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Effects of Livelihood Sustenance Activities on Off-Farm Income of Poultry Farmers in IMO State, Nigeria

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Abstract**—** *The study analysed the off farm income and its effect on livelihood sustenance of poultry farmers in Imo state.Multistage sampling technique was used to select 120 respondents. Data for the study were obtained with the aid of structured questionnaire and analysed using descriptive statistics and ordinary least square bivariate regression model. Results showed that: the mean off-farm income of poultry farmers was N410223 per annum. Livelihood sustenance activities of poultry farmers positively and significantly affected their off-farm income. It is recommend that government should come up policies that will center on establishment of more livelihood sustenance activities for poultry farmers that will generate increased off-farm income and promote agricultural development simultaneously.*

Keywords**— Income, Livelihood sustenance, Off-farm Poultry Farmers.**

I. INTRODUCTION

In many developing countries, and particularly in Africa, agricultural income represents an essential component of rural households' subsistence. However, this type of income exhibits a high seasonality and leads to uncertain outcomes, mainly due to market prices volatility and environmental hazards. Consequently, household members partly allocate their working time to activities which provide a more stable income so as to cope with adverse shocks (Ellis, 2000).

Rural areas usually provide two categories of income sources to their dwellers; Farm and the non-farm economy. In the rural areas of Nigeria, the majority of households are involved in farm activities and many of them get their income from non-farm activities (World Bank, 2008). Thus, in the rural area, it is hard to find peasants who do only farming.

According to (FAO, 2012), out of 3 billion people living in rural areas in the world, 2.5 billion people derive their livelihood from non-agricultural enterprises. For instance, Haggblade *et al* (2010) observed that non-farm income accounts for between 65% and 80% of total income of rural households in developing countries. Oxford policy management (Opm, 2004), noted that majority of households across all income strata in Nigeria are involved in several off-farm activities, whose importance has increased over the last 25 years.

In Nigeria, majority of the farm household populace either depend entirely on farming for survival and generation of income, or depend on farming to supplement their main sources of income (World Bank, 2010). Sample studies of rural income portfolios showed that on average, roughly 50 percent of rural households income in sub-Saharan African are generated from engagement in non-farm activities and transfer from urban areas or abroad, with remittance and pension payments being the chief categories of such transfer (Ellis 2000; Ellis & Freeman, 2004). Evidence from a sample of rural villages in Tanzania (Chapmen & Tripp, 2004; Ellis & Madox, 2003) shows that on average, half of the household income came from crops and livestock and the other half from non-farm wage employment, self-employment and remittance. The proportion of non-farm income was higher for the upper income groups than for the lowest income groups. Therefore, the poorest households were more reliant on agriculture, and the reliance on agriculture decreased with increased diversification into non-farm activities.

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Off-farm activities have become an important component of livelihood strategies among rural households in most developing countries. Several studies have reported a substantial and increasing share of off-farm income in total household income (Ruben and van den Berg, 2001; de Janvry and Sadoulet, 2001; Haggblade *et al*., 2007). Reasons for this observed income diversification include declining farm incomes and the desire to insure against agricultural production and market risks (Kijima *et al*., 2006; Matsumoto *et al*., 2006; Reardon, 1997). However, when farming becomes less profitable and more risky as a result of population growth and crop and market failures, households are pushed into off-farm activities leading to "distress-push" diversification. In other cases, however, households are rather pulled into the off-farm sector, especially when returns to off-farm employment are higher or less risky than in agriculture, resulting in "demand-pull" diversification. The study by Oseni & Winters (2009) found that 31% of farm households in Nigeria participate in various non-farm activities and that non-farm income makes up 27% of total annual household income, on average. The authors indicated that southern households earn more from non-farm activities than northern households where about 50% of household income is from non-farm sources. According to Ibekwe *et al* (2010), more than 40% of the income from households in South-East Nigeria came from off farm activities. Non-farm self-employment is the most common forms of off-farm activities in Nigeria followed by non-farm wage employment (Oseni & Winter, 2009). In a more recent study by Enyia,(2016), non farm income activities accounted for 36.4% of Fadama household income and 48.1% of non Fadama household income in Imo State, Nigeria.

A livelihood comprises capabilities, material and social resources and activities required for a means of living which also takes into account the role played by structures, policies and processes in influencing the choice of livelihood strategies by the rural poor. It is considered sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining its natural resource base (Scoones, 2000, Carney, 1998, Kanji, Macgregor & Tacoli, 2005). A Review of different livelihood definitions, reveal that the term livelihoods is a multi-faceted concept referring to what people do to make a living with the assets at their disposal and what they accomplish by doing it in a particular context (Niehof, 2004). The concept of livelihood is therefore about individuals, households or communities making a living, attempting to meet their various consumption and economic necessities, coping with uncertainties and responding to new opportunities (de Haan and Zoomers, 2005).

The contribution of farm activities to household income in the developing world in general and Nigeria in particular is substantial. While agricultural related activities still constitute the largest share of total income among rural households, a number of empirical studies show the growing importance of Rural Non-Farm (RNF) activities in developing and transition countries. While recognizing the urgent need to maintain a robust agricultural sector, it is increasingly becoming clear that the agricultural sector alone cannot be relied upon as the core activity for rural households as a means of improving livelihood and reducing poverty. This study therefore seeks to provide an in-depth understanding of the effect of off farm income on livelihood sustenance of poultry farmers in Imo state.

The specific objectives of the study were to examine the socio economic characteristics of the poultry farmers, determine the off-farm income of poultry farmers, and determine the effects of livelihood sustenance activities on off-farm income of poultry farmers.

II. METHODOLOGY

This study was conducted in Imo state, Nigeria. Imo State lies between Latitude $5^0 10'$ and $6^0 35'$ North of the equator and between Longitude $6^0 35'$ and $7^0 31'$ East of the Greenwich meridian. The State has a population of about 4.13 million people (NPC, 2013). It is bounded on the East by Abia state, on the North by Anambra and Abia State, and on the West by Rivers State. The State is divided into 27 administrative units called Local Government Areas which are grouped into 3 agricultural zones viz Owerri, Okigwe and Orlu. Agriculture is the predominant occupation of the people, for almost all the farm families either as primary or secondary occupation. The ecological zone favours the growing of tree crops, roots and tubers, cereals, vegetables and nuts (Onyenwaku *et al*, 2010).The major crops cultivated in the state are maize, melon, rice, groundnut, vegetables, yams, cassava, oil palm, and rubber. Major animals reared include chicken, turkey, goats, sheep and pigs.

Multistage random sampling technique was used for the study. In each agricultural zone, two Local Government Areas (LGAs) were purposively selected. In each of the selected LGA, five communities were randomly selected, and from each community, one village was randomly selected to give a total of five villages. Four farmers were randomly selected from each of the villages to give a sample size of 120 poultry farmers for the study. These farmers were selected from the list of households who are into poultry production in the selected villages and this list was obtained from the Agricultural Development Programme (ADP) extension agents and Imo State Fadama III Coordination office (SFCO). Primary data were collected through the use of a set of structured questionnaire administered to the respondents. The

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primary data that were collected for the study included the socio-economic characteristics of the farmers, flock size, annual income from the farm, off-farm income, access to credit, etc. Data collected were analyzed with descriptive statistics, such as percentages, and mean, as well as ordinary least squares bivariate regression model.

The bivariate regression model as used by Rahman, 2005, Rahman & Alamu, 2003) is implicitly specified as

Y = f (x, e)

Where,

Y= Mean off-farm income (₦)

X = Livelihood sustenance activities (Dummy variable, if the poultry farmer earns off-farm income from 5-9 livelihood sustenance activities = 1, and if the poultry farmer earns off-farm income from 1 – 4 livelihood sustenance activities = 0).

e = error term.

It is expected *a priori* that the coefficient of x > 0.

Four functional forms of the model; linear, semi-log, double-log, and exponential were fitted to the data to select the lead equation on the basis of having the highest value of coefficient of determination (r^2), highest variable significance, and conformity to *a priori* expectation.

III. RESULTS AND DISCUSSION

The socio-economic characteristics of poultry farmers are presented in Table 1.

Table.1: Socio-economic characteristics of Poultry Farmers

Age (years)	Frequency	Percentage (%)	Mean
≤30	11	9.2	
31 -40	37	30.8	
41-50	63	52.5	
≥51	9	7.5	
Total	120	100	41years
Sex			
Female	49	40.8	
Male	71	50.2	
Total	120	100	
Education Level (Years)			
0(No Formal Education)	3	2.5	
1 – 6	16	13.3	
7 – 12	65	54.2	
13 - 18	36	30.0	
Total	120	100	10 years
Marital Status			
Married	94	78.3	
Single	26	21.7	
Total	120	100	
Farming Experience (Years)			
≤ 20	72	60.0	
21-30	38	31.7	
31 – 40	10	8.3	
Total	**120**	**100**	**20.3 years**
Household Size (Number of Persons)			
1-5	47	39.2	
6-10	69	57.5	
≥11	4	3.3	
Total	**120**	**100**	**6 persons**
Extension Contact (Number of Visit/Year)			
0 (No visits)	85	70.8	
1-5	30	25.0	
6 - 10	4	3.4	
≥11	1	0.8	

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Total	**120**	**100**	**1.0 visits**
Membership of Cooperative			
Member	89	74.2	
Non Member	31	25.8	
Total	**120**	**100**	

Source: Survey Data, 2016

Table 1 shows that majority (52.5%) of the poultry farmers in the study area fall within the age bracket of 41 – 50 years of age with a mean age of 41 years. This implies that majority of the poultry farmers are young. The table also shows that the mean education level is 10 years. This indicates that the poultry farmers in the study area are literate enough to read and write in English language. The result indicates that mean farming experience of poultry farmers is 20.3years. The mean household size was found to be 6 persons, while mean extension contact was 1.0 visit per year. This indicates that poultry farmers are poorly visited by extension agents.

Off-farm income from livelihood sustenance activities

The mean off-farm income from the poultry farmers' livelihood sustenance activities is presented in Table 2.

Table.2: Mean off-farm income from poultry farmers' livelihood sustenance activities

Livelihood sustenance activities	Mean off-farm income (₦)	Percentage
Interest received in cash from off-farm loan	63482	15.5
Off-farm service earnings (salaries, wages, pensions, etc)	106123	25.9
Sale of purchased crop	51446	12.5
Sale of purchased animals and animals products	73489	17.9
Sale of equipment	23112	5.6
Sale of fertilizers	39546	9.6
Sale of non-agricultural items	33189	8.2
Sale of agro-chemicals	15294	3.7
Lease of rented land	4542	1.1
Total	410223	100

*Source: Survey Data, 2016

Data in the table show that the mean annual off-farm income of the poultry farmer was ₦410223 per annum indicating that the poultry farmers earned moderate annual off-farm income. About 26% of the off-farm income was contributed by off-farm service earnings (salaries, wages, pensions, etc), while 17.9%, 15.5% and 12.5% of the off-farm income were contributed by sale of purchased animals and animals products, interest received in cash from off-farm loan, and sale of purchased crop respectively. Also, 9.6%, 8.2%, 5.6%, 3.7% and 1.1% of off-farm income were from sale of fertilizers, sale of non-agricultural items, sale of equipment, sale of agro-chemicals, and lease of rented land respectively. This finding implies that off-farm income of the poultry farmers came from various livelihood sustenance activities in the study area.

Effect of Livelihood Sustenance activities of Poultry farmers on off-farm income

To determine the effect of livelihood sustenance of poultry farmers on off-farm income, four functional forms of the bivariate regression analyses were fitted to the data so as to select the lead equation. Results of the bivariate regression analyses were presented in Table 3.

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Table.3: Results of Bivariate Regression Analyses on Effect of livelihood sustenance activities of poultry farmers on off-farm income

Explanatory variable	Linear	Semi-log	Double-log	Exponential
Constant	316.112 287.015	164.009 121.318		
Livelihood sustenance activities (x)	14.247 (2.323)*	3.069 (1.872)	0.082 (4.677)**	0.007 (2.549)*
r^2	0.5531	0.4821	0.8934	0.6924
F-value	145.553**	109.58**	992.667**	266.308**
Sample size (n)	120	120	120	120

Figures in parentheses are t-ratios
* Significant at 5%
**Significant at 1%
Source: Survey Data, 2016

The table shows that the double-log function produced the highest value of coefficient of determination (r^2), highest variable significance, and conformed to *a priori* expectation and was therefore selected as the lead equation and used for discussion.

The value of r^2 was 0.8934, which implies that about 89% of the variation in off-farm income was accounted for by the action of poultry farmers livelihood sustenance activities.
The r^2 value of 0.8934 gave F-value of 992.667 which was significant at 1% level of probability, implying that the double-log function gave a good fit to the data.
The coefficient of livelihood sustenance activities (x) was positive and significant at 1% level, implying that increase in livelihood sustenance activities employed by the poultry farmers lead to increase in off-farm income.
Therefore, there was a positive effect of poultry farmers' livelihood sustenance activities on their off-farm income in Imo State, Nigeria.

IV. CONCLUSION AND RECOMMENDATIONS

The mean off-farm income earned by poultry farmers was ₦410223. Livelihood sustenance activities of poultry farmers positively and significantly affected their off-farm income. The study recommends that government should come up with policies that will center on establishment of more livelihood sustenance activities for poultry farmers that will generate increased off-farm income and promote agricultural development simultaneously.

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