering the health status and ability to get health treatment, the score of health situation varied from one (1) to 15. one (1) indicated 'very bad' and 15 indicated 'very good' health situation.

Sanitation: was measured by two sub-dimensions, namely possession of a toilet and toilet condition. Summation of the score of two sub-dimensions will yield the sanitation score. Possession of a Toilet refers to the ownership of a toilet in the household. Data were collected on three items with a score of 2, 1, and 0 for having own toilet, using other people's toilet, and having no access to a toilet, respectively. The possible score for toilet possession will range between 0 and 2. Toilet Condition refers to the physical condition of the toilet possessed by rural farming household. Roof, walls, floor and the position of toilet was considered to measure toilet condition. The scores thus obtained was added together to yield the toilet condition score. The range of a possible toilet condition score ranged between four (4) and (9); whereby four indicated 'very bad', and 9 indicated 'very good' toilet condition. After summing the score of two sub-dimensions, the sanitation score varied from four (4) to 11. A score of 4 indicated that the household had poor sanitation facilities and a score of 11 indicated that they had very good sanitation facilities.

Participation in Social Activities: was measured by computing a 'social participation score' based on the participation in four selected social events. Scoring of participation was two (2) for regularly, one (1) for occasionally, and '0'for no participation. The scores of four social events were then added to calculate the total score of participation in social activities. Therefore, the participation in social activities scores ranged between 0 and 8, where 0 indicated 'no participation' and 8 indicates 'regular participation'.

Freedom in Cash Expenditure: refers to the freedom of a household head to spend money on various aspects of his family affairs. A 4 point Likert-type scale was used to define the freedom of cash expenditure where 4, 3, 2 and 1 indicate expenditure decision dependent on 'himself', 'wife', 'together', and 'other family members', respectively. Finally, the total score was obtained by summation of a score of all eight aspects. Possible score varied from eight (8) to 32, where 8 indicated 'low freedom in cash expenditure', i.e., the respondent depends highly on other family members to make decisions, and a score of 32 indicated 'high freedom in cash expenditure'.

Results and Discussion

Socio-economic Characteristics of Respondents

Table 1 shows that the mean household head age was 51.6 years with a standard deviation of 10.6. The implication is that there were more old household heads. Majority (85%) of the households was male-headed, and the mean household size was 7.0 with a standard deviation of 3.0. Also, 56.2 percent had formal education. Average farm size was 3.3 acres with a standard deviation of 1.4. This confirms the small-scale nature of the households' farming activities. The average number of years of farming experience was 24.9 years with a standard deviation of 10.3. The average annual income was ₦728,225 (₦360=$1). Majority (91.3%) of the respondents belonged to social groups/associations. Membership of any organisation is often regarded as a measure of social capital (Omotesho, Ogunlade, Muhammad-Lawal, & Kehinde, 2016; Schwarze & Zeller, 2005). Table 1 also reveals that on average, the respondents had about one extension contact in two months.

Distribution of Respondents by Number of Income Sources

Table 2 reveals that very few (1.3%) had only one income source. The average number of income sources was 3.3 with a standard deviation of 1.2. The minimum number of income sources was 1, and the maximum was 5. This is in line with the findings of Awotide, Kehinde, and Agboola (2010) who revealed that rural households in Nigeria diversified their income sources by combining two or more jobs (multiple job holdings) to enhance consumption smoothing and acquire other basic needs.

Table 1 Socio-economic characteristics of respondents

Variables	Frequency	Percentages	Mean	S.D.
Age (in years)				
30-39	13	8.1		
40-49	61	38.1	51.6	10.6
50-59	40	25.0		
60-69	35	21.9		
70 and above	11	6.9		
Sex				
Male	136	85.0		
Female	24	15.0		
Household size				
<5	29	18.1		
5-9	110	68.8	7.0	3.0
10-14	16	10.0		
15 and above	5	3.1		
Level of education				
No formal education	28	17.5		
Quranic education	42	26.3		
Primary education	45	28.1		
Secondary education	40	25.0		
Tertiary education	5	3.1		
Primary occupation				
Farming	96	60.0		
Civil servant	37	23.1		
Trading	12	7.5		
Artisan	15	9.4		
Farm size (acres)				
1-2	53	33.1		
3-4	82	51.3	3.3	1.4
5 and above	25	15.6		
Farming experience (years)				
<15 years	19	11.9		
15-29	85	53.1	24.9	10.3
30-44	52	32.5		
45 and above	4	2.5		
Annual income (₦)				
< 250,000	6	3.8		
250,000-499,999	60	37.5		
500,000-749,999	51	31.9	728,225	0.003
750,000-999,999	29	18.1		
100,000,000 and above	14	8.8		
Membership of social group				
Yes	146	91.3		
No	14	8.8		
Extension contact (past 6 months)				
2	88	55.0		
3	29	18.1	2.7	0.9
4	41	25.6		
5 and above	2	1.3		

Source: Field Survey (2017) S.D. = Standard Deviation

Table 2 Distribution of respondents by number of income sources

Number of income sources	Frequency	Percentage	Mean	S.D.
1	2	1.3		
2	48	30.0	3.3	1.2
3	45	28.1		
4	28	17.5		
5	37	23.1		

Source: Field Survey (2017) S.D. = Standard Deviation

Income Sources and Their Contribution to Household Income

Table 3 shows that crop farming is the most common income source and it contributed the most (40.4%) to the overall household income. This could be attributed to the fact that the primary occupation of rural households is farming. The income source that contributed least to the overall income was fish processing.

Table 3 Income sources and their percentage contribution to household income

Income sources	Frequency	Percentages	Mean
Crop farming (%)			
0–10	2	1.3	
11–30	52	32.5	40.4
31–50	59	36.9	
51–70	35	21.9	
71–90	12	7.4	
Agro-processing (%)			
0–10	116	72.5	
11–20	26	16.2	6.4
21–30	14	8.8	
≥50	4	2.5	
Livestock farming (%)			
0–10	109	68.1	
11–20	27	16.9	8.4
21–30	13	8.1	
31–40	7	4.4	
≥50	4	2.5	
Trading and marketing (%)			
0–10	84	52.5	
11–25	41	25.6	
26–40	25	15.6	13.9
41–55	3	1.9	
56–70	6	3.8	
>70	1	0.6	
Salary (%)			
0–20	126	78.8	
21–40	5	3.1	12.1
41–60	20	12.5	
61–80	8	5.0	
>80	1	0.6	
Fishing (%)			
0–10	127	79.4	
11–25	14	8.8	
26–40	5	3.1	7.3
41–55	9	5.6	
>55	5	3.1	
Fish processing (%)			
0–10	152	95.0	
11–20	4	2.5	1.1
21–30	3	1.9	
>30	1	0.6	
Forest production and harvesting (%)			
0–5	141	88.1	
11–15	10	6.3	2.0
16–20	5	3.1	
>20	4	2.5	
Artisanal activities (%)			
0–10	130	81.3	
11–25	16	10.0	5.8
26–40	6	3.7	
41–55	5	3.1	
>55	3	1.9	
Transport (%)			
0–5	127	79.4	
6–10	10	6.3	2.6
11–15	17	10.6	
>15	6	3.7	

Source: Field Survey (2017)

Household Livelihood Status per Indicator

Table 4 reveals that for majority of the respondents (96.3%), food was available throughout the year on an average level. The housing condition of 82.5 percent of the respondents was poor while water facilities for 61.9 percent of the total households was fair. Only 21.9 percent of the respondents had poor health situation, and very few (5%) had good sanitation. 71.3 percent of the respondents seldom participated in social activities while 72.5 percent had moderate freedom in cash expenditures.

Household Livelihood Status Score

Results presented in Table 5 shows the household livelihood status of the respondents. The overall obtainable mean score of household livelihood status was 12.36. For the purpose of this study, a benchmark of ≤ 6 and > 6 was adopted to categorise the household livelihood status into two. They are low household status and high livelihood status. Results show that all of the households had a low household livelihood status. The mean livelihood score was 1.77. The result is a true representation of rural households in Nigeria as also reported by Obayelu and Awoyemi (2010) and Babatunde (2013).

Result of Tested Hypothesis

Results of correlation analysis between the number of income sources and household livelihood status revealed an inverse relationship (r = -.353, p < .01). The weak correlation value of .353 between income diversification and household livelihood implies that household income diversification might not be the only influencer of household livelihood status. Also, the PPMC has a limitation of focusing on only linear relationships. It is possible that non-linear relationships exist between the two variables under consideration; hence the need to consider socio-economic factors such as education, age, farm size, farm yield and other human capital as influencers of livelihood status. The result further indicates that the higher the number of income sources, the lower the livelihood status of the household. This finding is contrary to the apriori expectation that higher income sources bring about higher livelihood status. Possible reasons for this outcome include the fact that a higher number of income sources could result in a poor focus of attention on the various activities required to drive the income sources. Hence, households become jacks of all trades, masters of none. Concentrating inputs, resources managerial capability etc. on a manageable number of income-generating activities could contribute more positively to rural livelihood than juggling various income sources. Also, there may be poor synergy between the different sources of income embarked on by the rural populace in the study area.

Furthermore, the inverse relationship between income diversification and household livelihood status might be adduced to poor skill expertise, and training in the activities required. It is also likely that rural households look at the expected risks and return of one particular income source instead of considering and preparing against the risks associated with other income-generating activities. Markowitz (1952) opined that diversifying income sources is not just about picking income generating activities but choosing the right combination of income sources whose risks are not directly related.

Conclusion and Recommendations

The study concluded that the majority of rural households in Kwara State were male headed and had farming as primary occupation. Every household had at least two sources of income with an average of three sources though farming remained the highest contributor to their income. The livelihood status of all the households was poor with housing condition and participation in social activities being the worst contributors. Also, there is an inverse relationship between income diversification and livelihood status of rural farming households in Kwara State. It is recommended that Governments' rural development initiatives should focus on the improvement of rural housing conditions. Extension agents should encourage social participation among members of rural communities they work with. In addition, extension agents should create awareness on the need to keep the number of income sources of rural households at manageable levels to ensure adequate use of resources. Rural households should be enlightened about the importance of selecting income sources which are complimentary (for synergy) and which differ in risk factors to truly insure themselves from the risks inherent in agriculture.

Conflict of Interest

There is no conflict of interest.

Table 4 Categorisation of Respondents Based on Household Livelihood Indicators

S/N	Indicators	Low/Poor F (%)	Average/Moderate F (%)	High/Good F (%)
1	Food availability	5(3.1)	154(96.3)	1(0.6)
2	Housing condition	132(82.5)	27(16.9)	1(0.6)
3	Water facilities	39(24.4)	99(61.9)	22(13.8)
4	Health situation	35(21.9)	109(68.1)	16(10.0)
5	Sanitation	26(16.3)	126(78.8)	8(5.0)
6	Participation in social activities	114(71.3)	0(0)	46(28.8)
7	Freedom in cash expenditures	25(15.6)	116(72.5)	19(11.9)

Source: Field Survey (2017)

Table 5 Distribution of Respondents Based on Household Livelihood Indicators

Livelihood status	Frequency	Percentage	Mean
Low (≤6)	160	100	1.77
High (>6)	0	0	
Minimum=1.18 Maximum=1.98			

Source: Field Survey (2017)

Table 6 The result of the correlation analysis between income diversification and household livelihood status

	Income diversification	Household livelihood status
Income diversification	1	-.353***
Household livelihood status	-.353***	1

*** correlation is significant at .01 level (2-tailed)

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