Determinants of Poultry Production in the Bird Flu Scare Year in Imo State, Nigeria

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Abstract: The study examined the factors that affected poultry production in the avian flu year in Imo State, Nigeria. In line in fulfilling this objective, a well structured questionnaire complimented with interview schedules was administered to poultry farmers in 3 agricultural zones namely Okigwe, Owerri and Orlu on a 4 month period of monthly scheduled from March to June of year 2006. The result indicated a reduction in poultry production during the avian flu year. Experience, cost of production and educational status of the poultry farmers were significant factors that determined poultry production in the avian flu scare year. It is recommended therefore that increased education and extension services would help sustain poultry production in the study area.

Key words: Determinants, bird flu, scare year, poultry farmers, poultry production

INTRODUCTION

Although Nigeria is endowed with domestic animals with great potential to be self-reliant in livestock production (Awuja, 1998) the livestock farming has persistently resisted structured changes and the emergence of real commercial farmers has continued to elude the sector (Effiong, 2005). A scenario of this kind is no doubt threatened by the population growth that has not kept pace with agricultural production.

Animal production which contributes about 12% of the agricultural turn over in Nigeria (Obioha, 2002) must not be allowed to witness a sectoral incapacitation and suffocation in the face of the avian flu scare. There is therefore need to properly give all sub-sector in animal production the needed impetus to contribute to nation building.

To achieve this, it is pertinent to answer the following research question:

* What is the avian flu scare all about?
* Are the poultry farmers in the study area aware of the avian flu scare?
* What effect did the avian flu scare have on poultry production in the scare year under review?
* What effect can individuals and particularly the government learn for policy implementation and sustenance of the poultry sub-sector?

Theoretical framework: The Avian flu, which has been noted as the cause of massive poultry epidemic was first recorded in Italy in 1878. It has thereafter reared its ugly head in many countries particularly in the United States in 1924- 25 and again in 1925. It was not until 1955 that the virus causing this fowl plague was determined to be one of the influent viruses, noted to affect domestic animals (equine, swine, avian) and belonging to type A (Daprile, 1986).

Alexander (2004) has noted the international attention the Avian flu disease has captured over the years with serious epidemics affecting Japan, South Korea and area of south-east and a pandemic outbreak in the Netherlands, Belgium and Germany in 2003. In Nigeria, Jutzi (2006) reported the outbreak of the virus in Kaduna State of Northern Nigeria. This was conformed by FAO (2006) with emphasis that the outbreak of the deadly highly pathogenic influenza virus H5NI in Nigeria exposes the African countries to high risk of becoming infected by the virus. Although this reliable reports seem to have been politicized, the effect of the avian flu scare cannot be denied and the lessons imperative particularly to researchers, policy makers, scientists, the society and more particularly the poultry farmers themselves.

MATERIALS AND METHODS

Study area: The study was conducted in three Agricultural zones in Imo State which lies between Latitude $5° 10^1$ and $6° 35^1$ North of equation as well as between Longitude $6° 35^1$ and $7° 31^1$ East of the Greenwich Meridian. It is in the tropical rain forest zone with an annual rainfall ranging from 2.0-2.5cm per year and mean annual temperature of about 27°C; its net radiation varies from 60 kg cal cm to 65 kg cal per year whereas relative

humidity ranges from 70-80% (NAEIRS, 1994). Imo State has a population density of 449 males per square kilometer and 256 female per square kilometer. The population figure for Imo State is 2,555,092 (FOS, 1993). The economy of Imo State is agrarian comprising manyrural villages. Most of the farmers are engaged in mixed farming. They produce both food and cash crops but major ones are cassava, yam, maize, cocoyam, vegetables and oil palm.

Method of data collection: Data were collected on some socio-economic variables such as age of poultry farmers, farming experience, educational status of poultry farmers, income from other sources and on production costs covering day old chicks, feed, drugs/medication, depreciated assets etc.

Primary data was the main data source and questionnaire was the main data collection instrument complimented with interview schedules. Data were collected within a 4 month period spanning March-June, 2006 of monthly schedules. This is to capture the peak period of avian flu scare.

Analytical procedure: Descriptive statistics and ordinary least square regression model were used for data analysis.

Four functional forms namely linear, double log, semi-log and exponential were fitted to the model and the semi-log chosen as the lead equation based on the significant variables and other statistical considerations.

The implicit form of the model is specified below:

$$Y = f (X_1, X_2, X_3, X_4, X_5, e)$$

Where

Y   = Number of birds stocked
X_1 = Age of the poultry farmers in year
X_2 = Income of the poultry farmers from other sources
X_3 = Farming experience of the respondents
X_4 = Cost of production covering day old chicks, feed, drug/medication, depreciated assets and other operating costs
X_5 = Education status of the poultry farmers measured in numbers
e   = Error term

The explicit forms of the four functional forms are stated below:

- Linear function

$$Y = bo + b1\ X_1 + b2\ X_2 + b3\ X_3 + b4\ X_4 + b5\ X_5 + e$$

- Double-log function

$$In\ Y = bo + b1\ In\ X_1 + b2\ In\ X_2 + b3\ In\ X_3 + b4\ In\ X_4 + b5\ In\ X_5 + e$$

- Semi-log function

$$Y = bo + b1\ In\ X_1 + b2\ In\ X_2 + b3\ In\ X_3 + b4\ In\ X_4 + b5\ In\ X_5 + e$$

- Exponential function

$$In\ Y = bo + b1\ X_1 + b2\ X_2 + b3\ X_3 + b4\ X_4 + b5\ X_5 + e$$

RESULTS AND DISCUSSION

Socio-economic characteristics of the farmers: The socio-economic characteristics analyzed included gender distribution of the respondents, awareness of the bird flu incidence and other minor occupations of the farmers (Table 1).

Results show that all the poultry farmers were aware of the avian flu incidence in Nigeria. This presupposes that they were responsive to national issues that affect agriculture in a way. Data also reveal that about 67 % of the poultry farmers were males, implying that the poultry business in the area was in the hands of the male folk. Gender specific innovations would help improve the sub-sector in the study area by implication.

Although 50% of the poultry farmers noted poultry farming as their main source of livelihood, seventeen% indicated their involvement in petty trading business while twenty percent were civil servants. The implicationtherefore is that the poultry business is expected to be very viable in the study area if given the needed impetus.

Determinants of poultry production: The semi-log functional form was chosen as the lead equation based on

Table 1: Distribution of respondents by gender

Gender	Frequency	(%)
Female	20	33.3
Male	40	66.7
Total	60	100

Source: Field survey, 2006

Table 2: Regression result for poultry production in the bird flu scare year

Variables	Linear	Double-log	Semi-log	Exponential
Constant	-4.054	-3.348	3.874	-1793.147
	(-0.051)	(-3.726)***	(12.300)***	(-5.649)***
Age (X₁)	-0.059	0.171	0.004	1273.51
	(0.035)	(1.066)	(0.576)	(0.218)
Income (X₂)	0.025	0.615	0.005	147.284
	(0.000)	(7.765)***	(0.000)	(5.262)***
Experience (X₃)	19.231	0.147	0.054	28.142
	(2.859)***	(1.523)	(2.037)**	(0.825)
Cost of Production (X₄)	0.034	9.114	0.001	47.328
	(3.058)***	(1.068)	(2.914)***	(1.570)
Education (X₅)	5.624	0.087	0.057	-20.256
	(1.125)	(0.559)	(2.914)***	(-0.392)
R²	0.649	0.866	0.642	0.733
F-statistics	19.627***	67.477***	18.980***	32.310***

Source: Computer print out of regression statistics, Field Survey, 2006.
Note: *Significant at 10% level, **Significant at 5% level, ***Significant at 1% level, Values in parenthesis are t- ratios

number of significant variables and relative high coefficient of determination *inter alia*. Regression result for determinants of poultry production in the bird flu scare year is shown in Table 2. Cost of production and educational status of the poultry farmers were statistical significant at 1% level while experience in poultry farming was significant at 5% level. The estimated coefficient of education was positive as expected, implying that the more educated the farmers the more effective their production capabilities. Poultry farmers who were educated thereafter handled the bird flu scare in such a way that they were not entirely out of production like their uneducated counterparts. This confirms work by Onyebinama (2004) that the ability of the farm manager to cope with the intricacies of product and factor markets and the bureaucratic practices of farm firm will increase as the level of education increase. Olayide *et al.* (1981) had also noted education as a very strong variable that can influence poultry production positively.

Cost of production was also significant a 1% level and positive in sign as expected by economic theory. This means that the higher the investment on poultry production the higher the output *ceteris paribus*.

However, indications were, that some of the poultry farmers continued to invest on poultry production if not for market but for subsistence purposes in spite of the bird flu scare.

Experience in poultry farming was significant and thus affected production. The strong significance of experience indicates that poultry farmers who were much older in the business handle risks and uncertainties better than the new entrants or relatively younger farmers.

CONCLUSION

Education, cost of production and experience of poultry farmers were found to be significant factors that determined production in the bird flu scare year and majority of the poultry producers were males. Given that bird flu scare affected poultry production, it is recommended that educational enlightenment programme by government, non-governmental and corporate organization and rapid assessment programme probably through ADP's be encouraged for improvement of the poultry sub-sector and particularly in the event of any production risk that is either endemic or epidemic.

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