

EFFECT OF LIVELIHOOD DIVERSIFICATION ON FARMERS WELFARE: A STUDY OF MEMBERS OF SELECTED COOPERATIVE SOCIETIES IN ANAMBRA STATE, NIGERIA

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Abstract: *This study examines the effect of livelihood diversification on farmers' welfare: A study of members of selected cooperative societies in Anambra state, Nigeria using regression model of the Ordinary Least Square. The population of this study was made up of 298 of members of farmers' cooperative societies that were randomly selected from three (3) purposively selected local governments in the three (3) senatorial zones of the state. A sample of 171 was determined for the study using Taro Yamane formula. Structured questionnaires were administered to 171 respondents. The data collected using the questionnaires were analyzed using an econometric regression model of the Ordinary Least Square. All analyses were conducted using SPSS version 23. Findings revealed that farming, asset income and other sources are significant in explaining the influence of livelihood diversification activities on the farmers' economic welfare, while artisanship, trading and salary job are not significant. Trading, salary job and asset income are significant in explaining the influence of livelihood diversification activities on the farmers' social welfare. Based on the findings of the study, the following recommendations are made: Farmers should improve on their level of education. This can influence their livelihood engagement. Farmers should diversify into other related agricultural areas to enable them cope with the challenges of farming since they are small holder farmers.*

Key Words: *Livelihood Diversification, Farmers' Welfare, Cooperative Societies, economic welfare, social welfare.*

1. INTRODUCTION:

Reducing the rising incidence of poverty among the Nigeria populace has informed critical decisions among the vulnerable and the poor to diversify their means of livelihood and consequently improve on their welfare. Amidst high level of risk and uncertainty characterizing Nigerian agricultural sector, rural farm households are faced with issue of diversifying their source of livelihood as a means of reducing the negative impact that any single (farming) income source has on their welfare (Okere and Shittu, 2013). According to Ellis (2000), livelihood diversification is defined as the process by which rural farm households construct an increasingly diverse portfolio of activities and assets in order to survive and to improve their standard of living. The concept of livelihood diversification has rapidly gained ground as an approach to rural poverty reduction in poor countries and the notion of diversity and diversification have become part and parcel of livelihood theory (Okere and Shittu, 2013). On the other hand, welfare has been decomposed from different stand point. In economic literature (Ijaiya et al, 2009; Adepoju and Obayelu, 2013; Akaakohol and Aye, 2014; Ellis, 2000), welfare - social (health, education, recreation, infrastructure) and economic - (income, investment, expenditure) has been decomposed as a measure of standard of living.

Notwithstanding farmers' efforts in diversifying their means of livelihood in order to improve on their welfare, the country continues to witness a rising incidence of poverty. The Nigerian Human Development Indicator is recently ranked 158th among 182 countries portraying the country among the poorest countries in the world, majority of whom resides in the rural areas with farming as their primary occupation (Awoniyi and Salman, 2014). Awoniyi and Salman (2014) further asserted that agriculture alone does not provide sufficient livelihood opportunities hence diversification into non-farm activities is seen as coping mechanism. This was as a result of the rising level of poverty in Nigeria particularly among the Nigeria rural farmers (Adepoju and Obayelu, 2013). According to Okere and Shittu (2013), one of the main problems confronting the Nigerian nation today is on how to significantly reduce the rising incidence of poverty among the populace and also improve their welfare. As cited by Okereke et al, in Babatunde (2008), the poverty incidence in Nigeria is higher among the rural households most especially the farm households.

Nigerian government and stakeholders have been disturbed by the poverty level in the country and dwindling performance of the agricultural sector. Consequently, they have championed and supported one agricultural reform or the other aimed at transforming the sector towards achieving its full potential (Babatunde, 2008). Despite their effort the agricultural sector has not been able to play its expected role. 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). In other words, the situation in the rural areas has

negative welfare implications and predisposes the rural populace to various risks which threaten their livelihoods and their existence. As a result of this struggle to survive and in order to improve their welfare, off-farm and non-farm activities have become an important component of livelihood strategies among rural households in Nigeria (Adepoju and Obayelu, 2013). In economic literature (Ijaiya et al, 2009; Adepoju and Obayelu, 2013; Akaakohol and Aye, 2014; Ellis, 2000), welfare - social (health, education, recreation, infrastructure) and economic - (income, investment, expenditure) has been decomposed as a measure of standard of living. In this study, welfare will be decomposed as a measure of income of the farmers.

By livelihood diversification we are referring to the phenomenon where rural households engage in multiple activities (either on-farm or off-farm, agricultural or non-agricultural) in order to survive and to improve their standard of living. On-farm diversification includes the introduction of new crops into farming systems or farmers investing in livestock, hunting, and fisheries. This is distinguished from 'off-farm' activities which generally refer to activities undertaken away from the household's own farm such as wage employment on other farms (Ellis and Freeman, 2004). As indicated earlier, the 'non-farm' sector refers to those economic activities that are not primary agriculture even though they are usually related to farm activities.

2. STATEMENT OF THE PROBLEM:

Diversification of means of livelihood by farmers is imperative because of the challenges of high level of risk and uncertainty characterizing Nigerian agricultural sector. According to Okere and Shittu (2013) rural farm households are faced with issue of diversifying their source of livelihood as a means of reducing the negative impact that any single (farming) income source has on their welfare. The country is largely endowed with natural resources that are necessary for the development of agriculture-such resources include abundant land supply, human and forestry resources (Daramola, 2004). Despite Nigeria's huge agricultural endowment, about 64.4% and 83.7% of the population live below the poverty line of US\$1.25 and US\$2 per person per day, respectively (Aye 2013). Akaakohol and Aye (2014) and FAO (2013) stated that the country faces a lot of challenges including that of low income and attaining food security, which was one of the millennium development goals. Some of these challenges are caused by natural resources, faulty micro economies, agricultural policies, bad economy. Due to these challenges, smallholder farmers in Nigeria are poverty stricken. These challenges affect individual farmers and put the household welfare of the farmer at danger or at risk. Consequently, this risk encourages farmers to diversify into other non-farm activities which are expected to supplement their income (Akaakohol and Aye, 2014). Related studies on livelihood diversification and welfare of agricultural households are carried out mainly in other regions and countries. Thus suggesting the need to further investigate this research area as it could offer a pathway out of poverty for the rural poor particularly the agricultural households. Again, available literature revealed that there is a paucity of such study in eastern part of Nigeria particularly in Anambra state which has a strong agricultural potential.

3. OBJECTIVES OF THE STUDY:

The main objective of the study is to examine the effect of livelihood diversification on farmers' welfare: A study of members of selected cooperative societies in Anambra state, Nigeria. Specifically, the study intends to:

- i. Evaluate the effect of livelihood diversification activities of the farmers on their economic welfare.
- ii. Determine the effect of livelihood diversification activities of the farmers on their social welfare.

4. EMPIRICAL LITERATURE:

Adepoju and Obayelu (2013) examined the effect of livelihood diversification on the welfare of rural households in Ondo State using descriptive statistics, multinomial logit and the logit regression models. The distribution of respondents by the type of livelihood strategy adopted revealed that almost three-quarters of the respondents adopted the combination of farm and nonfarm strategy. Econometric analysis showed that household size, total household income and primary education of the household head were the dominant factors influencing the choice of livelihood strategies adopted. Income from non-farm activities, as well as income from a combination of non-farm and farming activities, impacted welfare positively relative to income from farming activities.

Awoniyi and Salman (undated) examined Level of non-farm income diversification, its effect on welfare status of farming households and factors that determine level of non-farm income diversification using a multi-stage sampling technique and logit regression analysis. The result of the analysis revealed that the mean age of farmers that engaged in non-farming activities is 46.1 ± 11.9 , majority are males (78.9%), have secondary education (49.8%), have access to formal credit facilities (61.3%) and are members of social organizations (73.3%). On the other hand, the mean age of household heads that are not engaged in non-farming activities is 48.7 ± 13.4 , majority are females (60.1%), have no formal education (47.8%), have no access to formal credit facilities (59.7%) and are not members of any social organization (51.9%). Most (69.4%) of the households diversified their income with non-farm activities accounting for 69.3% of the income. The factors that determine participation in non-farming activities are age of the household head, being male, having formal education, household poverty status and farm size. The result of the

poverty analysis indicates that larger percentage (53.9%) of farming households whose household heads are not engaged in non-farming activities are living below the poverty line compared with farming households (48.3%) whose household head are engaged in non- farming activities.

Asmah (2010) investigated rural livelihood diversification and agricultural sector reforms in Ghana. He examine how agricultural sector reforms in Ghana influences rural livelihood diversification and household welfare by employing the endogenous switching regression technique. The study revealed that diversified households and less diversified households differ significantly in terms of variables related to household assets, markets and institutions. Both household welfare and rural non-farm diversification decisions are mostly driven by household assets including good health, education, and household age composition. Households who live in communities with access to fertilizers, public transports and local produce markets are more likely to engage in non-farm diversification and enjoy improved welfare. The importance of access to TV and radio as effective mass media tools in influencing household behaviour is underscored in the analysis.

Using regression techniques, Aloba (undated) investigated the determinants of income diversification using data on rural farm households from two Sub-Saharan African countries; Senegal and Kenya. The results confirm that factors linked to education, agricultural potential and market access was important in determining the level of income diversification. Specifically, the analysis reveals that completing secondary or university education, access to farm capital and access to transport, access to markets for farm products, access to mutual or unpaid labour, access to migration opportunities and farm characteristics such as the farm size and irrigated farm area were the key factors in determining the level of income diversification. In particular, access to farm capital such as animal ploughs and irrigation were associated with increased participation in farm activities.

Madaki and Adefila (2014) examined the contributions of non-farm activities to the employment generation and total income of rural households in Lere Local Government area of Kaduna State, Nigeria. using the descriptive statistics and analysis of means techniques. The results indicated that there was an increase of about (4.0%) in employment generation within the non-farm sector of the rural economy between 2007 and 2011. The household income from farm and non-farm was compared and it was discovered that (44.8 %) of the total income was associated with households that ventured into farming only and (55.2%) accounted for households that engaged in non-farm activities. The student t-test revealed that calculated value (3.88) and critical value (1.96) showing a significant difference at 0.05 alpha value between household incomes from farm and non-farm economic activities during the same period.

Okere and Shittu (2013) examined the patterns and determinants of livelihood diversification among farm households in Odeda Local Government Area, Ogun state, Nigeria. Using descriptive and logit regression method, with the level of diversification of each of the households' livelihood activities assessed using Herfindahl index. The study found that income from non-farm sources accounted for 37.1 percent of the farm households' income and only a few (22.9%) of the farm households dependent on only one income source. Households of Divorcee tend to be significantly much diversified than the average of the sample while increase in education as well as farm income tends to lower the extent of livelihood diversification. Islamic adherent are less likely to have diversified income portfolios than their Christian counterpart. The results show that low farm income is a critical factor encouraging livelihood diversification in the study area.

Idowu, Aihonsu, Olubanjo and Shittu (2011) analyzed the determinants of household income diversification and the share of income sources to total household income among the rural farm households in southwest Nigeria using the Herfindal index and Tobit regressions. Results indicate that the level of income diversification among rural farm households in southwest Nigeria depicted by inverse of Herfindal index was 2.82. An average rural farm household in southwest Nigeria had its members involving in three income generating activities with two farming activities and one non-farm job. Ninety five percent of rural farm households had their members involving in non-farm activities with non-farm self-employment contributing the largest share of non-farm income. Education, experience in any non-farm activity and distance to urban centre were the major determinants of income shares from different sources of non-farm activities while increase in the size of household, per capita landholding and per capita animal wealth significantly increased the income diversification of the rural farm households in southwest Nigeria.

Hudu, Afishata, Abujaja, and Walata (2015) examined gender dimension of livelihoods diversification among the 13,580 respondents who were 15 years or older. Results of the analysis revealed significant gender differentiation in number of livelihood activities engaged in by men and women. The results established that livelihoods diversification is common across gender in Northern Ghana, but men are more likely to engage in more livelihood activities than women. Significantly more men than women were found to have been engaged in paid wage labour within the last 12 months, with women dominating the non-farm self-employed livelihood enterprises.

Akaakohol and Aye (2014) examined the socioeconomic characteristics that influence the decision to diversify and also the welfare effect of diversification on farm households in Makurdi, Benue State. The ordinary least square (OLS) model was used to analyze the welfare effect of diversification while the Logit model was used to analyze the determinants of diversification. The Logit results show that a male-headed household, education and credit

increase the probability of diversification while farming experience and market access decrease the probability. The OLS result shows that diversification, age, education and credit have a positive and significant effect on household welfare while household size has a negative effect.

Okere and Shittu (2013) examined the patterns and determinants of livelihood diversification among farm households in Odeda Local Government Area, Ogun state, Nigeria. Idowu, Aihonsu, Olubanjo and Shittu (2011) analyzed the determinants of household income diversification and the share of income sources to total household income among the rural farm households in southwest Nigeria. Hudu, Afishata, Abujaja, and Walata (2015) examined gender dimension of livelihoods diversification among the 13,580 respondents who were 15 years or older. Akaakohol and Aye (2014) examined the socioeconomic characteristics that influence the decision to diversify and also the welfare effect of diversification on farm households in Makurdi, Benue State. The studies of the aforementioned create a gap to be filled by this study in two folds: this study fills a geographical gap, in the sense that none of the previous studies were carried out in southeast Nigeria and Anambra state in particular. It also fills a contextual gap because the studies were not conducted on cooperative farmers. In order to bridge the aforementioned gaps this study therefore examined the effect livelihood diversification on the welfare of farmers' household in Anambra state.

5. METHODOLOGY:

Research Design

This study adopts a descriptive survey research design. The Survey research according to Okeke, Olise and Eze (2008), consists of asking questions, collecting and analyzing data from a supposedly representative members of the population at a single point in time with a view to determine the current station of that population with respect to one or more variable under investigation.

Area of Study

The areas selected for study include: Anambra East local government area in Anambra North Senatorial Zone; Orumba South local government area in Anambra south senatorial zone and Idemili South Local Government Area in Anambra Central Senatorial zone. The three (3) local governments were purposively selected for the study because of their agricultural potentials.

Population of the Study

The population of this study is made up of members of agricultural cooperative in the three local governments areas with agricultural potentials that three farmers' cooperative societies were randomly selected from each of the three (3) purposively selected local governments in the three (3) senatorial zones of the state, making a total of nine (9) famers' cooperative societies, with membership strength of two hundred and ninety-eight (298). For the purpose of questionnaire distribution a sample size of 171 was determined using the Taro Yamaini formula.

Models for the Study

Model 1

The first regression model was specified to analyze objective 1. The regression model is specified thus:

$$Y = f (x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8, x_9) \dots \dots \dots (1)$$

Where: Y = Farmer Income

- x₁ = Farming (Weighted Mean)
- x₂ = Artisanship (Weighted Mean)
- x₃ = Trading (Weighted Mean)
- x₄ = Salary Job (Weighted Mean)
- x₅ = Asset Income (Weighted Mean)
- x₆ = Other Sources (Weighted Mean)

The above model is specified explicitly thus:

$$Y = \beta_0 + \beta_1 + \beta_2 \text{ INC} + \beta_3 + \beta_4 + \beta_5 + \beta_6 \dots \dots \dots 2$$

Where β_0 = intercept term showing values of Y when variable x₁ to x₉ are zero. That is the value Y is predicted to have when all the independent variables are equal to zero.

β_1 to β_6 = the coefficients or multipliers that describe the size of the effect the independent variable (x₁ to x₆) are having on the dependent variable Y.

The econometric form of the model becomes more realistic with the introduction of the random or scholastic term ϵ

The econometric form of the model is express thus:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 X_2 + \dots + \beta_n x_n + \epsilon \dots \dots \dots 3$$

Model 2

The second regression model was specified to analyze objective 2. The regression model is specified thus:

$$Y = f (x_1, x_2, x_3, x_4, x_5, x_6) \dots \dots \dots (1)$$

Where: Y = Farmer Educational Qualification

- x₁ = Limited Agricultural Income (Weighted Mean)

- x_2 = Large Family (Weighted Mean)
- x_3 = Availability of non-farm opportunities (Weighted Mean)
- x_4 = Seasonal Nature of Agric Produce (Weighted Mean)
- x_5 = Unfavourable Demand for goods and services (Weighted Mean)
- x_6 = To live Well (Weighted Mean)

The above model is specified explicitly thus:

$$Y = \beta_0 + \beta_1 + \beta_2 \text{ INC} + \beta_3 + \beta_4 + \beta_5 + \beta_6 \dots\dots\dots (2)$$

Where β_0 = intercept term showing values of Y when variable x_1 to x_9 are zero. That is the value Y is predicted to have when all the independent variables are equal to zero.

β_1 to β_6 = the coefficients or multipliers that describe the size of the effect the independent variable (x_1 to x_6) are having on the dependent variable Y.

The econometric form of the model becomes more realistic with the introduction of the random or scholastic term ϵ .

The econometric form of the model is express thus:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 X_2 + \dots + \beta_n x_n + \epsilon \dots\dots\dots 3$$

6. DATA PRESENTATION AND ANALYSIS:

Table 1: Influence of Livelihood diversification activities on the farmers economic welfare

Model	B	Std. error	T	Sig.
(Constant)	64871.024	1745.645	37.162	.000
Farming	3809.953	1220.797	3.121	.002
Artisanship	123.238	863.392	.143	.887
Trading	326.329	1167.575	.279	.780
Salary Job	629.806	602.251	1.046	.297
Asset Income	7133.459	1219.932	5.847	.000
Other Sources	3313.657	1239.039	2.674	.008
R	0.941			
R²	0.885			
Adj. R²	0.881			
F-statistic	209.786			0.000

Source: Field Survey 2016

Dependent Variable: Farmer Income

With respect to influence of livelihood diversification activities on the farmers’ economic welfare the result of the proposed regression model I as specified in the methodology was used. Table 1 showed the precision of the model. In general, the joint effect of the explanatory variables in the model accounts for 88.5% of the variations in the influence of livelihood diversification activities on the farmers’ economic welfare.

Three coefficients (farming, asset income and other sources) are significant in explaining the influence of livelihood diversification activities on the farmers’ economic welfare, while artisanship, trading and salary job are not significant in explaining the influence of livelihood diversification activities on the farmers economic welfare.

Table 2: Influence of Livelihood diversification activities on the farmers’ social welfare

Model	B	Std. Error	T	Sig.
(Constant)	21.804	3.973	5.488	.000
Farming	.158	.594	.266	.791
Artisanship	-.118	.579	-.204	.839
Trading	-1.934	.252	-7.663	.000
Salary Job	-1.455	.590	-2.465	.015
Asset Income	-1.295	.780	-1.660	.099
Other Sources	1.520	1.036	1.468	.144
R	0.848			
R²	0.720			
Adj. R²	0.710			
F-statistic	70.231			0.000

Source: Field Survey 2016

Dependent Variable: Educational Qualification

In other to evaluate the influence of livelihood diversification activities on the farmers’ social welfare the result of the proposed regression model II as specified in the methodology was adopted. Table 2 showed the precision of the model. In general, the joint effect of the explanatory variables in the model accounts for 72.0% of the variations in influence of livelihood diversification activities on the farmers’ social welfare.

Three coefficients (Trading, Salary Job and Asset Income) are significant in explaining the influence of livelihood diversification activities on the farmers' social welfare.

7. FINDINGS:

- i. Farming, asset income and other sources are significant in explaining the influence of livelihood diversification activities on the farmers' economic welfare. While Artisanry, trading and salary job are not significant.
- ii. Trading, Salary Job and Asset Income are significant in explaining the influence of livelihood diversification activities on the farmers' social welfare.

8. RECOMMENDATION:

Based on the findings of the study, the following recommendations are made:

- i. Farmer should improve on their level of education. This can influence their livelihood engagement.
- ii. Farmers should also diversify into other related agricultural areas to enable them cope with the challenges of farming since they are small holder farmers.

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