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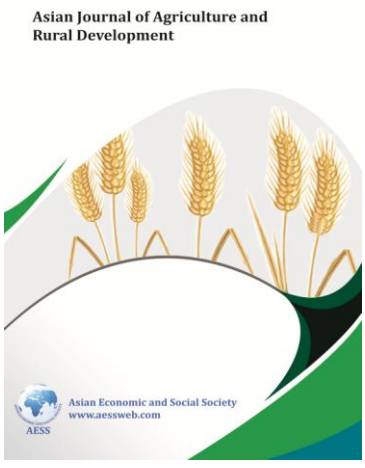

Effect of Poultry Production on the Poverty Status of Small Scale Farmers in Oyo State, Nigeria

Babatunde, Raphael Olanrewaju (Senior Lecturer; Department of Agricultural Economics and Farm Management, University of Ilorin, P.M.B. 1515 Ilorin, Kwara State, Nigeria)

Adekunle, Adedayo Olufemi (Graduate Student; Department of Agricultural Economics and Farm Management, University of Ilorin, P.M.B. 1515 Ilorin, Kwara State, Nigeria)

Olagunju, Funke Iyabo (Senior Lecturer; Department of Agricultural Economics and Extension, Ladoke Akintola University of Technology P.M.B. 4000 Ogbomoso, Oyo State, Nigeria)

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Author(s)

Babatunde, Raphael Olanrewaju
Senior Lecturer; Department of Agricultural Economics and Farm Management, University of Ilorin, P.M.B. 1515 Ilorin, Kwara State, Nigeria

Adekunle, Adedayo Olufemi
Graduate Student; Department of Agricultural Economics and Farm Management, University of Ilorin, P.M.B. 1515 Ilorin, Kwara State, Nigeria

Olagunju, Funke Iyabo
Senior Lecturer; Department of Agricultural Economics and Extension, Ladoke Akintola University of Technology P.M.B. 4000 Ogbomoso, Oyo State, Nigeria

Abstract

Using data from 104 small scale poultry farmers in Oyo state of Nigeria, this study examined the role of poultry production in rural poverty reduction. The results show that majority of the farmers were male (87 percent), married (87 percent), having family size of 5 to 7 persons (53 percent), above 44 years of age with farming experience of 7.5 years on average and with formal education (95 percent). The average net farm income (NFI) is ₦788,164 per annum indicating that, the business is worth investing in. Poverty incidence, poverty depth, and severity of poverty are 49 percent, 23 percent and 13 percent respectively, the poor farmers need to generate an additional 23 percent of the fixed amount of income to cross the threshold of poverty. The result showed that male headed households and farmers without tertiary education are poorer. Poultry income and education level of the household head have significant, negative effects on poverty status of the households indicating that, additional increase in these variables will reduce the probability of being poor.

Keywords: Small-scale poultry production, poverty reduction, FGT, logit regression

Introduction

Poverty is an issue that is central to the social and economic life of every developing countries of the world and efforts to reduce poverty have largely targeted rural areas. Nnadi (2008) described poverty as a multidimensional concept involving not only material deprivation but also deprivation in terms of capability, vulnerability, and influence over institutions that affect one's life. Being a multifarious phenomenon, poverty is in different forms of which broad ones can be identified such as physiological, social and human deprivation. Poverty can be chronic (structural) or transitory, depending on how long poverty is experienced by an individual or a community (Okumadewa 2001). Chronic poverty is long term and the causes are largely structural and endemic, while transitory poverty is temporary, transient and short-term in nature. World Bank (2001) and Ucha (2010) summarized the various dimensions as a lack of opportunity, lack of empowerment and a lack of security. The window of opportunity remains closed to the poor masses, and this makes them practically inactive in the society. Their lack of empowerment limits their choices in almost everything and their lack of security makes them vulnerable to diseases, violence and so on. The agriculture sector employs approximately two-thirds of the country's total labour force and provides a livelihood for about 90 per cent of the rural population. Poverty is especially severe in rural areas, where up to 80 per cent of the population lives below the poverty line, and social services and infrastructure are limited (IFAD 2011 and Awotide et al. 2011). The general belief is that poverty is more widespread and prevalent in rural than urban areas (Babatunde 2008) and theoretically the rural areas of a region or country lie outside the

densely-built up environments of towns, cities and sub-urban villages and their inhabitants are engaged primarily in agriculture as well as the most basic of rudimentary form of secondary and tertiary activities (Adebayo 1998 and Ajadi 2011). Poverty generally is caused by different factors, namely, unemployment, poor social infrastructure, lack of basic amenities and poor implementation of government policies, just to mention a few. Thus, the poor cannot access a specified basket of basic goods and services (Alaye-Ogan 2008), the referred basic goods include nutrition, shelter/housing, water, healthcare, access to productive resources including education, working skills and tools, political and civil rights to participate in decisions concerning socio-economic conditions (Kanbur 1987). According to Ajadi (2011) the most telling social characteristic of the poor in Nigeria is exclusion. The major variants of this are exclusion from the labour market as manifested in the perennial and high unemployment rates, exclusion from basic housing and easy access to productive assets, public utilities and other services and exclusion from meaningful participation in community activity, social life and national development.

Agriculture generally has many important roles to play in Nigeria economic development, particularly in poverty reduction. Agricultural production till date remains the mainstay of the Nigerian economy. It provides the means of livelihood for over 70 percent of the population, a major source of raw materials for the agro-allied industries and a potent source of the much needed foreign exchange (World Bank 1998; Okumadewa 1997). However, upon the huge investments in agriculture by the federal government, agriculture has not performed up to expectation in the role of poverty reduction (Olagunju et al. 2012; Babatunde et al. 2007; Okuneye 2002 and Ogen 2007) as poverty level has being on the increase since 1980s. The agricultural sector has been growing at a very low rate and poverty in Nigeria has been assuming wider dimensions including household income poverty, food poverty/insecurity, poor access to public services and infrastructure, unsanitary environment, illiteracy and ignorance, insecurity of life and property, and poor governance (Manyong et al. 2005). The livestock sector which could play an important role in the process of economic development of sub-Saharan Africa (SSA), due to policy neglect, the sector is only marginally contributing to economic growth and poverty reduction and, in general, to the attainment of the Millennium Development Goals (Nouala et al. 2011).

According to Kazybayeva et al. (2006) FAO (2007) Nouala (2011), livestock plays many important roles, including: as a provider of employment to farmer and family members; as a form of insurance; as a store of wealth; contributing to gender equality by generating opportunities for women; recycling waste products and residues from cropping or agro industries; improving the structure and fertility of soil; and controlling insects and weed. Livestock residues can also serve as an energy source for cooking, contributing to food security. Livestock also have a cultural significance – livestock ownership may form the basis for the observation of religious custom (FAO 2006; Holmann et al. 2005) or for establishing the status of the farmer (Ashley et al. 1999). Poultry production is an important livelihoods activity in the rural areas of many developing countries. Several studies from African and Asian countries have found that poultry production significantly contributes to several livelihoods indicators of rural households, such as income, food and nutrition security, and intra-household gender equality (Birol and Asare-Marfo 2008).

Moreover, the role of agriculture in mitigating the effects of poverty in developing countries is well known and has been widely documented. For instance (Okuneye 2000; Oni and Yusuf 2006) reported that agricultural resources should really serve the purpose of alleviating poverty in Nigeria. Nevertheless, in Nigeria, only few studies have addressed the role of small-holder poultry production in poverty reduction in the rural areas. This is the research gap that this study wants to fill. This study therefore focuses on the role of poultry production in reducing poverty on small scale producer in Oyo State, Nigeria. The specific objectives are to examine the profitability of small-scale poultry production; and analyze the effect of poultry income on the poverty status of rural farming households. Knowledge of socio-

economic characteristics and profitability of small-scale poultry production could be of great value for policy makers in designing effective poverty reduction strategies in Nigeria. This study provides information that could assist the small-scale poultry producers to improve on their farm budgeting and improve their income by allocating funds appropriately to different areas of production. The paper also contributes to the existing literatures on the economies of poultry production and poverty reduction in rural areas.

Methodology

Data Collection

This work builds on a survey of 104 small-scale poultry farmers selected from five local government areas of Oyo state. These are Afijio, Atiba, Iseyin, Oyo East and Oyo West local government areas; due to their high prevalence of poultry production in the area. The respondents were randomly selected from the lists of Poultry Farmers of Nigeria in the state. Majority of the smallholder farmers are residing in the rural areas (NPC 2006). Poultry industry in Oyo State has its root in the initiatives of regional governments from the 1960s when, for example the Western Regional Government entered into joint pilot poultry production schemes with some foreign partners, notably the Israeli government. There is a concentration of commercial poultry farms that are based on the exotic chicken in the state. The types of poultry that are commonly reared in Oyo State are chickens, ducks, guinea fowls, turkeys, and pigeons. Those that are of commercial or economic importance given the trade in poultry, however, are chickens and turkeys, amongst which the chickens predominate (Adene and Oguntade 2006).

The data used for this paper were collected in 2012, using interview guide with structured questionnaire. A two-stage simple random sampling technique was used to select the sample for the study. The first stage involved the random selection of five Local Government Areas in the state. The second stage involved the random selection of 104 small scale poultry producers. Efforts were made to collect the lists of poultry farmers from Poultry Association of Nigeria in the study area. The lists were stratified into three strata namely small, medium and large scales. The small-scale stratum was chosen for random selection of the respondents. In the second stage of data selection, the small-scale poultry farming households were selected by simple random selection method. Ikheloa and Inedia (2005) classified poultry farm size of 1-999 birds as a small-scale, 1000-2999 as a medium-scale and 3000 and above as a large scale. Information on socio-economic characteristics of smallholder poultry farmers, inputs and outputs, as well as management practices in poultry production were collected. Outputs (eggs and meat) were converted into monetary value, using the individual selling prices. Labour, feeding, medication, rent cost were collected and aggregated. Fixed cost including cost of buildings, cages, feeders, drinkers were also collected and used in analyzing costs and returns in poultry production. Effect of poultry income on total households' income was modeled using the ordinary least squares (OLS) regression method, and determinant of poverty status among the small-scale poultry farmers was modeled using logistic regression model.

Analytical Technique

Descriptive statistics

Descriptive statistics was used to analyze the socio-economic characteristics of the respondents. Profitability of small-scale poultry production and household characteristics according to poverty status and poverty headcount were analyzed with descriptive statistics.

Gross Margin Technique

$$GM = TR - TVC \quad \ldots\ldots\ldots\ldots\ldots (1)$$

Where

TR = Total Revenue from sales of poultry products (broiler, eggs and culled layers)

TVC = Total Variable Cost of birds and eggs

(this will include the cost of purchase of the birds, feeds, medication and cost of labour for feeding watering and general management of birds). The Net Farm Income (π) was obtained

by deducting Total Fixed Cost (TFC) from the gross margin. It is given in equation 2:

$\pi = GM - TF$ …… (2)

Poverty level was analyzed by using the Foster-Greer-Thorbecke (FGT) model weighted poverty index developed by Foster et al. (1984) among the small scale poultry farming households in the study area.

The general specification of the model is given in equation 3:

$$P_{\alpha} = \sum_{i=1}^{q} ni(1 - Y_i / Z)^{\alpha} / N \quad \text{.....} \ldots (3)$$

Z = The poverty line
q = Number of individual below the poverty line
N = Number of individuals in the reference population
Y_i = Income of the farmer per annum (Naira)
α = FGT index which takes values 0-2
$Z\text{-}Y_i$ = Poverty gap of the ith household
$Z\text{-}Y_i/Z$ = Poverty gap ratio
ni = The size of the ith household

When $\alpha = 0$, it implies zero concern for poverty incidence or depth. Equation (3) then reduces to a headcount of poverty. That is,

$$P_{0i} = \sum_{i=1}^{q} ni(1 - Y_i / Z)^{0} / N \quad \text{.....} \ldots (4)$$

When $\alpha = 1$, it conveys the information that there is uniform concern for poverty depth. Consequently, equation (4) becomes,

$$P_{1i} = \sum_{i=1}^{q} ni(1 - Y_i / Z) \ / N \quad \text{.....} \ldots \ldots (5)$$

Where P_{1i} is the poverty gap between the *i*th poor household and the poverty line.

Following from equations (4) and (5), the income gap ratio, which measures the proportionate distance of the mean income of the poor below the poverty line is estimated as the ratio of P_{1i} to P_{0i} (i.e. P_{1i} / P_{0i}).

Finally, when $\alpha = 2$, it implies that a distinction is made between the poor and poorest. Equation (3) then reduces to the FGT index, which is a distinctive index of the severity of poverty. FGT for the ith group is given as:

$$P_{2i} = \sum_{i=1}^{q} ni(1 - Y_i / Z)^2 / N \quad \ldots\ldots\ldots (6)$$

Determination of poverty line

A poverty line is often defined as a predetermined or well-defined standard of income or value of consumption which is deemed to represent the minimum required for a productive and active life or even survival (Ayinde 2003; Anyawu 1997). Two fundamental approaches have been widely adopted in the literature to determine the poverty line and they include the absolute approach and the relative or subjective approach. The poverty line adopted for the purpose of this work is the 2/3 of the mean income.

Model specification and estimation

Ordinary least squares regression model

Ordinary least squares (OLS) is used for continuous dependent variables. Standardized regression coefficients adjust for the fact that some variables have a much larger standard deviation than others; hence a one-unit absolute increase means different things for different independent variables (kachigan 1991).

Model specification for the effect of poultry income on total households' income

$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, U)$ ……. (7)

Where:
Y = Annual household income (Naira)
X_1 = Poultry Income (Naira)
X_2 = Gender of the Household Head (1=male, 0=female)
X_3 = Value of Assets (Naira)
X_4 = Access to Credit (1= Yes, 0= No)
X_5 = Age of the Household Head (Year)
X_6 = Education Level (Year)
X_7 = Household size
X_8 = Farming experience (Year)
U = Error term.

Economic theory does not indicate the precise mathematical form of the relationship among

the variables, so different functional forms of the above model including the linear, semi-log, double-log and exponential functions were fitted. However, the double-log function was chosen as the lead equation on the basis of statistical theory as well as econometric criteria.

The model is as specified in equation 8;

Double - log form

$$Log\ Y = b_0 + b_1 logX_1 + b_2 logX_2 + b_3 logX_3 + b_4 logX_4 + b_5\ logX_5 + b_6\ logX_6 + b_7\ logX_7 + b_8 logX_8 + U \quad \text{..... (8)}$$

Logistic Regression

A logistic regression analysis extends the techniques of multiple regression analysis to research situations in which the outcome variable is categorical. The model assumes that the outcome variable, Z_i is categorical (e.g. dichotomous). The dependent variable (Z_i) is dichotomous and takes the value 1 for the poor individual and 0 for the non-poor individual (Awotide 2011). The model is given as;

$$Z_i = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + U \quad \text{.....…… (9)}$$

Where:

Z_i=Poultry status of the household (1=poor, 0=otherwise)
X_1=Poultry income (Naira)
X_2=Education level (Years)
X_3=Household size
X_4=Farming experience (years)
X_5=Gender of the Household (1=male, 0=female)
X_6=Access to Credit (Yes=1, No=0)
X_7=other income apart from poultry income (Naira)
U=Error term.

Results and Discussion

Table 1: Summary statistics

Variables	Description	Mean	Std dev.
Gross margin	Difference between total income and total variable income of poultry business (naira)	805,403	109,638,5
Poultry income	Average annual income from poultry business (naira)	788,164	109,355,9
Household size	Number of people in the household (adult equivalent)	5.4	2.1
Gender	Gender of household head (male = 1, female = 0)	0.86	0.34
Age	Age of household head (year)	44.3	10.3
Farming experience	Years spent in poultry farming by household head (year)	7.5	4.4
Farm size	Number of birds kept by household	405.4	269.8
Access to credit	Dummy for access to credit (yes=1, no=0)	0.606	0.491
Cooperative membership	Dummy for membership of cooperative society (yes=1, no=0)	0.67	0.471
Education	Education of household head (year)	13.4	4.2
Total income	Total household income both poultry and non-poultry income (naira)	108,673,6	116,869,6
Poverty status	Dummy for household poverty status (poor=1, non-poor=0)	0.490	0.21

Source: field survey, 2012

From Table 2, majority (86.5 %) of the small-scale poultry operators are male, with very few female. This may be due to the high risks involved in poultry business and women are not good risk takers as observed by Ironkwe and Ajayi (2007). The result reveals that the 86.5% of the respondents are married, 8.7% are single and 4.8% are widowed. The higher percentage of married indicates the availability of family labour for poultry production. The result also shows that 52.9% of the modal group for the household size falls under 5-7. The household compositions of the respondents include husband/wives, children and other dependents.

This suggests that, other things being equal, family labour is likely to be available, in the study area. The size of the family can determine the available family labour on the farm.

Table 2: Socio-Economic Characteristics of Small scale Poultry Farmers

Characteristics	Frequency	Percentage
Gender		
Male	90	86.5
Female	14	13.5
Marital status		
Single	9	8.7
Married	90	86.5
Widowed	5	4.8
Household size		
<2	6	5.8
2-4	27	25.9
5-7	55	52.9
8-10	14	13.5
11-13	2	1.9
Education level		
No formal education	5	4.8
Primary education	9	8.7
Secondary education	24	23.1
Tertiary education	66	63.5
Age (Years)		
20-29	6	5.5
30-39	28	26.9
40-49	38	36.5
50-59	20	19.2
60 and above	12	11.7
Farming experience (Years)		
<3	14	13.4
3-6	36	34.5
7-10	33	31.6
11-14	11	10.6
15-18	6	5.8
19 and above	4	3.8
Farm size (heads)		
<100	3	2.9
100-299	37	35.7
300-499	30	28.9
500-699	20	19.0
800-999	14	13.5
Main occupation		
Poultry	53	51.0
Civil service	25	24.0
Formal private sector	12	11.5
Trading	8	7.7
Artisan	5	4.8
Crop farming	1	1.0
Credit status		
Credit accessed	63	60.6
Credit not accessed	41	39.4

Cooperative membership		
Member	70	60.6
Non-member	34	32.7

Source: Field Survey, 2012

Furthermore, the result reveals that the majority of the smallholder poultry operators have tertiary education with 63.5%. This level of education includes HND/ND, NCE, and bachelor degree. Minority (4.8 %) of the respondents has no formal education with the mean of 13.44. The high levels of education would contribute to their ability for efficient resource management in their business. It could also positively affect the farmers' access to useful information that may help them increase their productivity. Table 2 also shows that the age of the majority (36.5%) of the farmers fall between 40-49 years with mean age of 44.35 years. This means that the majority of the respondents are middle age farmers, with their mean age of 44.35 years old. They are relatively young and fall within the active age bracket. They belong to economically active population category which is between 25-59 years according FAO (1997). About 34.5% of the respondents have 3-6 years farming experience with the mean 7.52 years. The level of experience would contribute to their ability for efficient resource management in their business. Farming experience could also relate to the acquisition of good skills in the use of any technological innovation.

In the last production year, majority (35.7%) of the respondents raised 100-299 birds while the minority (2.9%) raised less than 100 birds. The mean size of the poultry raised is 405 birds, which shows that poultry production in the study area is a small-scale business.

It was also shown that majority (51%) of the respondents have poultry as their main occupation while 49 percent of them have other jobs as their primary occupation, these include civil service, and some are working in formal private sector, trading, artisan and crop farming. Among these, civil servants constitute 24%. This could be a way of diversifying income among the small poultry farmers; and it is a good measure against hardship among the low income earners. Ruel et al. (1998) submitted that low income earners or wage workers with no other source of income are often vulnerable to poverty.

The result reveals that majority of the respondent have access to credit for their poultry activities at a time or the other, the credit sources include Agricultural bank, commercial banks, cooperative societies and relatives. This implies that they can improve their farming operations when there is need for that.

About 67.3% of the respondents belong to other cooperative societies apart from being a member of poultry farmers association (PAN). This implies that they have other means to access credit, sell their products or purchase inputs in bulk and obtaining information on their business, these can also reduce the total cost of operation.

Majority of the respondents operate on deep litter while few operate on battery cage systems with the mean farm size of 405 birds. This is an indication of low levels of technology and production, which are also the characteristics of most farmers in the study area. The members of the farming households contribute as family labour to production activities on the farm to complement hired labour, which is also used.

Profitability of Poultry Farming

Table 3 shows the profitability of small scale poultry production. It was analyzed with the use of budgetary analysis and the Gross Margin (GM) was carried out to determine the profitability. The gross revenue is ₦2,116, 999 while the total cost of production which include total variable and fixed costs is ₦1,328,835. The gross margin is ₦805,403 while the Net farm income is ₦788,164. The result of the analysis shows a positive Net Farm Income (₦788,164), this is an indication that small-scale poultry production in the study area is a viable business enterprise. The result shows that poultry production is profitable therefore it is worth investing in, it will bring return in a short

time because the gestation period is short compare to other agricultural enterprises.

Table 3: Costs and returns of the poultry farmers

Items	Average amount per farm per year (Naira)
Feed Cost	852,537.53
Drug cost	137,717.60
Labour cost	138,000.00
Other costs	183,341.07
Variable Cost	**1,311,596.20**
Fixed Cost	17,238.82
Total Cost	**1,328,835.02**
Total Revenue	2,116,999.52
Gross Margin	805,403.32
Net Farm Income	**788,164.50**

Source: Field Survey, 2012

Characteristics of Households According to Poverty Status

The estimated poverty line adopted for this study is ₦203,454 per annum. About 49 percent of the farmers were earning below this amount (Table 4), this result shows that majority of the poultry farmers are not poor, the per capita income per day is higher than the national poverty line of $1.00 (₦160.00)/day in the study area. The mean household size of the poor is higher (6) than the non-poor household (5), this shows that as the household size increases the extent of poverty increases. The reason may be attributable to the fact that increased household size implies more dependants who rarely contribute to household income. Findings are however in agreement with World Bank report (2001). The mean education level for the non-poor is higher (14.91) and that of the poor is 11.92. This indicates that education is a strong tool for emancipating rural farmers from poverty. The mean age and mean farming experience are higher for the non-poor, they are 44.5 and 9.58 respectively. Farming experience could be responsible for the period to learn better skills for efficient management and period to build capital and grow the business. The mean farm size of the non-poor is also higher (476 birds). It indicates that scale of operation must be improved to alleviate poverty among the poultry farmers.

Table 4: Characteristics of households according to poverty status

	Poor households (49%)		Non-poor households (51%)	
Characteristics	**Mean**	**Standard dev.**	**Mean**	**Standard dev.**
Household size	5.92	2.189	5.00	2.029
Education level (Year)	11.92	4.963	14.91	2.844
Age (Years)	44.18	10.809	44.51	10.051
Farming experience (Year)	5.37	3.498	9.58	4.316
Farm size	331.82	224.663	476.23	291.961

Source: Field Survey, 2012

Further decomposition of poor households in Table 5 shows that poverty incidence is 49 percent, poverty depth of 23 percent and poverty severity of 13 percent. This indicates that 49percent of the small scale poultry farmers are relatively poor, out of this, 13 percent are suffering from severe poverty. Furthermore, the poor poultry farming households require 23 percent increase in their per capita income to reach the poverty line. Male headed households are poorer than households with female head; this is in line with

FOS report (1999) which revealed that female headed households are less poor compare to male headed households. This means when women are empowered they can improve their well being. Households with poultry as their main occupation are poorer than the household with other poultry as secondary occupations; this does not negate that small scale poultry farming is capable of lifting poor household out of poverty. This could be due to the fact that the latter earn additional income from those jobs. They could also invest extra income into poultry to alleviate their sufferings. Haan (2000) explained that holding too long to low paying and unstable jobs put a household at high risk of poverty and food insecurity. Diversification as a Source of income growth is a potential means of poverty reduction (Nicholas et al. 2006).

Table 5: Decomposition of poverty status according to households type

Category Z = ₦**203,454**	**(Poverty incidence)** P_0	**(Poverty depth)** P_1	**(Poverty severity)** P_2
All Households	**0.49**	**0.23**	**0.13**
Male Headed Household	0.43	0.20	0.11
Female Headed Household	0.06	0.03	0.02
Total	**0.49**	**0.23**	**0.13**
Poultry as main occupation	0.26	0.12	0.07
Non- Poultry as main occupation	0.23	0.11	0.06
Total	**0.49**	**0.23**	**0.13**
Farmers with tertiary education	0.22	0.07	0.06
Farmers with no tertiary education	0.27	0.15	0.08
Total	**0.49**	**0.23**	**0.14**
Farming Experience of ≤ 5	0.31	0.16	0.10
Farming experience of ≥ 6	0.18	0.07	0.03
Total	**0.49**	**0.23**	**0.13**

Source: Field Survey, 2012

The result also showed that poverty level is higher among the farming households without tertiary education. This indicates that education is a strong tool for emancipating rural farmers from poverty. Farmers with five years or less experience are poorer than the poultry farmers with more farming experience. This indicates the importance of good training on technical know-how to acquire more knowledge among the smallholders. The role of capacity building and human capital development in eradicating poverty cannot be over emphasis. Education equips the people with information and new technologies that are necessary for enhancing economic activities (Ruel et al. 1998; Oniang'o and Makudi 2002).

Effect of Poultry Income on Household's Total Income

In order to determine the relationship between total household income and poultry income (X_1) with other explanatory variables (X_2, X3, X4, X5, X6, X7, X8), ordinary least square was used. Table 6 shows the regression result of the lead equation selected from the four functional forms regressed; they are linear function, semi-log function, double log function and exponential function which were compared so as to identify lead equation. The double-log function was selected based on magnitude of the coefficient of multiple determination (R^2) sign, the number of variables that are significant, F-value and the number of variables that meet the *a priori* expectation. It had the F-value of 32.30, value of (R^2) which is 0.731, five positively significant variables conforming to *a priori* expectation.

Table 6: Ordinary least square result of effects of poultry income on total households' income

Variables	Coefficient	t-value
Constant	2.906112	(6.48)
Poultry income (Naira)	0.1753165***	(5.06)
Gender (1= male; 0= female)	-0.0749165	(-1.21)
Value of assets (Naira)	0.1644***	(4.43)
Access to credit (1= Yes; 0= No)	0.0624175	(1.13)
Age (Years)	0.4962567*	(1.79)
Education level (Years)	0.1447086*	(1.81)
Household size	0.1070251	(0.87)
Farming experience (Years)	0.242382**	(2.11)
$R^2 = 0.731$		
F-value = 32.30***		

Source: Field survey, 2012

***Significant at 1% ; **Significant at 5% ; *Significant at 10%

The coefficient of multiple determinations (R^2) of the lead equation (Cobb-Douglas) is 0.731. This indicates in the function that about 73 percent of the regression explained dependent variable. It shows that for a percentage change in the amount of annual household income of the small scale poultry farmers, poultry income will change, gender of the household head will not change, value of the assets will change, access to credit will change, age of the household head will change, education level will change, household size and farming experience will also change.

The result from lead equation also shows that variables X_1 and X_3 are significant at 1 percent; variables X_5 and X_6 are significant at 10percent while variable X_8 is significant at 5 percent, level of significance. They all have positive sign meeting *a priori* expectation. Variable X_1 is poultry income, it contributes significantly to total household income, i.e. 1 percent increase in poultry income will cause an increase to the level of income of the households by 0.18 percent if other factors are constant in the area. Variable X_3 is the value of assets, this will also cause an increase in household income because less will be deducted from the revenue as depreciation compared to the payment of rent per annum.

Variable X_5 is the age of the households head; it indicates that age could contribute to skill acquisition that improves efficient production thereby improve the income. Variable X_6 which is education level and variable X_8 which is the farming experience, these could help the farmers adopt better technology and acquire better skills due to the length of period used in the business. Therefore, these can increase the profit and transfer to the household income.

Determinants of Poverty Status among Poultry Farmers

The result of the poverty status is shown on Table 7. The study reveals that most of the variables have a decreasing effect on poverty. Specifically, education of the household heads, access to credit, farming experience and poultry income was all negatively correlated to poverty. This means that as these variables increase poverty will decrease. Two variables are statistically significant: Education level and poultry income. As expected, all these variables are negatively correlated with poverty. The implication of these results is that poultry production is an important determinant of the household poverty status, whether the household is poor or not. Therefore it is reasonable to conclude as the results show that, to engage in small scale poultry production reduces the probability of household poverty. Education level of the household head from the results shows it is also an important determinant of poverty status of the small scale poultry producers, meaning that the higher the education level, the lower the poverty situation. This could be possible because, educated farmers have the tendency to learn and adopt a new and appropriate technology for efficient production.

Table 7: Logistic Regression Result for determinant of Poverty Status

Variables	Coefficient	Z-Value
Gender (1=male;0=female)	0.4154548	0.21
Household size (Adjusted)	0.271531	3.22
Householder head age (Years)	-0.457732	-1.10
Education level (Years)	-0.286391*	-1.82*
Farming experience (Years)	-0.0939488	-0.63
Farm size (Heads)	0.002649	1.40
Credit access (Dummy)	-1.829837	-1.48
Poultry income (₦)	-0.0000103***	-3.64***
Constant	4.134671	0.97
Likelihood Ratio chi-square (df)	112.96 (8)	
Prob > Chi square	0.0000	
Pseudo R^2	0.7837	

Source: Field Survey, 2012
***Significant at 1%; *Significant at 10%

Conclusion

The study found out that, the majority of the poultry producers are male, possessed tertiary education and belong to active age bracket. It also revealed that majority have other occupations, they have access to credit and belong to one cooperative society or the other. The study revealed that small scale poultry farmers are not really poor when we compare their per capita income of ₦557.60/day with $1.00 (₦160.00)/day national poverty line of Nigeria set by the World Bank. Poultry income formed an important determinant of poverty status of the household and has a substantial contribution to the total household income. Education level also affects the poverty status of these households negatively. The coefficients of assets, age of the household head, education level and farming experience have positive impact on household income of smallholder poultry farmers. Poultry production is a very profitable business in the study area and is an important enterprise to generate income in the rural area. The study also found that poultry income is contributing significantly to household income. The study showed that farming experience and access to credit have positive influence on the profitability of poultry production in the area.

From policy perspective, governments should encourage the growth of the small-scale poultry industry, rather than promoting the few industrial farms to continue to grow bigger. Government of Oyo state should include poultry production as a means to reduce the rate of unemployment and poverty in the policy of the state. Unemployed youths can be encouraged to take up poultry as a means of livelihood because it is profitable. The old farm settlement estates can be rehabilitated to accommodate unemployed youths.

Government should subsidize poultry inputs like cages, feeders, drinkers for small-scale poultry farmer. Especially, feeds and drugs should be subsidized because these constitute large percentage of costs of production. Small-scale poultry farmers would be registered and assigned identification numbers to them. The veterinary unit of ministry of agriculture should be charged with the responsibility of stocking necessary drugs and vaccines to be sold to the registered farmers at the subsidized rate. For feed, government can designate some reputable feed milling centres to be selling minimum feed required by these poultry operators for a specified time space. Oyo state government should create credit facilities for small scale poultry farmers for higher capital base. It will also assist those that cannot access loan in a formal banking sector because of lack of security to obtain loans. The credit facility will involve revolving soft loan with proper administration among the groups of smallholder farmers. The farmers in the Oyo state should be organizing training and retraining programs for themselves regularly, they should invite experts to train them in the areas of animal health, animal nutrition and general farm management for efficient production. This will cover the

lapses on the part of farming experience and education which are very important in poultry production.

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