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1-8	Nutritional evaluation of giant African land snail (<i>Archachatina marginata</i> var. <i>saturalis</i>) fed diet containing full fat rubber as a replacement for soybean. Okon, B., Ibom, L. A., Ina-Ibor, O. B. and Owai, P. U.
9-14	Growth and yield of vegetable cowpea varieties (<i>Vigna unguiculata</i> (L.) Walp.) as influenced by potassium fertilizer rates in Umudike, Nigeria. Akpan, A. U. and Mbah, E. U.
15-18	Hormonal profile and morphometric weight of reproductive organ of Nigerian indigenous cocks treated with clomiphene (Clomid®). Urom, S. M. O. C.
19-26	Evaluation of proximate, phytochemical and antibacterial properties of the pseudostem and hand of plantain (<i>Musa paradisiaca</i>). Ogofure, A. G. and Emoghene, A. O.
27-31	Cost function analysis of cassava production under taungya farming system in Edo State, Nigeria. Emokaro, C. O. and Oyoboh, D. E.
32-36	Performance and haematological characteristics of broiler chickens fed graded dietary levels of <i>Alchornea cordifolia</i> leaf meal. Okah, U., Onwujiariri, E. B., Adedokun, O. O., Nwachukwu, C. C. and Aja, F. U.
37-41	Assessment of the current status of aquaculture production in Edo State. Okonji, V. A. and Osayi, S. E.
42-49	Empirical analysis of Nigeria's capacity to generate appropriate improved agricultural technologies. Chukwu, E. O.
50-57	Economics of backyard poultry farming in Benin City, Edo State, Nigeria. Emokaro, C. O., Akinrinmola, F. K. and Emokpae, O. P.
58-62	Microbial evaluation of some canned fish sold in Benin City, Edo State Nigeria. Odiko, A. E. and Agas, C.
63-73	Effect of spatial arrangement on growth and yield of cassava (<i>Manihot esculenta</i> Crantz) and maize (<i>Zea mays</i> L.) intercrop in a forest zone of Edo State. Osaigbovo, A. U., Remison, S. U. and Law-Ogbomo, K. E.
74-80	Rhizosphere soil properties and growth attributes of four tree species in a four-year arboretum at the University of Port Harcourt, Nigeria. Chima, U. D., Akhabue, E. F. and Gideon, I. K.
81-84	Gestation length, litter size at birth and their effects on some reproductive traits of domestic rabbit in Nigeria. Ayoola, M. A., Fayeye, T. R. and Ayorinde, K. L.
85-91	Growth performance and nutrient digestibility of Nigerian local grower chicken fed varying dietary levels of palm kernel cake. Afolabi, K. D.
92-97	Shell growth pattern of the freshwater clam (<i>Egeria radiata</i>) in the Forcados River, Niger Delta, Nigeria. Ehigiator, F. A. R. and Osawaru, E.
98-102	Determinants of food expenditure patterns among households in Oshodi-Isolo Local Government Area of Lagos State, Nigeria. Aminu, F. O., Adebajo, O. A. and Mohammed, H. A.
103-108	Proximate, amino acid and mineral composition of wild and cultured fresh water clam (<i>Egeria radiata</i>). Ehigiator, F. A. R. and Akise, O. G.
109-114	Determinants of female farmers' participation in non-farm enterprises in Ikwoano Local Government Area of Abia State, Nigeria. Ebe, F. E., Obike, K. C. and Onu, D. O.
115-118	Post digging survival of <i>Irvingia gabonensis</i> seedlings as influenced by leaf pruning methods, root packaging materials and storage duration. Ngwuta, A. A., Peter-Onoh, C. A., Obiefuna, J. C., Chigbundu, I. N., Nze, O. E. and Ibeawuchi, I. I.
119-124	Agronomic efficiency and economic returns of upland rice as influenced by fertilizer application and cultivars in Uyo, Southeastern Nigeria. Aderi, O. S. and Ndaeyo, N. U.
125-127	<i>Monodora myristica</i> seedlings damage by <i>Zonoceros variegatus</i> in southeastern Nigeria. Ngwuta, A. A., Peter-Onoh, C. A., Agu, C. M., Nwokeji, E. M., Chigbundu, N. I. and Obiefuna, J. C.
128-132	Toxicity of fluzafop-p-butyl on blood cells and metabolites of a common african catfish (<i>Clarias gariepinus</i>). Inyang, I. R. and Thomas, S.
133-137	Fertility and hatchability traits in sigmoid strain of Japanese quail eggs in humid tropics. Obike, O. M., Nosike, R. J., Nwachukwu, E. N. and Michael, A. E.
138-143	Effect of health condition on technical efficiency of small-scale crop farmers in yewa division of Ogun State, Nigeria. Adekunle, A. K., Adekunle, C. P. and Aihonsu, J. O. Y.
144-148	Trial error and outlier in agricultural experiment data and their handling. Ngwuta, A. A., Peter-Onoh, C. A., Awurum, A. N., Ogoke, I. J., Okoli, E. E., Orji, J. O., and Eze, C. C.
149-155	Technical efficiency of crop-farmers subscribers of national agricultural insurance cooperation (NAIC) in Ehime Mbano Local Government Area of Imo State Nigeria. Obike, K. C., Ebe, F. E. and Onu, D. O.
156-161	Livelihood diversification of rural households in Niger State, Nigeria. Ajayi, O. J., Sanusi, O., Muhammed, Y. and Tsado, J. H.
162-165	Effect of diets containing supplements of ginger (<i>Zingiber officinale</i>) and vitamin c on body weight, haematology and blood serum components in cocks. Isidahomen, C. E.
166-170	Comparative study of lime and palm bunch ash effects on soil pH and maize performance in Owerri, southeastern Nigeria. Adikuru, N. C., Okafor, S. U., Anyanwu, C. P. and Ihem, E. E.
171-175	Temporal variation in soil organic carbon and mean weight diameter as affected by poultry manure and soil. Yusuf, A. A., Odofin, A. J. and Afolabi, S. G.
176-180	Awareness of poultry farming policies among poultry farmers in peri-urban area of Gokana Local Government Area, Rivers State, Nigeria. Nwaogwugwu, O. N. and Lemea C. T.
181-184	Effect of different sources of dietary calcium on the carcass and sensory qualities of giant african land snails (<i>Archachatina marginata</i>). Badmos, A. A., Sola-Ojo, F. E., Oke, S. A., Amusa, T. O., Amali, H. E., and Lawal, A. O.
185-187	Egg production performance of naturally mated Nigerian indigenous hens treated with clomiphene citrate (Clomid®). Urom S. M. O. C.
188-193	Extractivism in Enen Akpan Anya community forest, Asanting Ibiono in Ibiono Ibom Local Government Area of Akwa Ibom State, Nigeria. Udofia, S. I. and Damian, R. I.
194-199	Effect of clipping/grazing intensity on forage quantity and quality in Old Oyo National Park, Nigeria. Aremu, O. T. and Eklm, D. E.
200-202	Incidence of fetal wastage in cattle slaughtered at the Lafia abattoir, Nasarawa State. Hassan, D. I., Adua, M. M. and Yusuf, N. D.

LIVELIHOOD DIVERSIFICATION OF RURAL HOUSEHOLDS IN NIGER STATE, NIGERIA

Ajayi, O. J., Sanusi, O., Muhammed*, Y. and Tsado, J. H.

ABSTRACT

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This study examined livelihood diversification of rural households in Niger State, Nigeria. It identified reasons for engaging in livelihood diversification and determined factors influencing livelihood diversification in the study area. Multi-stage sampling technique was used to select 180 rural households that were interviewed with structured questionnaire to obtain primary data. Both descriptive and inferential statistics were used to analyse data collected. Findings from the study revealed that majority (74.6%) of the respondents' age range between 21 – 50 years with mean age of 44 years; about 77.2% were male, while 72.4% of the respondents had formal education. The mean household size, farming experience and farm size was 9 people, 29 years and 2 hectares respectively. In addition, majority (70.6%) of the respondents revealed that reason for livelihood diversification was to earn more incomes, while only 1.1% indicated risk aversion as reason for diversifying. Tobit regression analysis revealed pseudo R^2 of 0.7284 implying that about 72.8% variation in livelihood diversification was caused by the explanatory variables. However, education (2.31), seasonality (4.36) and mineral resources (2.50) were significant at 5% and 1% level of probability, and had direct relationship with livelihood diversification. The null hypothesis on the selected socio-economic characteristics was accepted except for education which had significant relationship with livelihood diversification. Thus, most of the respondents were involved in livelihood diversification to earn more income and escape poverty. It was therefore recommended that rural household should be properly sensitized through extension agents to diversify their source of income. Also credit should be made accessible to them for diversification into non-farm business activities.

Keywords: Livelihood, diversification, rural households, tobit regression

INTRODUCTION

Diversification of income sources, ownership of assets, and occupations are norms for individuals or households for different socio-economic reasons. Those who work on diversification tends to categorize livelihood sources as either farm or non-farm. The latter is often implicitly taken to be non-natural resource based activities such as trading, construction, service industries and others (Christopher *et al.*, 2010). Assan and Beyene (2013) defined livelihood diversification as 'attempts by individuals and households to find new ways to raise incomes and reduce risk (economic, environmental and social) which sharply differs by the degree of freedom of choice (to diversify or not) and the reversibility of the outcome'. They include activities both on and off the farm that are undertaken to generate additional income to that of the household's main agricultural activities. Adugna (2005) further posited that the level of intensity and participation of rural households in diversification was not uniform. Demographic factors, such as the age and gender of the household head, dependency ratio and number of female household members are determinants of participation. He pointed out that intensity is also affected by the size of land holdings, value of livestock owned and level of income from crop production.

In Sub-Saharan Africa, diversification can be represented as a failure of agriculture as means of providing livelihood for a substantial proportion of inhabitants. Diversification in Africa is an active process of "de-agrarianization" whereby farming becomes a part-time, residual, or fall-back activity and livelihoods become increasingly oriented to non-farm and non-rural activities (Bryceson, 2005). According to Ellis (2000), livelihood approach resources can be categorized as human capital (skills, education, health), physical capital (produced investment goods), financial capital (money, savings, loan access), natural capital (land, water, trees, etc.), and social capital (networks and associations). It was observed that rural people construct their livelihoods via three main strategies including agricultural intensification; livelihood diversification and migration. Majority of rural producers have historically diversified their productive activities to encompass a range of other productive areas. Motivations for such diversification are multifarious, linked with wide range of possible activities, and associated with both positive and negative outcomes (Nasa'i *et al.*, 2010). Several studies have shown that most rural households are involved in agricultural activities such as livestock, crop or fish production as their main source of livelihood and also engage in other income generating activities to augment their main source of income. Very few of them generate all their income from only one source, hold all their wealth in the form of a single asset, or use their resources in just one activity (Barrett *et al.*, 2001).

Reasons for the observed income diversification include declining farm incomes and the desire to insure against agricultural production and market risks. Rural households are forced into off-farm and non-farm activities, owing to less gains and increased uncertainties associated with farming. They take up off-farm employment when returns to off-farm employment are higher or less risky than in agriculture. Mainly, households diversify into non-farm

and off-farm activities in their struggle for survival and in order to improve their welfare in terms of health care, housing, sustenance, covering, etc. An understanding of the significance and nature of non-farm and off-farm activities (especially its contribution to rural household income or resilience) is of utmost importance for policy makers in the design of potent agricultural and rural development policies. In Nigeria, the agricultural sector is plagued with problems which include soil infertility, infrastructural inadequacy, risk and uncertainty, seasonality among others. Thus, rural households are forced to develop strategies to cope with increasing vulnerability associated with agricultural production through diversification, intensification and migration or moving out of farming (Ellis, 2000). Furthermore, the growing interest in research on rural off-farm and non-farm income in rural economies is increasingly showing that rural peoples' livelihoods are derived from diverse sources and are not as overwhelmingly dependent on agriculture as previously assumed (Gordon, 2001). This could be owing to the fact that a diversified livelihood, which is an important feature of rural survival and closely allied to flexibility, resilience and stability, is less vulnerable than an undiversified one. In addition, de Janvry and Sadoulet (2001) reported a substantial and increasing share of off-farm income in total household income in their study.

It is evident that rural households in Nigeria engage in multiple livelihood activities such as trading (marketing or adding value to commodities), small scale business enterprises (carpentry, radio and bicycle repairs), and processing of agricultural goods and arts and craft (weaving, mats and basket making) in order to supplement earnings from agriculture (Edna et al., 2007). These activities (livelihood diversification) are influenced by certain factors which operate at both internal and external environments of rural households (Butler and Mazur, 2004). The existing gaps in poverty, unemployment and inequality between the urban and the rural sectors of the world have attracted the attention of social scientists to the study of rural livelihood. The concerns and attention shown on lagging areas have called for change from emphasis on development strategies that focus on problems identification and needs assessment to approaches that place priority on the livelihood systems of the poor, and ways in which rural household adapt to maintain their livelihood under severe environmental, economic and political stress. The objectives of the study were to describe the socio-economic characteristics of the rural households, identify the reasons for livelihood diversification and determine the factors influencing livelihood diversification

METHODOLOGY

The study was conducted in Niger State, Nigeria. The State consists of twenty five (25) Local Government Areas (LGAs) grouped into three agricultural zones (I, II and III) with the zones having 8, 9 and 8 LGAs, respectively. The State is located within latitudes 8°20' and 11°30'N, and longitudes 3°30' and 8°20'E with a population of about 3,950,249 (NPC, 2006). The projected population for 2015 was 5,337,148 at 3.4% growth rate. The State lies in the Guinea Savannah vegetation zone of the country with favourable climatic conditions for crop and livestock production. The State is blessed with abundant natural resources such as Gold, Clay, Silica, Kyanite, Marble, Copper, Iron, Feldspars, Lead, Columbite, Kaolin and Tantalite (Niger State Ministry of Information, 2012). A multistage sampling technique was used to select the rural households. The first stage involves random selection of one Local Government Area from each agricultural zone. Four villages were then randomly selected from the LGA chosen in the second stage. The last stage was the proportionate selection of the 180 respondents from the sample frame of each village using the Yamane (1967) formula. Data for the study was generated from primary source using structured questionnaire complimented with an interview schedule. Descriptive statistics (such as percentages, means and frequency distribution tables) and inferential statistics (such as Tobit regression model) were used to analyse the data collected.

Model specification

Tobit regression model

The tobit regression model was employed to determine factors influencing livelihood diversification of the rural households. Tobit regression model according to Greene (2003) is represented thus:

$$Y_i^* = X_i \beta + e_i \dots\dots\dots (1)$$

Where;

Y_i^* is the livelihood diversification index

X_i is the explanatory variables of the i th respondents

β is the coefficients of the explanatory variables

e_i is the constant variance

The general tobit regression model in its explicit form is expressed as:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \dots\dots \beta_{10} X_{10} + e \dots\dots\dots (2)$$

Where;

Y = Livelihood diversification index

X_1 = Age of farmers (years)

X_2 = Household size (numbers)

- X₃= Farming experience (years)
 X₄= Education (years)
 X₅= Farm size (hectares)
 X₆= Seasonality (all year = 1, otherwise = 0)
 X₇= Cooperative (member = 1, otherwise = 0)
 X₈= Access to credit (access = 1, otherwise = 0)
 X₉= Mineral resources (availability = 1, otherwise = 0)
 X₁₀= Natural disaster (yes = 1, otherwise = 0)

Test of hypothesis

The z-value of the tobit regression was used to test for the hypothesis of the study.

RESULT AND DISCUSSION

Socio economic characteristics of the respondents

The socio-economic characteristics of the respondents described include age, gender, and education, household size, farming experience and farm size. The age of the respondents presented in Table 1 revealed that majority (74.6%) of the respondents were within the age range of 21 – 50 years with a mean age of 44 years implying that the respondents were in their active and productive age. This result is in agreement with Etonihu *et al.* (2013) who posited that active farming age was between 41-50 years with a mean age of 46 years. Majority (77.2%) of the respondents were male while 22.8% were female implying that men are more involved in livelihood diversification than the female because male are breadwinner of most homes. In terms of the educational status of the respondents, majority (72.9%) of the respondents attained one form of formal education or the other with 27.1% having no formal education. The mean years spent in acquiring formal education was seven (7) years implying that most of the respondents do not have higher educational attainment that could enhance their livelihoods diversification.

More so, majority (48.9%) of the respondents had 6 – 10 persons in their house hold. The mean household size was 9 persons implying that the respondents in the study area had larger household size. Larger household has a better chance of livelihood diversification than small ones. This finding is in agreement with Bigsten (1996) who posited that in Kenya, the size of a household and existence of personal networks were key variables determining whether or not a household engaged in migration. Table 1 also revealed that 39.4% of the respondents had farming experience of more than 30 years while the least 1.7% had farming experience within the range of 1 – 10 years. The mean farming experience was 29 years implying that the respondents were experienced farmers. This finding is in corroboration with Muhammad *et al.* (2008) who reported that diversification is common among farmers with much years of farming experience. The majority (66.9%) of the respondents had farm size within the range of 1.0 – 2.0 hectares, 29.8% had more than 2.5 hectares, while 3.3% had less than one hectare of farmland. The mean farm size was 2 hectares implying that the respondents are small-scale farmers. This finding is in agreement with that of Lanjouw *et al.* (2001) who asserted that most empirical studies of African agriculture found no significant economies of scale beyond a very small farm size. This causes farmers to look for respite in non-farm activities.

The reasons for engaging in livelihood diversification activities

Table 2 revealed that majority (70.6%) of the respondents identified income generation as the primary reason for involvement in livelihood diversification. A good number of studies indicated that household in sub-Saharan Africa countries whose households heavily depend on agriculture and related activities do so for additional income generation. According to Escobal (2001), income diversification through off-farm activities offer an important route out of poverty, provides higher income earning, increases food consumption, generate employment and reduce income inequality. In addition, 17.2% of the respondents identified family necessities as the reason for engaging in livelihood diversification, 5% indicated food security, while 1.1% of the respondent indicated risk aversion as the reason behind livelihood diversification. However, 6.1% represented those respondents who did not diversify and therefore have no reasons for diversification.

The factors influencing livelihood diversification in the study area

The result of the regression model of the factors influencing livelihood diversification in Table 3 shows that education, season of the year and mineral resources positively and significantly influenced livelihood of the farmers in the study area. The coefficient of the season of the year on livelihood diversification was positive and significant at 1% probability level. This implies that a unit change in the season led to increased involvement in the livelihood diversification. For example, given the seasonality of West African agriculture, where farming may occupy producers for only half of their time for 4 - 6 months of the year, the primary production activity may take less than half of the time of household members. The only option left is to engage in non-farm activities as means of livelihood. This finding validates that of Hussein and Nelson (1999), who reported that coping strategies are employed seasonally or in response to external shocks (e.g. droughts) by relatively vulnerable households. Also, years spent in acquiring formal education was positive and significant at 5% level of probability. This implies that

a unit change in the level (years spent) of farmers' education will raise the probability of farmers involvement in livelihood diversification. This is based on the fact that education creates awareness about opportunities existing elsewhere and the knowledge and skill acquired support individual quest for better standard (job) of living outside the farm enterprise (Ann, 2000; Edna *et al.*, 2007).

Table 1: Distribution of the respondents based on their socio-economic characteristics

Variables	Frequency	Percentages	Mean
Age (years)			
≤ 20	2	1.1	44
21 – 30	17	9.4	
31 – 40	46	25.6	
41 – 50	71	39.6	
51 – 60	37	20.6	
>60	7	3.9	
Gender			
Male	139	77.2	
Female	41	22.8	
Educational Status			
Non Formal	49	27.1	7
Primary	74	40.9	
Secondary	56	30.9	
Tertiary	1	0.6	
Household Size			
1 – 5	38	21.1	9
6 – 10	88	48.9	
11 – 15	41	22.8	
16 – 20	9	5.0	
21 – 25	4	2.2	
Farming Experience (years)			
1 – 10	3	1.7	29
11 – 20	42	23.3	
21 – 30	64	35.6	
> 30	71	39.4	
Farm Size (hectare)			
< 1	6	3.3	2
1.0 – 1.5	42	23.2	
1.6 – 2.0	75	42.0	
2.1 – 2.5	3	1.7	
> 2.5	54	29.8	
Total	180	100.0	

Source: Field Survey, 2015

Table 2: Reasons for livelihood diversification of the respondents

Reasons	Frequency	Percentages
Farming Only	11	6.1
Additional Income	127	70.6
Family Necessity	31	17.2
Food Security	9	5.0
Risk Aversion	2	1.1
Total	180	100.0

Source: Field Survey, 2015

Moreover, a unit increase in the mineral resources caused an increase in the livelihood diversification. This is because these activities are traditional trades of the natives of these districts and also the raw materials required for such enterprises are located as mineral resources in the respective districts. For example, a locality that produces a large quantity of cassava tends to be involved in *gari* production. And in a locality where mineral resources such as gold, silver, crude oil and other precious stones abound, the inhabitants tend to engage in mining and exploitation rather than concentration on farming. The cost of transporting raw materials can be expensive particularly because of its bulky nature. This often attracts high fares and does not make non-farm enterprise worthwhile. This agrees with the finding of Smith *et al.* (2001) who asserted that natural resource-based

group income-generating activities, such as the gathering and sale of wetland and forest products have been for many years relying on the passing-down of skills from one generation to the next. Entry into these groups is based largely on location, with members coming from households located around the mineral resources.

Test of hypothesis

Tobit result in Table 3 revealed that with the exception of the years of schooling of the respondents, other socioeconomic characteristics such as age, household size, headship, farming experience, farm size had no significant relationship with livelihood diversification, hence accepting the null hypothesis but rejecting it for the significant variable (years of schooling). This implies that as the years of schooling increases, everything being equal, participation in livelihood diversification increases.

CONCLUSION AND RECOMMENDATIONS

Livelihood diversification had positive and significant effect on respondents' welfare. It was found to give the farmers an easy route out of vicious circle of poverty and provides a better living standard. There was a strong influence of education on livelihood diversification. Environmental factors such as mineral resources (depletion of soil nutrients) and season of the year (mostly during dry season) were found to influence the respondents into livelihood diversification. The study therefore recommended that rural households should be encouraged to diversify their income source into non-farm activities. Credit should also be made accessible to the rural farmers. This will encourage diversification into non-farm business activities which will invariably lead to improved income and food security.

Table 3: Regression coefficients of factors influencing livelihood diversification

Variables	Coefficients	Standard error	z - value
Constant	0.2355	0.1214	1.94*
Age	0.0032	0.0042	0.76 ^{ns}
Household size	-0.0062	0.0048	-1.30 ^{ns}
Farming experience	-0.0023	0.0043	-0.54 ^{ns}
Education	0.0063	0.0027	2.31**
Farm size	0.0126	0.0191	0.66 ^{ns}
Seasonality	0.1914	0.0439	4.36***
Cooperative	0.0237	0.0214	1.11 ^{ns}
Access to credit	-2.1907	1.3778	-1.59 ^{ns}
Mineral resources	0.0463	0.0185	2.50***
Natural disaster	0.0141	0.0099	1.43 ^{ns}
Log likelihood =	35.781975		
Pseudo R-square =	0.7284		
Prob. > Chi =	0.0000		

Source: Field Survey, 2015

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LIVELIHOOD DIVERSIFICATION OF RURAL HOUSEHOLDS IN NIGER STATE, NIGERIA

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ABSTRACT

This study examined livelihood diversification of rural households in Niger State, Nigeria. It identified reasons for engaging in livelihood diversification and determined factors influencing livelihood diversification in the study area. Multi-stage sampling technique was used to select 180 rural households that were interviewed with structured questionnaire to obtain primary data. Both descriptive and inferential statistics were used to analyze data collected. Findings from the study revealed that majority (74.6%) of the respondents' age range between 21 – 50 years with mean age of 44 years; about 77.2% were male, while 72.4% of the respondents had formal education. The mean household size, farming experience and farm size was 9 people, 29 years and 2 hectares respectively. In addition, majority (70.6%) of the respondents revealed that reason for livelihood diversification was to earn more incomes, while only 1.1% indicated risk aversion as reason for diversifying. Tobit regression analysis revealed pseudo R^2 of 0.7284 implying that about 72.8% variation in livelihood diversification was caused by the explanatory variables. However, education (2.31), seasonality (4.36) and mineral resources (2.50) were significant at 5% and 1% level of probability, and had direct relationship with livelihood diversification. The null hypothesis on the selected socio-economic characteristics was accepted except for education which had significant relationship with livelihood diversification. Thus, most of the respondents were involved in livelihood diversification to earn more income and escape poverty. It was therefore recommended that rural household should be properly sensitized through extension agents to diversify their source of income. Also credit should be made accessible to them for diversification into non-farm business activities.

Keywords: Livelihood, diversification, rural households, respondents, tobit regression

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INTRODUCTION

Diversification of income sources, ownership of assets, and occupations are norms for individuals or households for different socio-economic reasons. Those who work on diversification tends to categorize livelihood sources as either farm or non-farm. The latter is often implicitly taken to be non-natural resource based activities such as trading, construction, service industries and others (Christopher *et al.*, 2010). Assan and Beyene (2013) defined livelihood diversification as 'attempts by individuals and households to find new ways to raise incomes and reduce risk (economic, environmental and social) which sharply differs by the degree of freedom of choice (to diversify or not) and the reversibility of the outcome'. They include activities both on and off the farm that are undertaken to generate additional income to that of the household's main agricultural activities. Adugna (2005) further posited that the level of intensity and participation of rural households in diversification was not uniform. Demographic factors, such as the age and gender of the household head, dependency ratio and number of female household members are determinants of participation. He pointed out that intensity is also affected by the size of land holdings, value of livestock owned and level of income from crop production.

In Sub-Saharan Africa, diversification can be represented as a failure of agriculture as means of providing livelihood for a substantial proportion of inhabitants. Diversification in Africa is an active process of "de-agrarianization" whereby farming becomes a part-time, residual, or fall-back activity and livelihoods become increasingly oriented to non-farm and non-rural activities (Bryceson, 2005). According to Ellis (2000), livelihood approach resources can be categorized as human capital (skills, education, health), physical capital (produced investment goods), financial capital (money, savings, loan access), natural capital (land, water, trees, etc.), and social capital (networks and associations). It was observed that rural people construct their livelihoods via three main strategies including agricultural intensification; livelihood diversification and migration. Majority of rural producers have historically diversified their productive activities to encompass a range of other productive areas. Motivations for such diversification are multifarious, linked with wide range of possible activities, and associated with both positive and negative outcomes (Nasa'i *et al.*, 2010). Several studies have shown that most rural households are involved in agricultural activities such as livestock, crop or fish production as their main source of livelihood and also engage in other income generating activities to augment their main source of income. Very few of them

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generate all their income from only one source, hold all their wealth in the form of a single asset, or use their resources in just one activity (Barrett *et al.*, 2001).

Reasons for the observed income diversification include declining farm incomes and the desire to insure against agricultural production and market risks. Rural households are forced into off-farm and non-farm activities, owing to less gains and increased uncertainties associated with farming. They take up off-farm employment when returns to off-farm employment are higher or less risky than in agriculture. Mainly, households diversify into non-farm and off-farm activities in their struggle for survival and in order to improve their welfare in terms of health care, housing, sustenance, covering, etc. An understanding of the significance and nature of non-farm and off-farm activities (especially its contribution to rural household income or resilience) is of utmost importance for policy makers in the design of potent agricultural and rural development policies. In Nigeria, the agricultural sector is plagued with problems which include soil infertility, infrastructural inadequacy, risk and uncertainty, seasonality among others. Thus, rural households are forced to develop strategies to cope with increasing vulnerability associated with agricultural production through diversification, intensification and migration or moving out of farming (Ellis, 2000). Furthermore, the growing interest in research on rural off-farm and non-farm income in rural economies is increasingly showing that rural peoples' livelihoods are derived from diverse sources and are not as overwhelmingly dependent on agriculture as previously assumed (Gordon, 2001). This could be owing to the fact that a diversified livelihood, which is an important feature of rural survival and closely allied to flexibility, resilience and stability, is less vulnerable than an undiversified one. In addition, de Janvry and Sadoulet (2001) reported a substantial and increasing share of off-farm income in total household income in their study.

It is evident that rural households in Nigeria engage in multiple livelihood activities such as trading (marketing or adding value to commodities), small scale business enterprises (carpentry, radio and bicycle repairs), and processing of agricultural goods and arts and craft (weaving, mats and basket making) in order to supplement earnings from agriculture (Edna *et al.*, 2007). These activities (livelihood diversification) are influenced by certain factors which operate at both internal and external environments of rural households (Butler and Mazur, 2004). The existing gaps in poverty, unemployment and inequality between the urban and the rural sectors of the world have attracted the attention of social scientists to the study of rural livelihood. The concerns and attention shown on lagging areas have called for change from emphasis on development strategies that focus on problems identification and needs

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assessment to approaches that place priority on the livelihood systems of the poor, and ways in which rural household adapt to maintain their livelihood under severe environmental, economic and political stress. The objectives of the study were to:

- i. describe the socio-economic characteristics of the rural households
- ii. identify the reasons for livelihood diversification
- iii. determine the factors influencing livelihood diversification

METHODOLOGY

The study was conducted in Niger State, Nigeria. The State consists of twenty five (25) Local Government Areas (LGAs) grouped into three agricultural zones (I, II and III) with the zones having 8, 9 and 8 LGAs, respectively. The State is located within latitudes 8°20' and 11°30' N, and longitudes 3°30' and 8°20' E with a population of about 3,950,249 (NPC, 2006). The projected population for 2015 was 5,337,148 at 3.4% growth rate. The State lies in the Guinea Savannah vegetation zone of the country with favourable climatic conditions for crop and livestock production. The State is blessed with abundant natural resources such as Gold, Clay, Silica, Kyanite, Marble, Copper, Iron, Feldspars, Lead, Columbite, Kaolin and Tantalite (Niger State Ministry of Information, 2012). A multistage sampling technique was used to select the rural households. The first stage involves random selection of one Local Government Area from each agricultural zone. Four villages were then randomly selected from the LGA chosen in the second stage. The last stage was the proportionate selection of the 180 respondents from the sample frame of each village using the Yamane (1967) formula. Data for the study was generated from primary source using structured questionnaire complimented with an interview schedule. Descriptive statistics (such as percentages, means and frequency distribution tables) and inferential statistics (such as tobit regression model) were used to analyze the data collected.

Model specification

Tobit regression model

The tobit regression model was employed to determine factors influencing livelihood diversification of the rural households. Tobit regression model according to Greene (2003) is represented thus:

$$Y_i^* = X_i\beta + e_i \dots\dots\dots(1)$$

Where;

Y_i^* is the livelihood diversification index

X_i is the explanatory variables of the *i*th respondents

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β is the coefficients of the explanatory variables

e_i is the constant variance

The general tobit regression model in its explicit form is expressed as:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \dots \beta_{10} X_{10} + e \dots \dots \dots (2)$$

Where;

Y = Livelihood diversification index

X₁ = Age of farmers (years)

X₂ = Household size (numbers)

X₃ = Farming experience (years)

X₄ = Education (years)

X₅ = Farm size (hectares)

X₆ = Seasonality (all year = 1, otherwise = 0)

X₇ = Cooperative (member = 1, otherwise = 0)

X₈ = Access to credit (access = 1, otherwise = 0)

X₉ = Mineral resources (availability = 1, otherwise = 0)

X₁₀ = Natural disaster (yes = 1, otherwise = 0)

Test of Hypothesis

The z-value of the tobit regression was used to test for the hypothesis of the study.

RESULT AND DISCUSSION

Socio Economic Characteristics of the Respondents

The socio-economic characteristics of the respondents described include age, gender, education, household size, farming experience and farm size. The age of the respondents presented in Table 1 revealed that majority (74.6%) of the respondents were within the age range of 21 – 50 years with a mean age of 44 years implying that the respondents were in their active and productive age. This result is in agreement with Etonihu *et al.* (2013) who posited that active farming age was between 41-50 years with a mean age of 46 years. Majority (77.2%) of the respondents were male while 22.8% were female implying that men are more involved in livelihood diversification than the female because male are breadwinner of most homes. In terms of the educational status of the respondents, majority (72.9%) of the respondents attained one form of formal education or the other with 27.1% having no formal education. The mean years spent in acquiring formal education was seven (7) years implying that most of the respondents do not have higher educational attainment that could enhance their livelihoods diversification.

Table 1: Distribution of the Respondents based on their Socio-economic Characteristics

Variables	Frequency	Percentages	Mean
Age (years)			
≤ 20	2	1.1	44
21 – 30	17	9.4	
31 – 40	46	25.6	
41 – 50	71	39.6	
51 – 60	37	20.6	
>60	7	3.9	
Gender			
Male	139	77.2	
Female	41	22.8	
Educational Status			
Non Formal	49	27.1	7
Primary	74	40.9	
Secondary	56	30.9	
Tertiary	1	0.6	
Household Size			
1 – 5	38	21.1	9
6 – 10	88	48.9	
11 – 15	41	22.8	
16 – 20	9	5.0	
21 – 25	4	2.2	
Farming Experience (years)			
1 – 10	3	1.7	29
11 – 20	42	23.3	
21 – 30	64	35.6	
> 30	71	39.4	
Farm Size (hectare)			
< 1	6	3.3	2
1.0 – 1.5	42	23.2	
1.6 – 2.0	75	42.0	
2.1 – 2.5	3	1.7	
> 2.5	54	29.8	
Total	180	100.0	

Source: Field Survey, 2015

More so, majority (48.9%) of the respondents had 6 – 10 persons in their household. The mean household size was 9 persons implying that the respondents in the study area had larger household size. Larger household has a better chance of livelihood diversification than small ones. This finding is in agreement with Bigsten (1996) who posited that in Kenya, the size of a household and existence of personal networks were key variables determining whether or not a household engaged in migration. Table 1 also revealed that 39.4% of the respondents had farming experience of more than 30 years while the least 1.7% had farming experience within

the range of 1 – 10 years. The mean farming experience was 29 years implying that the respondents were experienced farmers. This finding is in corroboration with Muhammad *et al.* (2008) who reported that diversification is common among farmers with much years of farming experience. The majority (66.9%) of the respondents had farm size within the range of 1.0 – 2.0 hectares, 29.8% had more than 2.5 hectares, while 3.3% had less than one hectare of farmland. The mean farm size was 2 hectares implying that the respondents are small-scale farmers. This finding is in agreement with that of Lanjouw *et al.* (2001) who asserted that most empirical studies of African agriculture found no significant economies of scale beyond a very small farm size. This causes farmers to look for respite in non-farm activities.

The reasons for engaging in livelihood diversification activities

Table 3 revealed that majority (70.6%) of the respondents identified income generation as the primary reason for involvement in livelihood diversification. A good number of studies indicated that household in sub-Saharan Africa countries whose households heavily depend on agriculture and related activities do so for additional income generation. According to Escobal (2001), income diversification through off-farm activities offer an important route out of poverty, provides higher income earning, increases food consumption, generate employment and reduce income inequality. In addition, 17.2% of the respondents identified family necessities as the reason for engaging in livelihood diversification, 5% indicated food security, while 1.1% of the respondent indicated risk aversion as the reason behind livelihood diversification. However, 6.1% represented those respondents who did not diversify and therefore have no reasons for diversification.

Table 2: Reasons for Livelihood Diversification of the Respondents

Reasons	Frequency	Percentages
Farming Only	11	6.1
Additional Income	127	70.6
Family Necessity	31	17.2
Food Security	9	5.0
Risk Aversion	2	1.1
Total	180	100.0

Source: Field Survey, 2015

The factors influencing livelihood diversification in the study area

The result of the regression model of the factors influencing livelihood diversification in Table 4 shows that education, season of the year and mineral resources positively and significantly influenced livelihood of the farmers in the study area. The coefficient of the season of the year on livelihood diversification was positive and significant at 1% probability level. This implies that a unit change in the season led to increased involvement in the livelihood diversification. For example, given the seasonality of West African agriculture, where farming may occupy producers for only half of their time for 4-6 months of the year, the primary production activity may take less than half of the time of household members. The only option left is to engage in non-farm activities as means of livelihood. This finding validates that of Hussein and Nelson (1999), who reported that coping strategies are employed seasonally or in response to external shocks (e.g. droughts) by relatively vulnerable households. Also, years spent in acquiring formal education was positive and significant at 5% level of probability. This implies that a unit change in the level (years spent) of farmers' education will raise the probability of farmers involvement in livelihood diversification. This is based on the fact that education creates awareness about opportunities existing elsewhere and the knowledge and skill acquired support individual quest for better standard (job) of living outside the farm enterprise (Ann, 2000; Edna *et al.*, 2007). Moreover, a unit increase in the mineral resources caused an increase in the livelihood diversification. This is because these activities are traditional trades of the natives of these districts and also the raw materials required for such enterprises are located as mineral resources in the respective districts. For example, a locality that produces a large quantity of cassava tends to be involved in *gari* production. And in a locality where mineral resources such as gold, silver, crude oil and other precious stones abound, the inhabitants tend to engage in mining and exploitation rather than concentration on farming. The cost of transporting raw materials can be expensive particularly because of its bulky nature. This often attracts high fares and does not make non-farm enterprise worthwhile. This agrees with the finding of Smith *et al.* (2001) who asserted that natural resource-based group income-generating activities, such as the gathering and sale of wetland and forest products have been for many years relying on the passing-down of skills from one generation to the next. Entry into these groups is based largely on location, with members coming from households located around the mineral resources.

Table 3: Regression Coefficients of Factors Influencing Livelihood Diversification

Variables	Coefficients	Standard error	z - value
Constant	0.2355	0.1214	1.94*
Age	0.0032	0.0042	0.76 ^{ns}
Household size	-0.0062	0.0048	-1.30 ^{ns}
Farming experience	-0.0023	0.0043	-0.54 ^{ns}
Education	0.0063	0.0027	2.31**
Farm size	0.0126	0.0191	0.66 ^{ns}
Seasonality	0.1914	0.0439	4.36***
Cooperative	0.0237	0.0214	1.11 ^{ns}
Access to credit	-2.1907	1.3778	-1.59 ^{ns}
Mineral resources	0.0463	0.0185	2.50***
Natural disaster	0.0141	0.0099	1.43 ^{ns}
Log likelihood =	35.781975		
Pseudo R-square =	0.7284		
Prob. > Chi =	0.0000		

Source: Field Survey, 2015

Test of Hypothesis

Tobit result in Table 4 revealed that with the exception of the years of schooling of the respondents, other socioeconomic characteristics such as age, household size, headship, farming experience, farm size had no significant relationship with livelihood diversification, hence accepting the null hypothesis but rejecting it for the significant variable (years of schooling). This implies that as the years of schooling increases, everything being equal, participation in livelihood diversification increases.

CONCLUSION AND RECOMMENDATIONS

Livelihood diversification had positive and significant effect on respondents' welfare. It was found to give the farmers an easy route out of vicious circle of poverty and provides a better living standard. There was a strong influence of education on livelihood diversification. Environmental factors such as mineral resources (depletion of soil nutrients) and season of the year (mostly during dry season) were found to influence the respondents into livelihood diversification. The study therefore recommended that rural households should be encouraged to diversify their income source into non-farm activities. Credit should also be made accessible to the rural farmers. This will encourage diversification into non-farm business activities which will invariably lead to improved income and food security.

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