Perceived Effect of Livelihood Diversification on the Welfare of Rural Households in Niger State, Nigeria

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ABSTRACT

This study determined the perceived effect of livelihood diversification on welfare of rural household in Niger state, Nigeria. Multi-stage sampling technique was adopted for sampling the respondents. Data used for the study were obtained from primary source. Structured questionnaire with interview schedule was administered to 180 randomly selected rural farmers in the study area. Descriptive statistics analysis and z-test statistics were used to analyse the data collected. The study revealed the mean age of the household to be 43 years, mean years of schooling was 8.5, mean household size was 6 people, mean farming experience of 17.5 years and mean farm size of 1.8 hectares. The effect of livelihood diversification revealed that livelihood diversification had positive and significant effect on food security (65.6%) and income generation (66.8%) in the study area. The major constraints to diversification in the study area were poor infrastructure, unavailability of credit and climatic risk and uncertainty. The study therefore recommended that rural household should be sensitised to diversify their income source into non-farm activities.

KEYWORDS: Livelihood diversification, welfare, rural household, income

INTRODUCTION

The significance of agricultural production to rural household's livelihood cannot be over-emphasized. Agriculture being a risky business is faced with uncertainties and has failed to meet the needs of rural dwellers overtime [1]. The rural farmers rely on a diverse portfolio of activities and sources of income, among which crop and livestock production features alongside many other contributors to household's well being. Author [2] defined livelihood diversification in Africa context as 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. More so, [3] 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'. It includes activities both on and off the farm that are undertaken to generate income additional to that of the household's main agricultural activities.

However, according to renowned institutions like Department for International Development (DFID), Food and Agricultural Organization (FAO) and United Nation Development Project (UNDP), 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) and social capital (networks and associations). It is proposed that rural people construct their livelihoods via three main strategies: agricultural intensification; livelihood diversification and migration. Reasons for resources diversification is based on the economic activities abound in the rural area and at disposal of the farmer. According to [4], this recognition has led many researchers to represent rural livelihoods as constructed from a portfolio of resources, or activities.

Rural households are the main subject of economic activities and the basic decision-making unit in rural areas. However, their production and consumption behaviour determine the extent of livelihood diversification. According to [1], livelihood diversification is the most prominent socio-economic phenomenon in rural areas. Author [5] posited that in China, a large number of rural labourers left the traditional agriculture and turned to non-agricultural employment in the past two decades. However, Author [6] said that the pattern of income diversification among rural households in Nigeria showed that majority of the households have fairly diversified income sources on the average, while 50% of the total household income is generated from farming, the rest comes from different off-farm sources. There are notable differences across income strata while farming remains the dominant income source for the poorest; off-farm occupation especially self-employed activities are the main sources of income for relatively richer households. Subsistence producers and small farm wage labourers in the rural areas of low-income countries constitute over two thirds of the global poor and food insecure population [7].

According to [8], majority of rural producers have historically diversified their productive activities to encompass a range of other productive areas. In other words, very few of them collect all their income from only one source, hold all their wealth in the form of any single asset, or use their resources in just one activity. In Nigeria, most rural household are into diversification of economic activities that help improve their livelihood. Such economic activities according to [9] includes trading (marketing or adding value to commodities), small scale business enterprises (carpentry, radio and bicycle repairs), processing of agricultural goods, and arts and craft (weaving, mats and basket making) in order to supplement earnings from agriculture. These activities (livelihood diversification) are influenced by certain factors that operate at both internal and external environments of rural households [10]. Studies on the impact of livelihood diversification on rural household welfare was found to be low especially the work of [11] in Ghana. This could be due to difference in livelihood economic activities and skill acquisition training. Other studies by [12] also highlight the importance of social capital as instrumental for accessing and securing non-farm activities. It implies that poorer households lack networks needed diversify into non-farm sectors that could help them improve on their income and well-being. Therefore, this study attempts to determine the perceived effect of livelihood diversification on the welfare of the rural household in Niger State, Nigeria.

The objectives of the study were to:

i. describe the socio-economic characteristics of the rural households;

ii. identify the extent of livelihood diversification;

iii. determine the effect of livelihood diversification on the welfare of rural household, and

iv. identify the constraints to livelihood diversification.

HYPOTHESIS

H_o: There is no significant difference between income before and after livelihood diversification.

METHODOLOGY

The study was conducted in Niger State, Nigeria consisting of twenty-five (25) Local Government Areas (LGAs) grouped into three agricultural zones (I, II and III). 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 [13]. The projected population for 2015 was 5,337,148 at 3.4% growth rate. The State is bordered to the North by Zamfara State, to the North-west by Kebbi State, to the South by Kogi State, to South-west by Kwara State; while Kaduna State and Federal Capital Territory are bordered to the State in North-west and South-west respectively. More so, the State lies in the Guinea Savannah vegetation zone of the country with favourable

climatic conditions for crop and livestock production
wet and dry season. The annual rainfall ranges from 1
in the Southern part. However, the average annual ra
approximately 180days. The average temperature is
with abundant natural resources such as Gold, Cla
Feldspars, Lead, Columbite, Kaolin and Tantalite [1

A multistage sampling technique was used to select t
stage involves random selection of one Local Gove
Lapai LGA from zone I, Bosso LGA from zone II
second stage, four villages were then randomly sel
last stage was the proportionate selection of the 180
village using the [15] formula. Data for the study
structured questionnaire complimented with an inte
as percentages, means and frequency distribution
test) were used to analyse the data collected.

Model specification

Z-Test

The Z – test was used to determine whether an obs
two groups (two samples, or a paired sample) whi
used to test the hypothesis that there is no signif
after livelihood diversification. The z – test is spe

$$Z = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

Where:

Z = calculated Z value

$\overline{X_1}$ = mean income of diversified farmers

$\overline{X_2}$ = mean income of undiversified farmers

S_1^2 = standard deviation of income of diversifie

S_2^2 = standard deviation of income of undiversi climatic conditions for crop and livestock production. The State experiences two seasons - the wet and dry season. The annual rainfall ranges from 1,100mm in the Northern part to 1,600mm in the Southern part. However, the average annual rainfall is about 1,400mm with duration of approximately 180days. The average temperature is around 32° C [14]. The State is blessed with abundant natural resources such as Gold, Clay, Silica, Kyanite, Marble, Copper, Iron, Feldspars, Lead, Columbite, Kaolin and Tantalite [14].

A multistage sampling technique was used to select the rural households for the study. The first stage involves random selection of one Local Government Area from each agricultural zone, Lapai LGA from zone I, Bosso LGA from zone II and Wushishi LGA from zone III. In the second stage, four villages were then randomly selected from each of the LGA selected. The last stage was the proportionate selection of the 180 respondents from the sample frame of each village using the [15] 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 z - test) were used to analyse the data collected.

Model specification

Z-Test

The Z – test was used to determine whether an observed difference exist between the means of two groups (two samples, or a paired sample) which are larger than 30 in size. The z – test was used to test the hypothesis that there is no significant difference between income before and after livelihood diversification. The z – test is specified as:

$$Z = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1{}^2}{n_1} + \frac{S_2{}^2}{n_2}}}$$

Where:

Z = calculated Z value

$\bar{X}_1$ = mean income of diversified farmers

$\bar{X}_2$ = mean income of undiversified farmers

$S_1{}^2$ = standard deviation of income of diversified farmers

$S_2{}^2$ = standard deviation of income of undiversified farmers

n_1 = number of diversified farmers

n_2 = number of undiversified farmers

RESULTS 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 (75.6%) of the respondents were within the age range of 21 – 50 years with a mean age of 43 years implying that the respondents were in their active and productive age. This result is in agreement with [16] who posited that active farming age was between 41 - 50 years with a mean age of 43 years. Majority (71.1%) of the respondents were male while 28.9% 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 (77.8%) of the respondents attained one form of formal education or the other with 22.2% having no formal education. The mean years spent in acquiring formal education was eight and half (8.5) years implying that most of the respondents do not have higher educational attainment that could enhance their livelihood diversification.

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

Variables	Frequency	Percentage	Mean
Age (years)			
21 – 30	19	10.6	43
31 – 40	46	25.6	
41 – 50	71	39.4	
> 50	44	24.4	
Gender			
Male	128	71.1	
Female	52	28.9	
Educational Status			
Non Formal	40	22.2	8.5
Primary	69	38.3	
Secondary	63	35.0	
Tertiary	8	4.5	
Household Size			
1 – 5	68	37.8	6
6 – 10	58	32.2	
11 – 15	33	18.3	
> 15	21	11.7	
Farming Experience (years)			

1 – 10	
11 – 20	
> 20	
Farm Size (hectare)	
< 1	
1.0 – 1.5	
1.6 – 2.0	
> 2	
Total	

Source: Field Survey, 2015

Extent of Livelihood Diversification by the Res

Four different levels were examined: farming on
with two other activities, farming with three or n
moderate and high diversification respectively. Th
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three or more livelihood diversified activities besi
only represented 6.1%. This result reveals that c
engaged in one form of livelihood diversificatior
buttress the point made by [4] that rural peop
homogeneity in their activities.

Table 2: Distribution of the Respondents based

Category	Frequency
Farming only	12
Farming + 1	83
Farming + 2	66
Farming + ≥ 3	15
Total	180

Source: Field Survey, 2015

Key: 1 = One non-farm activity, 2 = Two non-far
activities

Effects of Livelihood Diversification on Welfare

Improved income: Table 3 showed that 66.8% of t
positively affected. They identified increment in th

1 – 10	42	1.7	17.5
11 – 20	53	23.3	
> 20	85	35.6	
Farm Size (hectare)			
< 1	33	18.3	1.8
1.0 – 1.5	40	22.2	
1.6 – 2.0	69	38.3	
> 2	38	21.1	
Total	180	100.0	

Source: Field Survey, 2015

Extent of Livelihood Diversification by the Respondents

Four different levels were examined: farming only, farming with one other activity, farming with two other activities, farming with three or more other activities representing none, low, moderate and high diversification respectively. The result show in Table 2 reveals that 46.1% of the respondents engaged only in one off-farm livelihood activity, 36.7% of the respondents engaged in two livelihood diversified activities, while 11.1% of the respondents engaged in three or more livelihood diversified activities besides farming. Those who engaged in farming only represented 6.1%. This result reveals that out of the 180 sampled respondents, 93.9% engaged in one form of livelihood diversification or the other besides farming. This further buttress the point made by [4] that rural people are not characterized by sameness and homogeneity in their activities.

Table 2: Distribution of the Respondents based on their Extent of Livelihood Diversification

Category	Frequency	Percentage	Remark
Farming only	12	6.1	None
Farming + 1	83	46.1	High
Farming + 2	66	36.7	Moderate
Farming + ≥ 3	15	11.1	Low
Total	180	100.0	

Source: Field Survey, 2015

Key: 1 = One non-farm activity, 2 = Two non-farm activities, 3 and above = Three non-farm activities

Effects of Livelihood Diversification on Welfare of the Respondents

Improved income: Table 3 showed that 66.8% of the respondents stated that their income was positively affected. They identified increment in their income due to livelihood diversification.

This implies that the respondents were financially secured. This agrees with the finding of [8] who reported that rural households are involved in agricultural activities such as livestock, crop or fish production, and other income generating activities that will increase their income. Majority of rural producers have historically diversified their productive activities to encompass a range of other productive areas. In other words, very few of them collect all their income from only one source, hold all their wealth in the form of any single asset, or use their resources in just one. The focus on livelihood diversification necessarily implies a process—a broadening of income and livelihood strategies away from purely crop and livestock production towards both farm and non-farm activities that are undertaken to generate additional income via the production of other agricultural and non-agricultural goods and services, the sale of waged labour or self-employment in small enterprises [17].

Food security: Table 3 revealed that majority (65.6%) of the respondents stated that livelihood diversification affected them and gave them food security. Diversification had high positive effect on the household's menu. This implies that diversification assisted in the introduction of new food items on household's food menu. This is in line with the finding of [18] who reported that non-agricultural activities have been analysed using economic models and household food security approaches.

Ability to pay medical services: An issue of serious importance identified by the study is that more than half (62.7%) of the respondents were able to pay for the medical care of the member of their household due to livelihood diversification. This is encouraging because earning additional income from diversification made it possible for those households to overcome such an important barrier.

Ability to pay school fees: The payment of school fees in secondary and tertiary institutions is a great drain on the resources of parents, especially those from small farm household. More than half (66.1%) of the respondents were able to pay their children's school fees. The obvious implication is that many rural children will be in school for most of the academic year. This shows that diversifying into alternative forms of employment activities still provide the needed cash income to maintain the household well-being.

Table 3: Distribution of the Respondents based on Effects of Livelihood Diversification

Variables	Weighted Sum	Mean Score	Remark	Rank
Household Income	556	3.09	Effective	1st
Food Security	555	3.08	Effective	2nd
Medication	486	2.70	Effective	3rd

Children Education	483	2.68	Effective	4th

Source: Field Survey, 2015

Constraints Associated with Livelihood Diversification in the Study Area

Table 4 revealed that majority (85.0%) of the respondents identified poor infrastructure as the main constraint to livelihood diversification. Having access to state-provided infrastructural facilities is an essential criterion for well-being. As observed by [19], infrastructure is an essential overhead capital (a key element in national wealth). For instance, private firms will not get established nor function effectively and efficiently where the infrastructure, which provides the basic mechanism, remains dysfunctional, disconnected, run-down and inadequate. Moreover, 72.2% of the respondents mentioned unavailability of credit as the constraint to livelihood diversification, 60.6% of the respondents said climatic risk and uncertainty constrained them, while 55.6% of the respondents identified degraded mineral resources as the constraints to livelihood diversification. This is at variance with the findings of [20] who reported that response to diminishing factor returns in any given use, such as family labour supply in the presence of land constraint driven by population pressure and landholding fragmentation lead to livelihood diversification. Also, 54.4% pointed seasonal attack of disease as the factor that restrained them from engaging in livelihood diversification. 32.8% identified norms and religious values as the constraints to livelihood diversification in the study area. This implies that an attempt to engage in livelihood diversification by the farmers faced several constraints, which directly affected their level or extent of involvement in livelihood diversification.

Table 4: Distribution of the Respondents based on Constraints to Livelihood Diversification

Constraints	Frequency	Percentage	Rank
Poor infrastructure	153	85.0	1st
Unavailability of credit	130	72.2	2nd
Climatic risk and uncertainty	109	60.6	3rd
Degraded natural resources	100	55.6	4th
Seasonal attack of diseases	98	54.4	5th
Religious beliefs	59	32.8	6th
None urban proximity	34	18.9	7th

Limited time availability	31	17.2	8th
Inadequate labour availability	26	14.4	9th
Border restriction	23	12.8	10th
Inadequate education and skills	21	11.7	11th
None flexibility of the economy	14	7.8	12th

Source: Field Survey, 2015

Test of Hypothesis

Table 5 showed that there is significant difference between income before and after livelihood diversification. The null hypothesis is therefore rejected and the alternative accepted. The implication is that all things being equal, farmers are better off financially after diversification. This is seen in the table where the mean income of the respondents after diversification was ₦ 43,527.78 compared with ₦ 27,700.00 before diversification.

Table 5: Z – test Values on Differences in Income of Livelihood Diversification

Variables	Mean ₦	Z - value	Decision
Income before	27,700.00	12.35***	Null hypothesis rejected
Income after	43,527.78		

Source: Field Survey, 2015

CONCLUSION

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 provide a better living standard. The result of the analysed data revealed that livelihood diversification positively affected household food security, increment in income and ability to pay for children education. The hypothesis' result showed that the income of the farmers after diversification was almost twice the income before diversification. The major constraints faced by the respondents in livelihood diversification were poor infrastructure, unavailability of credit, climatic risk and seasonal attack of diseases.

RECOMMENDATIONS

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 as this will encourage diversification into non-farm business activities which will invariably lead to improved income and food security.

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