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DETERMINANTS OF LIVELIHOOD DIVERSIFICATION AMONG FARMING HOUSEHOLDS IN JALINGO LOCAL GOVERNMENT AREA, TARABA STATE, NIGERIA

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Abstract
The study was carried out to analyse the determinants of livelihood diversification among farming households in Jalingo local government area of Taraba State. A multistage sampling technique was used in sampling the respondents. Data were collected using structured questionnaire from ninety-three farmers. The findings revealed that majority (80%) of the respondents fell within the age limits of 15-45 years, 60% were married, 88% were literate and 60% were male. Majority (76%) of the farmers had family size of 1-5 persons, 61.3% of the respondents sourced credit from cooperative societies, 25.3% sourced from friends and family, while 13.4 sourced from financial institutions. It was observed that 46.7% of them were engaged in government work, 26.7%, 20% and 6.6% engaged in driving, trading and fishing respectively. Educational level, farm size and income before diversification were the factors influencing livelihood diversification. Unstable electricity, poor access to market, insufficient market price of the commodity, inadequate access to loan, security threat and poor infrastructure were the major constraints to livelihood diversification in the study area. It was recommended that farmers should increase their farm size and more land should be allotted to the farmers at low cost by relevant authorities in charge. Also, community should form vigilante group to address the issue of security threat.

Keywords: On-farm, Off-farm, Spread-risk, Extra-revenue, Farming household.

Introduction

Diversification refers to the pattern of individual's voluntary exchange of assets and their allocation of assets across various activities (on- and off-farm) so as to achieve an optimal balance between expected returns and risk exposure conditional on the constraints they face (Khaitun and Roy, 2012). It includes both on- and off-farm activities, which are undertaken to generate additional income to the main household agricultural activities through the production of other agricultural and non-agricultural goods and services or self-employment undertaken in small firms and other strategies undertaken to spread risk. Livelihood diversification is becoming more rampant in Nigeria. Presently, many teachers, civil servants and other government workers move from one office to the other selling different items during work hours to generate additional income while some farmers are commercial motorcyclists, bus conductors, night guards, on part time basis, shoe menders etc. Ellis (2005) defined livelihood diversification as a process by which rural households construct an increasingly diverse portfolio of activities and assets in order to survive and improve their standard of living. Livelihood diversification refers to the ways by which households raise income and reduce environmental risks. It embraces both on- and off-farm activities. These activities are carried out to create extra revenue to enhance agricultural activities (Sekumade & Osundare, 2014; Babatunde & Saim, 2010). According to Ayantoye *et al.* (2017), decisions on diversification can be seen as a coping strategy rather than alternative income opportunities. The share of income from non-agricultural sources gives

leverage to the dwindling income from agriculture and considerably improves the livelihood of the rural dwellers (Ijaiya *et al.,* 2011). Farming as a livelihood activity is associated with immense risks (climate, pest and diseases, price and policy). This phenomenon is more severe in Sub-Saharan African countries including Nigeria, where appropriate lasting mitigation solutions have yielded average results. Farming households (households who engage in the production of crops and or livestock) in Africa have increasingly sought means of escaping from the detrimental consequences of poverty by inclining to diversification of their activities; within and outside the farm sector. This is to primarily address their income and food security shortfalls (Barret *et al.*, 2001; Korir *et al.,* 2005). Diversification therefore supports farm households to accumulate income for farm expansion and engagement in non-farm businesses (Dimova and Sen, 2010; Lay and Schuler, 2008) and to solve immediate household needs (food, shelter, health care and payment of school fees). A household is referred to as a multi-activity unit which is made up of individuals and the activities pursued by them (Lay and Schuler (2008). Most of the individuals residing in the rural areas and the majority of them are known to diversify their livelihoods as a means of generating income for their households. The importance and impact of non-agricultural activities on the welfare of rural farm households can no longer be ignored. The rising incidence of low level of welfare of rural households in Nigeria remains unabated despite various policy reforms undertaken in the country. This requires a deeper understanding of the problem and the need to proffer solutions to the problem through approaches that place priority on the poor and ways on which rural households through diversification can maintain their livelihood. It is against this background that this study examined the determinants of farm household's livelihood diversification in Jalingo local government area of Taraba State.

Methodology

The Study Area

The study was carried out in Jalingo local government area of Taraba state, Nigeria. Jalingo local government area is the capital city of Taraba state and is made up of ten wards namely; Abbare Yelwa, Barade, Kachalla Sembe, Kona, Magidadi, Mayo Goi, Sarkin Dawaki, Sintali, Turaki 'a' and Turaki 'b'. Jalingo local government area is located between latitudes $8^0$47' to $9^0$1'N and longitudes $11^0$09' to $11^0$30'E. It is bounded to the North by Lau Local Government Area, to the East by Yorro Local Government Area, to the South and West by Ardo Kola Local Government Area. The rainy period of the year lasts for 7 months, from March to November, with a sliding 31-day rainfall of at least 0.5 inches. The most rain falls during the 31 days centered around August, with an average total accumulation of 7.2 inches. Jalingo local government area has a population of 139,845 people according to the 2006 population census, with a projected growth rate of 3% (Shawulu *et al.,* 2008). This brought the projected population to 165,774 in 2014 (Oruonye, 2014)

Source of Data, Sampling Procedure and Sample Size

Data for this research was collected from a primary source. The primary data was collected using structured questionnaires and interview schedules. Multi-stage sampling technique was used to select the farm households. Stage one (1) involved the purposive selection of Jalingo Local Government Area. This was done based on observed prevalence of both on- and off-farm activities in the area. Stage two (2) involved a random selection of five (5) wards: Barade, Kona, Mayo Goi, Sarkin Dawaki and Turaki 'b'. These were purposefully selected based on the prominence of the livelihoods of the farmers. Snow ball sampling (Coleman, 1958) was used to identify nineteen farmers each from Kona, Mayo Goi and Turaki 'b' wards while eighteen

farmers were identified in Barade and Sarkin Dawaki given a total of ninety-three as the population (Sample frame). Yamane (1967) formula was used to determine the sample size of seventy-five farmers.

Data Analysis

Descriptive statistics including mean, percentage and frequency distribution were used to describe the socio-economic characteristics of the farmers and the constraints to livelihood diversification of the study area while logic regression model was used to determine the factors influencing the livelihood diversification of farming household in the study area.

Model Specification

The factors influencing livelihood diversification were analysed using Logistic regression following Gujarati and Sangeethe (2007). The logistic (logit) probability function is represented as:

$P_i = 1/1+e^{-z} = f(Zi)$ …..(1)

Log (P/1-P=f (Z) …..(2)

But $Zi= \beta X_i$

Therefore, log (P/1-P) = (βXi +Ui)

Where; Y_i = connotes dependent variables

β = estimated parameters

Xi = vector of independent variables

U_i = error term

Log (P/1-P) = 1, if farmers diversify to non-farm income, while

Log (P/1-P) = 0 if otherwise.

Implicitly, the model is stated as

$Y = f(X_1, X_2, \ldots X_7, \varepsilon i)$ …….…… (3)

Explicitly it was expressed as:

$Y = \beta_o + \beta_1 X_1 + \beta_1 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon i$ ……..(4)

Where:

Y = livelihood diversification (1 if diversify; 0 if otherwise).

X_1 = Age

X_2 = Educational Level (years)

X_3= Household Size (number of persons)

X_4 = Farm Size (ha)

X_5= Income Before Diversification (₦)

X_6 = Income After Diversification (₦)

X_7 = Farming Experience (Years)

εi= Error term

Results and Discussion

Socio-Economic Characteristics of the Respondents

Table 1 presents the description and summary statistics of selected socio-economic characteristics derived from the sampled households, which were later used as dependent and independent variables in the econometric estimation. Result in Table 1 shows that majority (80%) of the respondents fell within the age limits of 15-45 years. This implies that the farmers were in their active age and had the potential to diversify their income in the study area. On the

basis of marital status, large proportions (60%) of the respondents were married. This could therefore imply that marital status probably plays a vital role on diversification of income, which can be explained in terms of family labour supply. More so, majority (54.7%) had tertiary education, 20% had secondary education, while 13.3% had primary education, indicating that most of the respondents were literate. The level of education influences the kind of opportunities available to improve livelihood strategies, enhanced food security, and reduction in the level of poverty. A great proportion (60%) of the respondents was of the male gender. The result further revealed that a larger part (76%) of the farmers had family size of 1-5 persons per household. This indicates that the respondents have a relatively large household size. The study also reveals that more than half (73.3%) of the respondents has access to loan for agricultural production. Majority (33.3%) of the respondents obtained loan from money lender, 28% obtained loan from cooperative societies, and 13.3% obtained loans from family/friends and banks while only 9% obtained from government loans. This implies that the source of credit was mostly from the informal sources. This suggests that commercial banks are less patronized for financial support for farming in the study area. This may be attributed to high interest rate and cumbersome administrative procedure on loan application and disbursement. Izekor and Alufohai (2010), noted that informal rural financial sources in Africa perform better than the formal system owing to the fact that most lending organizations cannot meet up with the objectives for which they were established. In terms of type of credit accessed, majority (73.3%) of the respondents accessed credit for agricultural production.

Table 1. Socio Economic Characteristics of the Farmers (n = 75)

Variable	Frequency	Percentage (%)
Age		
15 – 30	29	38.7
31 – 45	31	41.3
Above 46	15	20
Total	75	100
Marital Status		
Single	10	13.3
Married	45	60
Widow/widower	20	26.7
Total	75	100
Educational Level		
Non – formal	09	12
Primary	10	13.3
Secondary	15	20
Tertiary	41	54.7
Total	75	100
Gender		
Male	45	60
Female	30	40
Total	75	100
Household Size		
1 – 5	57	76
6 -10	13	17.3

11 – Above	05	6.7
Total	75	100
Loan for Agricultural Production		
Yes	55	73.3
No	20	26.7
Total	75	100
Source of Credit		
Banks	10	13.3
Money lenders	25	33.3
Co-operative Society	21	28
Government Loan	09	12
Family and Friends	10	13.3
Total	**75**	**100**

Source: Field Survey, 2021.

Livelihood Activities of the Farmers

Table 2 shows that majority of the farmers (46.7%) engaged in civil service while only 26.7%, 20% and 6.6% engaged in driving, trading and fishing respectively. This showed that majority of the respondents in the study area were into farming and government work.

Table 2. Livelihood Activities of the farmers

Variable	Frequency	Percentage
Civil service	35	46.70
Driving	20	26.70
Trading	15	20.00
Fishing	05	6.60
Total	**75**	**100**

Source: Field Survey, 2021

Factors Influencing Livelihood Diversification

The model explains the physical relationship between input and output. The estimated regression coefficients, standard errors, probability value; t – values are presented in table 3. It was shown that among the seven independent variables, two were statistically significant at 5% and one at 10%. The coefficient of MacFadden R-square was 0.38. The coefficient of age (X_1) was negative, economically and statistically not significant which did not agree with a prior expectation. This means age has no influence on livelihood diversification. This conforms to the result of Etuk *et al.,* (2018), who found that the coefficient of age was economically positive but statistically insignificant. The coefficient of educational level (X_2) was positive and statistically significant at 5% level. This conformed to a prior expectation that educational level has a significant relationship with the livelihood diversification. This result agreed with that of Obasi and Enyia (2016) who reported that educational level of the respondent was positive and significant at 1%. The coefficient of household size (X_3) was negative and not statistically significant, implying that household size was not a major determinant in livelihood diversification of the farmers. The coefficient of farm size (X_4) was positive and statistically significant at 5% level. The positive sign of coefficient is in agreement with the a prior expectation. Farm size therefore was a significant determinant in livelihood diversification in the study area. This is because increase in farm size will bring about increase in output and income

of the farmers. Income before diversification (X_5) has negative coefficient and statistically significant at 10%. This means that is not a major determinant in livelihood diversification. Income after diversification (X_6) was economically positive and statistically not significant. This showed that diversification bring about increase in income of the farmers. Coefficient of farming experience (X_7) was economically and statistically insignificant. This means it is not a major determinant in livelihood diversification of the farmers.

Table 3: Factors Influencing Livelihood Diversification

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	3.210584	5.173829	0.620543	0.5349
Age (X_1)	-0.099158	0.066663	-1.487447	0.1369
Educational Level (X_2)	0.310864**	0.121010	2.568911	0.0102
Household Size (X_3)	-0.001197	0.138542	-0.008637	0.9931
Farm Size (X_4)	1.084319**	0.515897	2.101813	0.0356
Income Before Diversification (X_5)	-6.20E-05*	3.26E-05	-1.903859	0.0569
Income After Diversification (X_6)	4.46E-05	3.55E-05	1.254208	0.2098
Farming Experience (X_7)	-0.247840	0.389257	-0.636701	0.5243
McFadden R^2	0.384874			

Source: Field Survey, 2021.
Note**:** ** and *, Significant at 5% and 10% Respectively. C: Constant

Constraint Affecting Livelihood Diversification

Table 4 shows the constraints to livelihood diversification in the study area ranked according to their degree of severity. The table shows that security threat (93%), inadequate access to loan (81%), poor market price of the commodity (68%) and poor infrastructure (50.7%) were ranked the major constraints to livelihood diversification in the study area as compared to unstable electricity and poor market network with 36% and 28% respectively. The study agrees with that of Khatun and Roy (2012), who reported that lack of credit, infrastructure, awareness, training and poor asset base were the major problems to livelihood diversification. Similar studies by Ewebiyi and Meliudu (2013) have identified lack of infrastructural facilities, inadequate livelihood asset and poor transportation system as the constraints to livelihood diversification.

Table 4. Constraint Affecting Livelihood Diversification

Major problem	Frequency	Percentage	Ranking
Security threat	70	93.00	1
Inadequate access to loan	61	81.00	2
Poor market price of commodity	51	68.00	3
Poor infrastructure	38	50.70	4
Unstable electricity	27	36.00	5
Poor market network	21	28.00	6
Total		**356.70***	

Source: Field Survey, 2021. ***** = Multiple Responses.

Conclusion

The study revealed that majority of the farmers were in their active age and large proportions were married. Most of the respondents were literate: this influences the kind of opportunities available to improve livelihood strategies, enhance food security, reduce poverty level and the potential to diversify their income in the study area. Educational level, farm size and income after diversification were the factors that influenced livelihood diversification in the study area. It was also revealed that, despite the problems encountered such as security threat, inadequate access to loan, poor market price of commodity and poor infrastructure, greater proportion of the farmers diversified into trading, fishing, civil service and driving income activities. The study concludes that livelihood diversification among farmers was seemingly prevalent probably to cope with unforeseen risks involved in farming.

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