Journal of Agriculture and Veterinary Sciences
Volume 7, Number 2, 2015
ISSN: 2277-0062

Socio-Economic Analysis of Broiler Production in Aguata L.G.A. of Anambra State, Nigeria. Implication for Entrepreneurship Development in a Developing Economy

Uche Okeke

Anambra State University, Igbariam Campus
E-mail: stan2kc@yahoo.com

ABSTRACT

The study analyzes the economics of broiler poultry production in Aguata Local Government Area of Anambra State, Nigeria. The data for this study were collected with the aid of well-structured questionnaires from 50 respondents selected through multi-stage sampling techniques. The parameters of the production were estimated using regression analysis. Descriptive and statistical tools were used to analyses socio-economic factors and problem militating against production. Gross margin, net farm income and net return analysis were used to estimate profitability of broiler poultry production in the area. The socio-economic characteristics of the respondents showed that majority of the respondents are married 40% and most of the respondents are male 78%, 74% are aged 46 years and above while family size for poultry farmers are 6-7 in the study area. Majority (58%) attended only primary school. The gross margin, net farm income and net return on investment are ₦11,078,440, ₦ 8,013,715 and 0.74 respectively. The result of multiple regression analysis showed that three variable age, flock size and cost of input are statistically significant in the lead equation while other are not.

Keywords: Socio-Economic, Analysis, Broiler Production, Implication Entrepreneurship, Development, and Developing Economy

Introduction

There is the need to increase food production in Nigeria. It has been a great concern over the decrease in food production especially in animal protein in Nigeria. An estimated 960 million people are still suffering from malnutrition of which most of them are found to be in developing countries of Africa (UNDP, 2007). Food taken by man is composed of nutrients, namely protein, carbohydrates, vitamins, fats and oil and minerals (Susan and Robin, 2002).

Among these classes of food, protein is sourced from plants and animals. The animal proteins are mainly sourced from livestock segment of the agriculture sub-sector of the national economy, mostly from poultry industries. The poultry segment is one of the fastest growing livestock segments of agricultural sub-sector in Nigeria, accounting for about 10 -15% of the contribution of the agricultural sub-sector to nation gross domestic production (GDP) with net worth value of over $270 million (Garba, 2008).

In Nigeria, poultry and in particular broiler represents an appropriate system to feed the fast growing population and to increase the protein intake of the people. Poultry occupies a prominent portion in providing animal protein as it accounts, for 25% of local meat production in Nigeria. In particular broiler has a good carcass yield and high efficiency of feed utilization compared to other livestock (Adejinmi, 2006). Animal protein is very essential in human nutrient because its biological content are significance. Poultry and poultry products such as broiler meat and eggs are important for improving nutritional and health situation particularly of children, pregnant women and unhealthy persons.

Objectives of the Study

The broad objective of the study is to analyze the economics of broiler poultry production in Aguta L.G.A of Anambra State, Nigeria. The specific objectives are to:

a. Examine the socio-economic characteristic of broiler poultry production farmer in the study area;
b. Examine the effects of respondents socio-economic variable on production output;
c. Determine cost and return (profitability) of broiler poultry production in the area;
d. Identify problems associated with broiler poultry production in the area; and
e. Make policy recommendations based on findings of the study.

Study Hypothesis

Socio-economic factors of the respondents viz: age, level of education, farming experience, cost of inputs, access to credit, house hold size, flock size and extension visits do not have statistically significant affects on production output.

Literature Review

The review of related literature will be undertaking under the following; socio-economic characteristics of poultry farmers, influence of socio-economic factors of poultry farmers on output, cost and return of poultry production and problems of poultry production.

Socio- Economic Characteristics of Poultry Farmers

Effiong and Onyenweaku (2006) in their study on profit efficiency in broiler poultry production in Akwa Ibom State, Nigeria revealed that most of the respondents (52%) involved in broiler farming were female and (48%) were male. On age distribution of the farmers, 50% of them were between the ages of 25-35 years, 26% between 35-45 years, while 10% and 14% fell within 20-30 years and above 50 years respectively. About 56% of the respondents were married, 34% single and 10% widows. Most of the farmers 46% had big family size of between 11-15 persons. The education attainment of the respondents revealed that most of them (67%) had secondary education.

Influence of Socio-Economic Factors of Poultry Farmers on Production Output

Oladeebo and Ambe-Lamidi (2007) studied the profitability, inputs, elasticity and economic efficiency of poultry production among youth farmers in Osun State, Nigeria and revealed that age of the farmers, educational status; household size, marital status and system of management were statistically significant at 5% level of probability.

Costs and Return of Poultry Production

The analysis of costs and return structure in poultry production would facilitate appropriate knowledge of the cost implication in order to obtain optimum economic benefit from investment. Alibi and Aruma (2005) reported on cost and return analysis of poultry farming in Niger State, Nigeria that total cost was ₦592,536 of which cost of feeding and medication represented 80.4% and 19.6% respectively. The analysis gave a profit of ₦450, 481.4 and average profit of ₦38.8241 with ₦7.60 as return on investment.

Problems of Poultry Production

The problems of poultry production are many. Apantaku, Omotayo and Oyesola, (1998); Oyo (2008) showed that low egg production, poor quality chick, poor and low performing breeds, poor weight gain, feed and management problem are the problems facing poultry farmers in Nigeria.

METHODOLOGY

The study was carried out in Aguata L.G.A. of Anambra State, Nigeria. It is one of the 21 L.G.A of the State. The L.G.A has approximately land area of 180 square kilometer and a population of about 189, 654 people (National population commission, 2006). The Local Government Area is made up of fourteen communities namely Ekwulobia, Isuofia, Igbo-Ukwu, Umuona, Ezinifite, Agulu-Ezechukwu, Nkpologwu, Uga, Amesi, Achina, Akpo, Umuchu, Umuomaku and Ogboji. It experiences two major seasons, the rainy season which starts in March and lasts till the end of October and dry season which starts in November and ends in March. It experiences 3000 mm of rainfall per annum. This made the area suitable for agriculture.

The people of the L.G.A are mostly farmers and traders. The main agricultural activities are crop farming and livestock farming. They also involved themselves in modern activities like services and manufacturing sector. The crop grown include yam, cassava, maize, cocoyam and oil palm and livestock raised are goat, sheep and poultry with fish farming gaining ground.

Population and Sampling Procedure

The study population comprises of poultry farmers operating in 8 towns. Stage one involves the selection of eight (8) towns by simple random method from the fourteen (14) towns in Aguata L.G.A. Stage two involved the selection of two (2) villages from each of the 8 towns to arrive at 16 villages. Finally, three (3) broiler poultry farmers were randomly selected from each of the 2 villages to arrive at a total of 48 respondents for the study.

Method of Data Collection

Data for the study was collected from both primary and secondary sources. Primary data was collected by means of structured questionnaire which were administered to the respondents in the study area. Data was collected on the socio-economic characteristics of the broiler farmers such as gender, age, household size, educational level, farming experience, etc. Information on quantities of inputs and output, their prices and problems of broiler production were also sought. Secondary data sources include text book, journal articles, and seminars and workshop papers, bulletins and so on.

Measurement of Variables

A reasonable number of variable were deployed in this study. They include broiler production variables, socio-economic variables and problems of broiler

production. These variables are broiler production output, inputs, broiler feeds and labour under broiler production variables. Under socio-economic variables are gender, famer's age, educational level, farming experience, and household size.

Methods of Data Analysis/Model Specification

Objectives (1) and (IV) were achieved with the use of descriptive statistics such as mean, percentage and frequency distribution. Objective (ii) was determined using multiple regression analysis, while objective (iii) was achieved with the use of enterprise budgeting technique. The multiple regression models used to determine the relationship between production output and socio-economic factors is implicitly specified as:

Y = f (X1, X2, X3, X4, X5, X6, X7, X8; e1)

Where

Y = Farmers' output (Kg)
X1 = Age of farmers (years)
X2 = Flock size (number of chicken stocked)
X3 = Costs of inputs (N)
X5 = Access to credit (dummy: accessed to credit 1; otherwise = 0)
X6 = Educational attainment (years)
X7 = Extension visits (number of visits per year)
X8 = Household size (number)
e1 = Error term

The equation was fitted with the data and tried in three functional forms of linear, semi-Log, and double-log. On the basis of statically and economic reasons, the estimated equation with the best fit was chosen as the lead equation. The explicit forms of the three models are given as

Linear: NFI = Bo + B1 Xn X1 + B2 X2 + B3 X3 + B4 X4 + B5 X5 + B6 X6 + B7 X7 + B9 X8 + e1
Semi – Log: NFI = Bo + B1 Ln X1 + B2 Ln X2 + B3LnX3 +B4LnX4 + B5LnX5 + B6LnX6 + B7LnX7 + B8LnX8 + e1
Double – Log:
Ln: NFI = Bo + B1Ln X1 + B 2LnX2 + B3LnX3 + B4LnX4 + B5LnX5 + B6LnX6 + B7LnX7 + B8LnX8 + e1.

The enterprise budgeting method was used to determine the profitability in Naira (N) of broiler production in the area. The method is given as

GM = TR – TVC

NFI = TR – TC
Where
GM = Gross Margin
TR = Total revenue
TVC = Total variable cost
TC= Total cost
NFI = Net Farm Income

Result and Discussion

The result will be discussed under socio-economic of the respondents, sources of finance of the respondents, method of broiler production, cost and return analysis of broiler poultry production, problems of broiler production and estimation of determinants of broiler production output.

Socio-Economic Characteristic of the Respondents

The result showed that 78% of the respondents are male while 22% are female as shown in table 1. On marital status 6% are single, 40% are married, 4% are divorced, 50% are widowed. The ages of the respondents are 20-30years had 6%, 30-45 years had 20%, 46-60 years had 74% and above 61 years had 0%. The average farming experience for less than 5 years are 80%, between 6-10 years are 12% and 11 years and above are 8%. For educational attainment, primary education had 58%, secondary education 32% and tertiary education has 10%. In labour, 52% used only household labour, 4% used hired labour while 44% used both. Extension agent visited the poultry farmers and they used their advice.

Table 1: Distribution of respondents according to socio-economic characteristic		
Variable	Frequency	Percentage
1.Gender		
a. Male	39	78
b. Female	11	22
2. Marital Status		
a. Single	3	6
b. Married	20	40
c. Divorced	2	4
d. Widowed	25	50
3. Age		
a. 20-30	3	6
b. 30-45	10	20
c. 46-60	37	74
d. 61-above	0	0
4. Average family size	6-7 persons	
5. Farming experience		
a. Less than 5 years	40	80
b. 6-10 years	6	12
c. 11 and above	4	8
6. Educational attainment		
a. Primary	29	58
b. Secondary	16	32
c. Tertiary	5	10
7. Extension agent visit		
a. Once in 6 months	23	46
b. Twice in 6 months	27	54
c. 4 times in 6 months		
8. Extension agent advise		
a. Is productive	1	2
b. Is not productive	49	98
9. Types of labour used		
a. Household labour	26	52
b. Hired labour	2	4
c. Both	22	44
Source: Personal survey, 2014.		

Sources and Usages of Fund for Broiler Production

Table 2 showed that many respondents, 26% sourced their finance from micro finance bank, 42% sourced their fund from personally saving, 22% borrowed, 8% inherited whereas 3% borrowed from friends and relatives.

Broiler Production System

Table 3 showed that 84% used semi-intensive system and 16% used intensive system.

Table 2: Sources of Fund for Broiler Production

Source of Fund		**%**
a. personal saving	21	42
b. borrowed	11	22
c. inheritance	4	8
d. friends and relatives	1	3
e. micro-finance bank	13	26

Source: Personal survey, 2014.

Table 3: Broiler Production System

	Frequency	**Percent**
Intensive	8	16
Extensive	0	0
Semi-intensive	42	84

Source: Personal survey, 2014.

Cost and Return Analysis of Broiler Poultry Production in Aguata LGA.

Table 4: Estimated cost and returns of broiler poutry production in the study area.			
Variables	Amount	Amount	Percentage
a. Total Revenue		1.871.300	
Day old chicken	3257450		30
b.Variable cost			
i. Feeds	1067000		9.82
ii. Drugs	130300		1.2
iii. Fuel	1237000		11.38
iv. Litter material	265500		2.44
v. water liters	175000		1.61
vi. Hired Labour	192500		1.77
vii. Vaccination	1143500		10.52
viii. Transportation	620500		5.71
ix. Electric bill	57500		0.53
x. Miscellanous	310000		2.85
Total variable cost			
FIXED COST			
Depreciation on	806250		7.42
a. Water	1006160		0.92
b. Feeding trough	1605900		1.497
c. Building	64900		0.59
d. Heater	714000		6.57
e. Wheel barrow	641375		5.9
f. Annual loan interest	125700		1.16
g. Rent	306250		2.81
Total Fixed Cost		3.064.725	
Total cost (TVC+TFC)		10.857.585	
Gross margin (TR-TVC)		11.078.440	
Net Farm Income		8.013.715	
Mean net farm income(NFI/N)		1.602.743	
Net return on			
investment (NFT/TC)		0.74	
Source: Personal survey, 2014.			

The estimation of profitability of broiler production in the area was done using enterprise budgeting and net return on investment methods as shown in table 4. The result is presented in table 4. The estimation indicated that the farmers realized gross margin, net farm income, mean net farm income and net return on investment value of ₦11078, 440, ₦ 80,013,715, ₦ 1,602,473.3 and 0.74

respectively. The net return of 0.74 implies that the farmers return N0.74 for every ₦1 invested on Aguata L.G.A.

Respondent's Socio-Economic Characteristic and Broiler Output in Aguata LGA

Table 5: Estimated Determinant of Broiler Production Output

PARAMETER	LINEAR	SEMI-LOG	DOUBLE-LOG
Constant	187.34	7.37	9.48
X1	-24.13 (-1.98)^{xx}	-2.56 (-2.030)^{xx}	-0.0015 (-1.19)
X2	10.25(1.96)^{xx}	2.83(2.48)^{xx}	0.005(1.87)^{xx}
X3	9.26(1.17)	1.84(1.32)	0.07(1.38)
X4	-56.33(-4.81)^{xx}	3.76(-2.84)^{xx}	0.001(-3.12)^{xx}
X5	3.25(0.74)	1.73(1.28)	0.08(1.29)
X6	2.76(0.59)	0.26(0.54)	0.06(1.24)
X7	0.86(0.75)	0.07(0.36)	0.02(0.18)
X8	-0.16(-1.48)	-0.11(-0.92)	-0.17(-1.51)
R2	0.7062	0.7874	0.6738
R-2	68.16	73.44	64.92
F-Statistic	205.32	25.43	12.67
D-W stat	1.97	1.98	2.01

Source: Field Survey 2012 **Notes:X1=Age, X2=**

Flock size X3=farming experiences X4=cost of input, X5=Access to credit X6=educational attainment X7 = extension visits. X8 = household size. D.W stat=Durbin Watson statistic. Figures in parenthesis are E-statistic values. ^{xx} =significant at 5% probability.

Regression analysis was used to determine the socio-economic factors that affected broiler poultry output in the study area. The variables were fitted into three functional forms of linear, semi-log and double log. The variable tested were, age (X1), flock size (X2), farming experience (X3), cost of input (X4), access to credit (X5), educational attainment (X6), extension officers visits (X7) and household size (X8). The lead equation (ie linear function) was chosen because it gave the best fit for the coefficient of multiple determinations (R^2), the number of significant variables and priori expectations of sign and magnitude of the coefficient. Table 5 indicated that age (X1), flock size (X2) and cost of input (X4) are statistically significant while the rest (i.e. education

level, years of experience, access to credit, extension officers visits and house hold size were statically insignificant).

Flock size has a positive relationship with output. (10.25) and is statically significant at 5% level of probability. This implies that more broiler day old chicks are stocked other thing remaining constant (ceteris-paribus) output would increase. The table 5 further revealed negative relationship between output and cost of input, as expected. The implication of the negative sign on cost of input would cause a decrease in broiler poultry output. The coefficient of multiple determinants R^2 is 0.7062 which implies that 70.62% of variations in output of broiler poultry farmers were explained by the explanatory variables included in the model while the remaining 29.48% will be accounted by the error term or are residential error.

The f-statistics of the linear equation is highest with 205.32. It is highly significant and therefore remains the best model to use in determining the relationships that existed between the explanatory variables and broiler output in the area under study. Therefore the model for representing broiler production in Aguata is given the lead equations
Y = 187.34 + 24.13X1 + 10.25 X2 + 9.26 X3 + 56.33 X4 + 3.25 X5 + 2.76X6 + 0.86X7 + 0.16X8 + e.

Problems of Broiler Production in Aguata L.G.A.
The results showed that majority of the respondents have mostly the problem of inadequate power supply (30.34%). This is because day old chicks that die often require power supply to keep them warmth and health. This is followed with inadequate fund (15.56%), diseases and pest (14.07%), high cost of feeds (11.17%), and poor healthy chicks (8.88%), and other as shown in table 6.

Table 6: Problem of broiler production in Aguata L.G.A.			
Variable	Frequency	Percentage	Rank
a. Poor health chicks	12	8.88	5th
b. High cost of feeds	15	11.17	4th
c. High cost of labour	4	2.96	10th
d. Poor extension service	3	2.22	9th
e. Inadequate power supply	41	30.34	1st
f. Disease and pest	19	14.07	3rd
g. high transportation cost	0	0	11th
h. High cost of medication	9	6.67	6th
i. Inadequate water supply	0	0	11th
j. Unconducive wheater	16	4.7	7th
k. Low quality feed	5	3.7	8th
l. Inadequate fund	21	15.56	2nd
	135	100	
Source: Personal survey, 2014. N.B. = Multiple response was allowed.			

Conclusion and Recommendations

The result of the socio-economic characteristics of the respondents showed that majority of the respondents are married 40% and most of the respondents are male 78%. The result also showed that majority of respondents are above 46 years and that average family size for poultry farmer in Aguata LG.A is 6-7 persons. Majority 58% attended only primary school. 98% agree that extension visit is productive. The result also indicated that household labour is the dominate source of labour providing 52% of labour force while personnel saving is the dominant source of fund.

Broiler production was profitable in the study area as reflected in the gross margin N11,078,440, net farm income of N8,013, 715 and net return on investment of 0.74. The result of multiple regression analysis showed that three variable age, flock size and cost of inputs are statically significant in the lead equation (Linear equation) while other are not. Base on the finding, it can be concluded that broiler production is profitable in Aguata Local Government Area. Profitability can be improved if power supply, high cost of feed and lack of fund is solved.

Recommendation

To raise productivity further, it is necessary that

- There is need to organize soft loan facilities for poultry farmers either by Government or cooperative societies.
- The poultry feed should be subsidized for the farmers

- Contract between the poultry farmers and extension agents should be broaden by government to accelerate adoption of improved poultry management practices.

References

Adejinmi O. O. (2006). Small and Medium Scale Broiler Chicken Farming. Green Choice. *Agriculture publication LTD*, Ibadan.

Alibi R.A and Aruma, M.B (2005). Technical Efficiency of Family Poultry Production in Niger Delta, Nigeria. *Journal of Central European Agriculture,* 6(4): 531-538.

Apantaku S.O; Omotayo A.M and Oyesola, A.B (1998). Poultry Farmers Willingness to Participate in Nigeria Agricultural Insurance Scheme in Ogun State, Nigeria. In Oduguwa, O.O, Fanimo, A.O and Osinowo O.A (Eds). Proceeding of the silver anniversary. *Conference, Nigeria Society for Animal Production, Gateway hotel Abeokuta*, 21-26 March, 1998.

Effiong E.O and Onyenweaku C.E (2006) Profit Efficiency in Broiler Production in Akwa-Ibom State, Nigeria. *International Journal of Agriculture and Rural Development* (IJARD) 7, 71-81.

National Population Commission (2006). Statistical Office of Nigeria, Abuja.

Ojo, S.O. (2003). Productivity and Technical Efficiency of Poultry Egg Production in Nigeria. *International Journal of Poultry Science* 2: 459-464.

Oladeebo, J.O and Ambe-Lamid A.I (2007). Profitability, Input Elasticities and Economic Efficiency of Poultry Production among Youth Farmers in Osun States, Nigeria. *International Journal of Poultry Science*, 6 (12): 994-993.

Sussan E.G and Robin G.T (2002). Nutritive value of foods. US Department of Agriculture, Agricultural Research Services, Nutrient Laboratory, Beltsiville, Manyland.

United Nations Development Programme (UNDP) (2007). Fighting climate change; Human solidarity in a divided world. Human Development Report 2007/2008, UNDP, New York.

References to this paper should be made as follows: Uche Okeke (2015), Socio-Economic Analysis of Broiler Production in Aguata L.G.A. of Anambra State, Nigeria. Implication for Entrepreneurship Development in a Developing Economy. *J. of Agriculture and Veterinary Sciences,* Vol. 7, No. 2, Pp. 1 – 14.