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Effect of Cooperative Membership and Livelihood Diversification on Farm Income. Evidence from South West Nigeria

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ABSTRACT: *Diversification of livelihood portfolios and cooperative membership over the years has grossly been an avenue to boosting households' income, and ensuring a safety net to escape poverty. This study hence sets to investigate the cross relationship significances between cooperative membership, livelihood diversification, and farm income among poultry farming households in South west Nigeria, using data collected from 210 households via multistage sampling procedure and analysed using econometric, parametric, and non parametric analytical tools at 95% CI. Result showed that, a larger share (41%) of the poultry farmers has between 1-5 years of poultry farming experience. and about (35%) of the poultry farming households has between 5-6 persons, while use of family labour is predominant in the study area (51.43%) and many (82%) of the poultry farming households are deprived of credit access. Also, about 59.41% of the cooperator category diversified their livelihood activities, while it is 58.72% for the noncooperator category. Mean farm income of the nondiversified households is significantly higher than that of the diversified households, while difference in the farm income level of cooperators and noncooperator households was found insignificant. Furthermore, Gender of household head, household size, Years of farming experience, Primary source of labour, Primary occupation, Farm size, and Cooperative membership, positively guarantees increased farm income while; access to infrastructure, and multidimensional poverty negatively determined farm income level, all at 10%, 1%, 1%, 5%, 5%, 10%, 10%, 1% and 10% probabilistic levels respectively. Finding based recommendations are proffered.*

KEYWORDS: cooperative membership, livelihood diversification, income, poultry farm holders, South West Nigeria.

INTRODUCTION

Currently, across 107 developing countries, where Nigeria belongs, at least 1.3 billion people (22%) lives below the poverty line (UNDP; OPHI; 2020), while agriculture has been the locus of poverty in Sub-Saharan Nations, and relatively more here in Nigeria with the largest poor

population in this region where over 80% of the Nation's population lives in undeveloped areas and are primarily or indirectly dependent on this agriculture for a means of livelihood as about 70% of Nigeria's 160 million people are poor and approximately 60% of these people are engaged in agriculture (NBS 2012, NBS 2014). In spite of the fact that the Agricultural sector contributes to about 24.11% of the country's GDP (NBS, 2015), the welfare statuses of farmers remains outrightly low due to falling productivity that is attributable to low level of technicality (agricultural technology) in the process of improving income level and food security status, while the sectorial contribution to the country's GDP has declined by 7.3% in 2021 (Amao, and Awoyemi, 2008; FAO, 2021, World Bank 2021).

Improved technological level in agriculture also contributes to poverty amelioration with respect to increased productivity and lower per unit production cost which raises earnings of adopting households (Menale *et al.*, 2011), this potential however for long remains a mirage. According to Federal Ministry of Agriculture (2012), the Nigerian poultry sector is full of small-holder farmers that on the aggregate raises the bulk of their poultry for eggs and meat production, but idiosyncratically shortfalls 1000 birds rearing capacity, while employing diverse production methods that meddles the scanty resources at their disposal.

In an attempt to confront these menaces over the years, willing farmers are found of associating in order to form a members' focused institutions where their resources can be pooled together usually through a "jointly owned and democratically controlled enterprising", called "Cooperative society". The International Cooperative Alliance (ICA, 1995), defined a cooperative as "an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise". Cooperatives has been identified as significant avenue to improving the social and economic standard of her members as it presents a wide range of opportunities usually in form of input supplies, education and training, aside some other social-economic benefits that are capable of making cooperators perform relatively better off, compared to their noncooperator counterparts. This might reflect in their income level, output level, poverty level etc., wherein this study focuses on the outcome it poses on farmers' income. Furthermore, cooperatives also help promote the livelihood activities and proffering socioeconomic wellbeing or by exposing them to alternatives, bringing about diversification to other activities based on the available information about existing opportunities (ICA, ILO, 2015). This effect may also reflect in variations of the number of productive nonfarming activities wherein they engage.

Furthermore, non farming livelihood diversification strategies helps farm households earn increased incomes, enhanced food security, and increased farm productivity by smoothing capital inadequacies and help in coping with environment related stresses (Davis *et al., 2014;* Alobo, 2015; Udoh and Nwibo, 2017). Livelihood diversification also help reduce the risks and shocks resulting from production loss during the peak production season due to activities and occurrences beyond farmers direct control e.g. flooding, drought, climate changes, and economic shock during the period of low output price.

Also, the quest to improve livelihood, and income, has been linked to the reason why people diversify their livelihood activities by engaging in activities other than Agriculture. Hence, knowing the validity, magnitude, and consistency of this hypothesized interrelationships is vital. Although, livelihood diversification can help the rural dwellers avoid economic, environmental, and seasonality shocks hence, making them less vulnerable (OECD, 2011). They also use it as a strategy to combine activities that add to the accumulation of wealth in the household (Khatun and Roy, 2012). This however posits clearly, the economic relevance of livelihood diversification. People cooperate in order to improve their socioeconomic wellbeing in addition to obtain some other mutual benefits. This rationale is similar to that behind diversification from the economic viewpoint.

However the nature, and magnitude of the relationship between the afore stated phenomenon is yet to be established let alone knowing the significance of such relationship in Nigeria, and particularly in the study area, hence, raising the need to know the effectiveness of cooperatives in promoting livelihood diversification or vice versa, welfare status, and income earning especially in the study area where poultry production activities is inherently widespread.

This research thereby sets to investigate what effect cooperative membership has on the livelihood diversification, income, and poverty level of poultry farming household in the study area, by proffering specific responses to the following empirical questions;

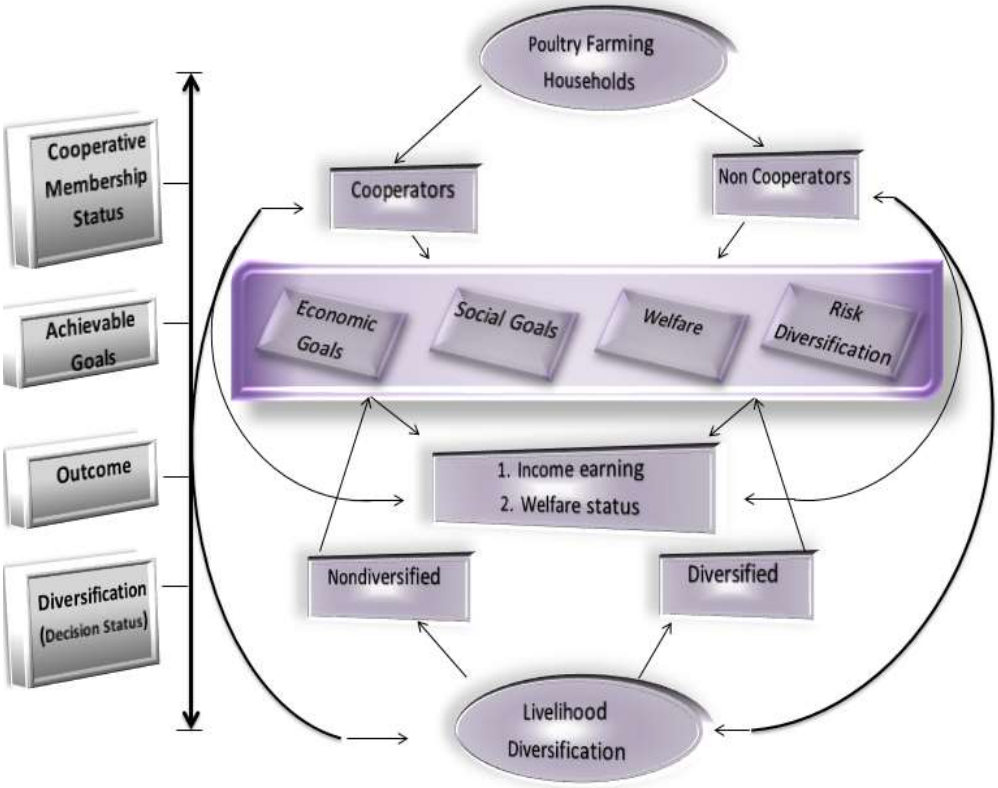
i. is there any significant difference between the farm income of diversified and non-diversified, cooperator and noncooperator poultry farmers in the study area?
ii.
iii. what is the effect of cooperative membership, multidimensional poverty and livelihood diversification on farm income level of poultry farmers in the study area?

Regarding some of the related studies, Raphael *et al.,* (2017), in their research titled "effect of livelihood diversification on food security status of rural farm households in Abia State Nigeria" using a logit regression obtained that livelihood diversification was influenced by the amount of credit they received, household size, formal education of the household head, membership of cooperatives and monthly income. This study however further explores the relationship between cooperative membership and farm income in addition to livelihood diversification effect. Also in the study carried out by Ogbanje *et al.,* (2014), titled; "off-farm diversification among small-scale farmers in north central Nigeria", using a multistage-sampling methodology in the selection of 180 farming households, using the entropy index alongside multiple regression analysis. Their findings revealed that the rate of off-farm diversification among the small-scale farm holders in the north central Nigeria was high and also that the farmers were not specialized nor overly diversified. Their findings also showed that farming activities as a primary occupational means, off-farm work experience, formal education, and off-farm works significantly raised the rate of diversification, whereas the age, hours, leisure, farm size, on-farm work hours, farm assets' current worth, and crop income negatively affects off-farm diversification. Their study was on crop farming

households while this study is the other way round and rather explores these effects on livestock farmers, in relation to cooperatives.

Furthermore, in a study conducted by Teshome and Edriss (2013), they discussed some different factors that affects income diversification and the patterns of income diversification in the Akaki district, Ethiopia using a cross sectional data obtained from 155 farming households which is collected via a structured questionnaire and analysed with the Tobit analytical model. Their results obtained indicated that there are a number of extension visits yearly, household sizes, and formal education levels had a positive significant in effecting the households' income diversification, while; age of the household head, land size, and average distance from market place had a negative but significant influence on a given household's decision to diversify. In furtherance, this study focuses on socioeconomic activities participation choices as not absolutely dependent on income earning.

1.2 Conceptual Framework for effect of cooperative membership on Livelihood and income among poultry farmers.



Conceptual framework.

MATERIALS, AND METHODS

Study area/ Data Source.

This study was conducted in Oyo State, South west Nigeria, comprising of 33 local Government areas (LGAs) and a population of about 7.8 million individuals (NBS, 2017) occupying a land topography covering about 35,743 km^2 situated within latitude 3°N and 5°N; between longitude 7°E and 9.3°E. Also, four (4) Agricultural Development Project (ADP) zones exist in the state as categorized by the Oyo state Agricultural Development Project (OYSADEP) which includes; Ibadan/Ibarapa, Oyo, Ogbomoso and Saki zones, with their poultry production activities.

The first stage in data collection was a purposive selection of Oyo State as it is characterized by widespread intensive rearing of varying breeds of poultry birds, followed by a random selection of two agricultural zones vis-à-vis Ibadan/Ibarapa and Oyo Agricultural zones from the four Agricultural Zones in Oyo state. The third stage involved a random selection of three local government areas under the Oyo agricultural zone and one Local government in Ibadan/Ibarapa Zone due to the relatively larger poultry production activities being carried out at Oyo agricultural zone compared to Ibadan/Ibarapa. The fourth stage involved a random selection of ten villages under Ido Local government area and three villages per Afijio, Oyo central, and Oyo west local government areas, from which 210 farming households were randomly surveyed. The Statistics and Data (STATA) '14 analytical software was used in data analysis.

Analytical techniques.

Estimating the effect of cooperative membership, and livelihood diversification on income level of respondents.

Multiple regression

Multiple regression analytical model was used to estimate the various relationships between income and the explanatory factors affecting it. The use of multiple regression was employed due to its capability to estimate the maximum likelihood and depth (marginal effect/ MPC).

The OLS model is specified as follows;

$$Y_i = \beta_0 + \sum_{i=1}^{n} \beta_i X_i + \mu_i \quad \text{..... (1)}$$

Explicit semi-log model specification:

$$LogY_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots + \beta_n X_n + \mu_i \quad \text{..... (2)}$$

Where; Y_i=Income of ith household, X_i = Set of explanatory variables, n=10, μ_i= Error term $\mu \sim N(0, \sigma^2)$, β = Estimate parameters (β_0 = Intercept, β_2 = Slope).

X_1= Level of education of Household head (in years)

X_2 = The Primary source of farm labour (Dummy; Paid labor=1, Family Labor=0)

X_3 = Gender of the household head (dummy; Male=1; Female=0)

X_4 = Age of the Household Head (in years)

X_5= If there is Access to infrastructure (dummy; Yes= 1; No=0)
X_6 = The Household size (persons)
X_7= Farming experience level (in years)
X_8= Multidimensional poverty Status (Alkire and foster Multidimensional poverty Index)
X_9= Livelihood diversification (dummy If Farming is the household's Primary occupation =1, otherwise=0)
X_{10}= Farm Size (Number of Stock)
μi = Error term.

Variance inflation factor (VIF).
When Multicollinearity is present, the best unbiased linear estimator of a multiple regression will possess an outrageous covariance and variance hence, large confidence intervals, a insignificant T-statistics, and an outrageous determination coefficient. The rate at which the covariances and the variances of the estimators increases (collinearity) can be reflected through the aid of VIF multicollinearity indicator tool. The VIF methodology can be specified in summary as follows;

$$VIF = \frac{1}{(1-R_j^2)} \quad \ldots\ldots(3)$$

Where: = $1-R_j^2$ = Tolerance

j= Range of j[th] explanatory variables, R_j^2 = Determination Coefficient of a regression for "j[th]" explanatory of all the respective explanators. The higher the VIF_j, the highly intricate/problematic variable Xj is. As a rule of thumb, if VIF ≥ 5, such variable(s) is/are said to be highly collinear (Brien, 2007 and Gujarati, 2003) and should be dropped once it becomes ≥10 (O'brien, R.M. 2007, UCLA)..

RESULT AND DISCUSSION

Summary of respondents' socioeconomic characteristics.
The result shows that, a larger share (41%) of the poultry farmers have between 1-5 years of poultry farming experience. This is related to short term production when based on the agricultural production system cycle. Also, the result of the analysis on the household size distribution shows that about (35%) of the poultry farming households have between 5-6 persons, while it is about 5 persons on the average for a poultry farming household. This corroborates the findings of Ayantoye *et al.*, 2017. Furthermore, the use of family labour in poultry production is predominant in the study area (51.43%) while result of the analysis on access to credit shows that many (82%) of the poultry farming households in the study area do not have access to credit. Also, about 59.41% of the cooperator category diversified their livelihood activities, while it is 58.72% for the noncooperator category. The incidence of access to extension was also found to be very low, but relatively higher for the diversified category.

Table 1. **Summary of respondents' socioeconomic characteristics.**

Statuses	**Non diversified N=86 (40.95%)**		**Diversified N=124 (59.05%)**		**Pooled N=210**	
Years of Farming Experience	**Freq.**	**Percentage**	**Freq.**	**Percentage**	**Freq.**	**Percentage**
1-5	31	36.05	57	45.97	88	41.90
6-10	19	22.09	32	25.81	51	24.29
11-15	10	11.63	9	7.26	19	9.05
16-20	13	15.12	10	8.06	23	10.95
>20	13	15.12	16	12.90	29	13.81
Household Size	**Freq.**	**Percentage**	**Freq.**	**Percentage**	**Freq.**	**Percentage**
1-2	13	15.12	25	20.16	38	18.10
3-4	34	39.53	31	25.00	65	30.95
5-6	22	25.58	52	41.94	74	35.24
7-8	14	16.28	14	11.29	283	13.33
>8	3	3.49	2	1.61	5	2.38
Primary Labour Source	**Freq.**	**Percentage**	**Freq.**	**Percentage**	**Freq.**	**Percentage**
Family	39	45.35	69	55.65	108	51.43
Paid	47	54.65	55	44.35	102	48.57
Access to credit	**Freq.**	**Percentage**	**Freq.**	**Percentage**	**Freq.**	**Percentage**
Yes	20	23.26	17	13.71	37	17.62
No	66	76.74	107	86.29	173	82.38
Access to Extension Agents	**Freq.**	**Percentage**	**Freq.**	**Percentage**	**Freq.**	**Percentage**
Yes	18	20.93	32	25.81	50	23.81
No	68	79.07	92	74.19	160	76.19
Cooperative membership	**Freq.**	**Percentage**	**Freq.**	**Percentage**	**Freq.**	**Percentage**
Noncooperators	45	41.28	64	58.72	109	100.00
Cooperators	41	40.59	60	59.41	101	100.00
Total	**86**	**100.00**	**124**	**100.00**	**210**	**100.00**

Source: Field Survey data analysis result.

Cooperative membership and livelihood diversification status.

The result shows that about 59.41% of the cooperator category diversified their livelihood activities, while it is 58.72% for the noncooperator category. This implies that, the proportion of the diversified poultry farming household is larger for the cooperator category than for the noncooperator category.

Table 2. **Distribution of Cooperative membership and livelihood diversification status**

Cooperative membership Status	Nondiversified		Diversified		Pooled	
	Freq.	Perctg.	Freq.	Perctg.	Freq.	Perctg.
Noncooperators	45 (0)	41.28	64	58.72	109 (0.3648)	100.00
Cooperators	41 (0)	40.59	60	59.41	101 (0.3691)	100.00
Total	**86**	**40.95**	**124**	**59.05**	**210**	**P**=0.9195

Source: Field Survey data analysis result. Mean diversification indices parenthesized.

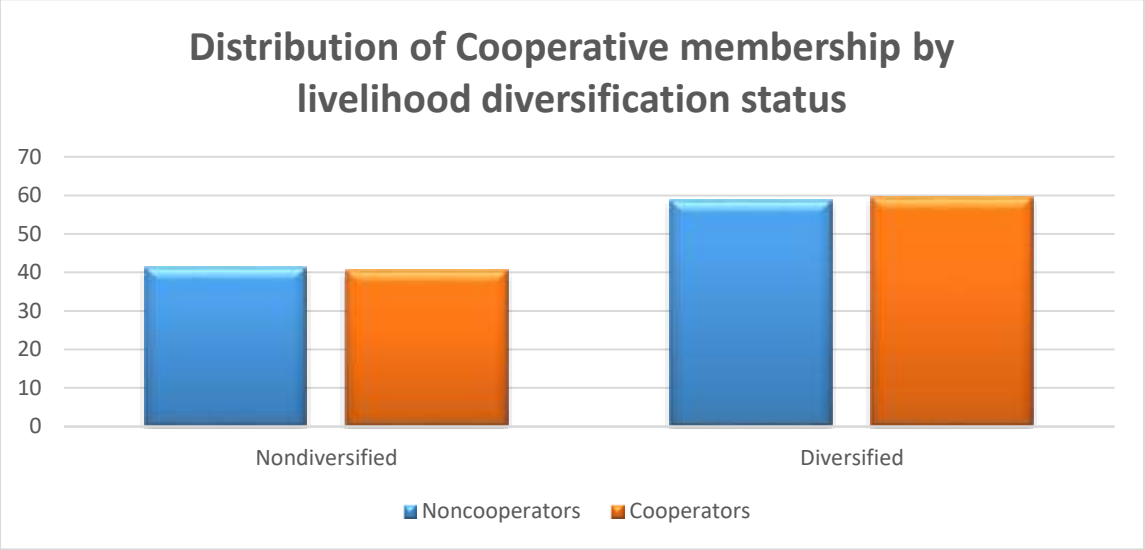


Fig. 2. Distribution of Cooperative membership by livelihood diversification status.

Livelihood diversification and farm income.

The result shows that, the mean farm income of the nondiversified households is significantly higher than that of the diversified households by 37.38%. This is significant at 10% probability level and likely due to the fact that the non diversified poultry farming households concentrates and devotes relatively more ample time to the farming business in supervising/managing it thereby facilitating increased output and increased returns relative to the diversified households who are engaged in some other livelihood activities that also competes for the limited time resources. Also, since employment of family labour is widespread in the study area (51.43%), diversification of

livelihood may impose negative externality influence of farming unless the farmer/ farm owner employs a competent farm manager to oversee the farm while he/she (entrepreneur) is away. This raises the need for farm owners (Entrepreneurs) to consider and include the choice of employing farm managers in their diversification decisions.

Table 3. **Effect of livelihood diversification on farm income**

Parameter	**Pooled N=210**	**Non diversified N=86**	**Diversified N=124**	**Difference Test**
Mean farm income	387473.2(67546.5)	497223.3(112271.7)	311356.3(83504.8)	185867(137085.9)
Std.dev	978841.7	1041165	929870.1	
Min	0	0	0	
Max	9000000	5246500	9000000	**P= 0.1766***

Source: Field Survey. Robust standard errors Parenthesized.

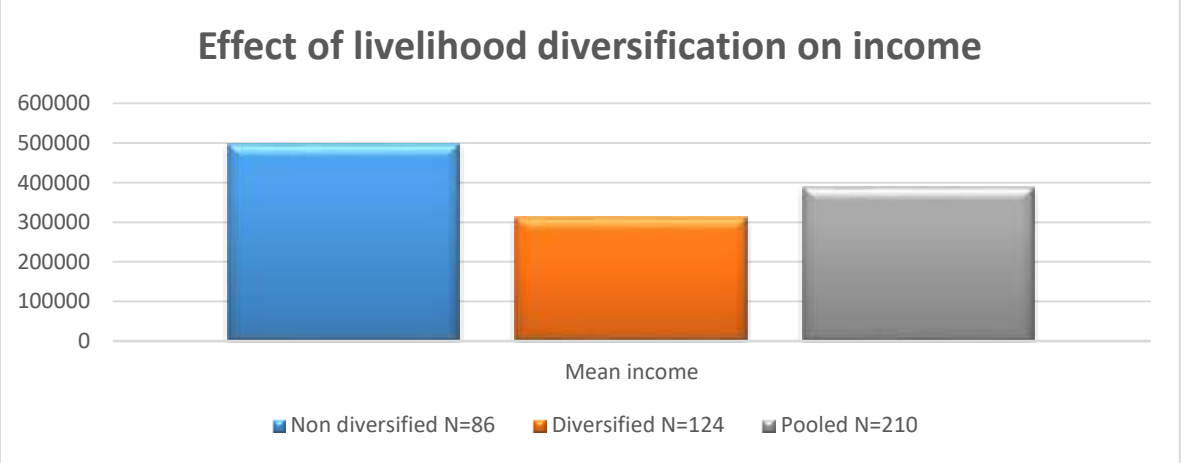


Fig. 3. Effect of livelihood diversification on farm income.

Cooperative membership and farm income.

The result shows that the mean farm income of the noncooperator is higher than that of the noncooperators while, further econometric analysis result is presented in table 6.

Table 4. **Effect of cooperative membership on farm income.**

Parameters	Pooled N=210	Cooperator N=101	NoncooperatorN=109	Difference Test
Mean income	387473.2 (67546.5)	336362.8 (79797.61)	434832.5 (107257.7)	98469.7 (133685.8)
Difference				98469.7
Std.dev	978841.7	801956.1	1119804	
Min	0	0	0	
Max	9000000	5246500	9000000	P=0.4623

Source: Field Survey. Robust standard errors Parenthesized.

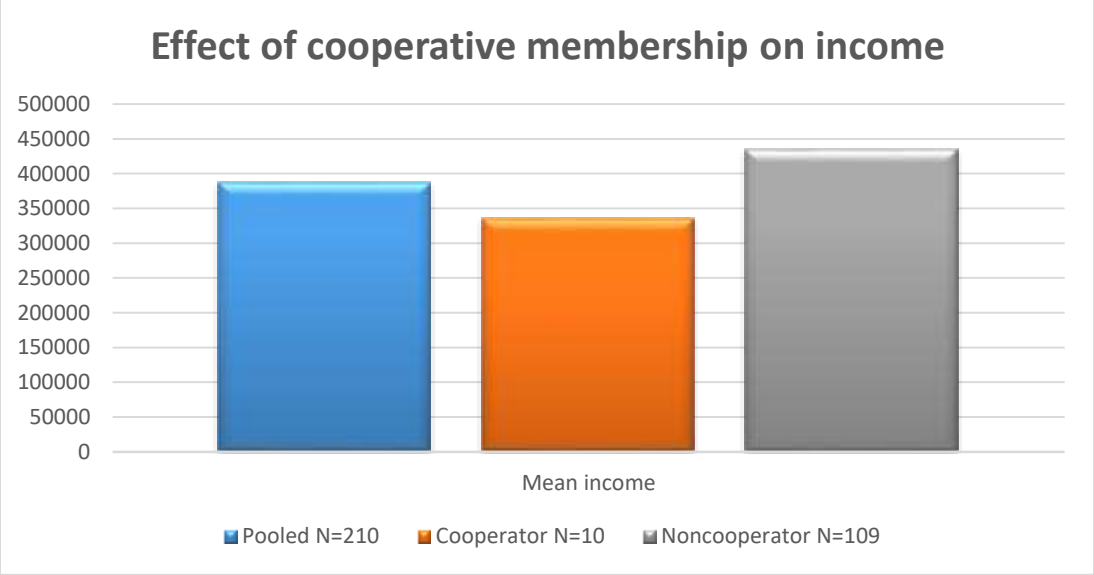


Fig. 4. Effect of cooperative membership on farm income.

Determinants of farm income level among poultry farming households.

A common quagmire usually encountered in multiple regression model is featured with correlation of duo or more explanatory variables, termed multicollinearity. This is more of the problem of magnitude and less of occurrence. The result is highly reckonable except for livelihood diversification value of above "5", owing to the skewness of the responses but however evened by other normally distributed variables in the model hence, not dropped, and the mean VIF value is now 0.23 which is a well acceptable range.

Table 5. **Variance inflation factor.**

Variables	VIF	1/VIF
Gender of household head	1.19	0.841935
Livelihood diversification	5.73	0.174547
Level of Educational (years)	1.50	0.668185
Household Size	1.30	0.766732
Years of farming experience	1.23	0.810698
Primary source of labour	1.37	0.732093
Access to infrastructure	1.08	0.926878
Farm size (layers)	1.10	0.908884
Multidimensional poverty Status	1.39	0.720625
Cooperative membership	1.11	0.897424
Mean Vif	0.23	0.7448001

Source: Field Survey data analysis result.

A traditional mean difference test will not provide a sufficient analysis to conclude an "effect estimate" or "determinant relationship" between any given hypothesized variable(s) hence, a maximum log-likelihood estimate analysis which is a more encompassing yet, a robust estimate analysis was further employed.

The result of the log-likelihood estimate of the multiple regression analysis on the determinants of farm income level among poultry farming households in the study area is presented in table 6 below. The result shows that the model sufficiently explained at least 23% of the estimation variables and significant at 1% probabilistic level. Also, the Breusch-Pagan heteroskedasticity test showed a constant variance distribution among the explanatory variables, revealing its normality, and suitability for the model, with highly policy reckonable results.

Gender of household head, household size, years of farming experience, primary source of labour, primary occupation, farm size, cooperative membership, (are all positively significant), while access to infrastructure, and multidimensional poverty negatively determined farm income.

Gender of household head positively influenced farm income with a coefficient of 0.6445152. This is likely due to the fact that males are usually more economically predisposed with relatively more capacity than their female counterparts. This is found to be significant at 1% probabilistic level. Also, Years of farming experience positively determined farm income earning with a coefficient of 0 .0375584. This is likely due to the fact that farm activity earning capacity increases with farmers farming experience and vice versa, found significant at 1% probabilistic level, while farming as primary occupation (livelihood diversification) positively determines farm income earning with a coefficient of 0.4919859, corroborating the findings of Ibekwe *et al.*, (2010), and

Ogbanje *et al.,* (2014). This is likely due to the fact that practicing farming primarily allows farm owner dedicate more attention in meeting the farm's need as opposed to when farming is a second choice with lesser priority. This was found significant at 5% probabilistic level. Besides, farm size positively determined farm income earning with a coefficient of 0.0000219, corroborating the findings of Ibekwe *et al.,* (2010). This is likely due to the fact that increased optimal farm size brings about increased farm income earning and found significant at 10%

.

Also, multidimensional poverty was found to negatively influence farm income earning with a coefficient of -1.992815. This is due to the fact that high farm income earning farmers pays less attention to invest into multidimensional welfare variable determinants e.g. basic school enrollment, use of modern health facilities (hospital). Also as revealed from the study, higher years of farming experience informs higher income earning which might be a trade off with education, while some may suffer health issues due to illiteracy even with relatively higher income level. Also a good number of farmers resides in the farm settlement which is usually remote and deprived of infrastructural facilities particularly electricity, living in small housing in order to stay close to their farms, and consequently lower welfare investment with their relatively high farm income (and savings), hereby raising a need to readjust accordingly. This was found to be significant at 1% probabilistic level.

Furthermore, household size, positively influences level of farm income with a coefficient of 0.1539534, and it corroborates the findings of Ibekwe *et al.,* (2010). This is likely due to the fact that family labour which is usually more readily available helps eliminates the extra cost incurred on paid labour to increase farmers' earning, and also provide managerial or supervisory roles to paid labour. Increased household sizes however usually come with a negative implication on a more important multidimensional poverty, hence should be cautiously employed. This is found to be significant at 5% probability level. Also, primary source of labour (paid labour been referred base) positively determines level of income with a coefficient of 0.542983 and found to be significant at 5% probabilistic level. This is likely due to the fact that efficient increased usage of paid professional labour increases productivity which translates to increase earning, compared to sole usage of family labour perhaps due to unaffordability of paid labour. Furthermore, access to infrastructure negatively determines farm income level with a coefficient of -0.560183, and was significant at 10% probabilistic level. This is likely due to the fact that; in the quest to boost farm income earning, many poultry farm holders are remotely located, and deprived of essential wellbeing indicators e.g., electrification which is a fixed production cost, hereby raising a need for service improvement, and farm settlement electrification.

Finally, Cooperative membership was found to increase farm income earning with a coefficient of 0.3578424. This is due to the fact that cooperatives are solely established to support her members in their collective quests to achieve their social, economic, and other goals and aspirations. This was found significant at 10%.

Table 6. **Determinants of farm income level among the poultry farming households in the study area.**

Variables	Coefficient	Standard error	P-Value (p>t)
Gender of household head	0.6445152	0.3580651	0.074*
Level of Educational (years)	0.0312167	0.0255387	0.223
Household Size	0.1539534	0.0619508	0.014*
Years of farming experience	0.0375584	0.0110748	0.001*
Primary source of labour	0.542983	0.2709023	0.047*
Farming as your primary occupation	0.4919859	0.2531609	0.054*
Access to infrastructure	-0.560183	0.3157017	0.078*
Farm size (layers)	0.0000219	0.0000167	0.191*
Multidimensional poverty Status	-1.992815	0.7642888	0.010*
Cooperative membership	0.3578424	0.2435716	0.144*
Constant	10.17557	0 .6964711	0.000*
N= 185, R- Squared = 0.2719		Breusch-Pagan	
Adj R-squared = 0.2301		heteroskedasticity	
Prob > F = 0.0000		Ho: Constant varianceVariables: fitted values of lnfI chi2(1) = 0.69	
		Prob > F = 0.4730	

Source: Field Survey data analysis result.

CONCLUSION AND RECOMMENDATIONS

This study sets to investigate the empirical effect of cooperative membership and livelihood diversification on farm income among poultry farming households in South West Nigeria. The result of the analysis on the socioeconomic characteristics of the respondents shows that, a larger share (41%) of the poultry farmers have between 1-5 years of poultry farming experience, and about (35%) of the poultry farming households have between 5-6 persons, while the use of family labour in poultry production is predominant in the study area (51.43%) and many (82%) of the poultry farming households in the study area do not have access to credit. Also, about 59.41% of the cooperator category diversified their livelihood activities, while it is 58.72% for the noncooperator category.

Furthermore, the mean farm income of the nondiversified households is significantly higher than that of the diversified households, while difference in the farm income level of cooperators and noncooperator poultry farming households was found to be insignificant. Hence, a non cooperator and diversified farmer would be significantly worse off, farm income wise and vice versa hence, to break even; cooperative membership should be paramountly better preferred for significantly increased wellbeing and insignificant livelihood diversification linked income difference. In other

words; cooperative is a break-even avenue, or better safety net out of income deprivation while livelihood diversification does not guarantee increased farm income.

Regarding the determinants of farm income level; Gender of household head, household size, Years of farming experience, Primary source of labour, Primary occupation, Farm size, Cooperative membership, positively guarantees increased farm income while; Access to infrastructure, and multidimensional poverty negatively determined farm income level, all at 10%, 1%, 1%, 5%, 5%, 10%, 10%, 1%, and 10% probabilistic levels respectively.

It is hereby recommended that; inputs and adequate incentives be provided to promote poultry farming so as to provide adequate and affordable dietary protein need and reduce malnutrition. Also, Cooperative membership should be encouraged among poultry farmers owing to its positive effect in reduction of multidimensional poverty. Furthermore, electricity tariff rates should be reviewed, while improved service quality be prioritized so as to close-up the existing negative infrastructural service cost-return gap effect on income. Besides, efficient employment of paid labour and managerial services should be promoted, owing to its positive effect in boosting farm income, and also reduce unemployment rate at its level. Effective cooperatives management should be uphold in order to maintain, and or further improve the existing level cooperatives efficiency in the study area so as to well cushion access to credit menaces. This study also revealed that livelihood diversification is a means of achieving the Sustainable Development Goals (SDGs) of poverty reduction in the study area. Also the number of extension agents should also be increased in order to facilitate quick and timely dissemination of innovations especially in the study area. Finally, cooperatives identity should be fortified in order to maintain, and also further improve the existing cooperatives efficiency level in the study area so as to cushion the existing access to credit menaces challenging Agricultural activities in the study area.

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