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DETERMINANTS OF THE PERFORMANCE OF WOMEN IN MODERN POULTRY AND PIGGERY MANAGEMENT SYSTEMS IN ABIA STATE, NIGERIA

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ABSTRACT

The study analyzed the determinants of the performance of women in modern poultry and piggery management systems in Abia State, Nigeria. Primary data were used for the study. The data were collected via the administration of a well-structured questionnaire. Multi stage random sampling method was employed to select a total of 90 farmers comprising 45 women from modern poultry management system and modern piggery management system respectively. Data obtained for the study were analyzed using multiple regression analysis technique. The findings showed that women engaged in modern piggery management earned more revenue but less profit than the women in modern poultry management. Marital status, level of education, household size, years of experience of the managers, amount invested, breeding stock and household income significantly influenced the performance of women in modern poultry management system whereas marital status, amount invested, breeding stock, household income, age, cost of farm inputs and household expenditure significantly influenced the performance of women in modern piggery management system. The study recommended that serious considerations should be given to those factors that affected the performance of women in modern poultry and piggery management in Abia state.

Key words: *Performance, women, modern, poultry, piggery.*

INTRODUCTION

In Nigeria, poultry and piggery management by women has become an important factor considering the critical need for animal protein consumption of the nation (Adetunji *et al*., 2012). Poultry and pork meat are among the prime animal protein consumed in most part of Nigeria (Ajala *et al*., 2002). However, studies on pig and poultry industries seem to reveal that the initial enthusiasm in these enterprises especially poultry production, is being constrained due largely to dwindling profit margins (Onwumere *et al.*, 2012). According to Adesehinwa and Ogunmodede (1995) dwindling profit in both pig and poultry enterprise have been reported to be a function of poor quality feeds and high feed cost etc. resulting from unbalanced ration. Despite varying pitfalls poultry and piggery enterprise is expanding in Abia State.

The survival and continuous growth of these enterprises are the function of its production and earning capabilities (Onwumere, 2008). The widely acclaimed fact that massive attention and support given to the development of small scale enterprise is because of their potential as major sources of employment with great capacity to generate earnings. This has become a prerogative for encouraging individuals to go into poultry and piggery production. According to Oi and Idson (1999), the earnings from these enterprises can sustain economic development in most developing economies like Nigeria.

Women participation in piggery and poultry enterprise management have been recognized as a necessity for rapid expansion of the enterprises given to their contribution to state and national development in terms of employment creation and income generation (Ugbajah 2011). It has become necessary to single out women performances from among other entrepreneurs because most agribusinesses were being managed by women despite poor incentives received unlike their men counterpart (Yemisi *et al*., 2009). Women investors seem earlier relegated to the background in agribusiness expansion activities in favour of their men counterparts. This may be due to the possession of production resources by men through

inheritance in which most cultural especially the Igbo culture commonly in practice in Abia state disallows female from possession of production resources through inheritance when the men are available. Policy makers and administrators assume in the face of empirical data that men are the actual entrepreneurs and that women only play a supportive role (Ajibefun *et al.*, 2004). However, the continual changes in men's social roles and responsibilities call for documentation and appraisal of gender performances in most enterprises.

In Abia State like in many other places, many factors affect the performance of women in poultry and piggery management systems. These factors range from socioeconomic characteristics of the farmers to other factors as stock size, labour, amount of capital invested in poultry or piggery production, breeding stock, household income, household expenditure, risk of management etc. These factors influence the performance of women and where the influence is negative it result to low performance of women in poultry and piggery management. This will create gap in the demand and supply of chicken and pork in the State. The increasing demand for pork and chicken in Abia State with limited supply has remained an issue of concern for economic growth of State. Therefore, there is a persuasive need to substantially increase the production of poultry animals and pigs to meet the growing demand in State with more emphasizes on women poultry and piggery management systems. This study therefore investigated the determinants of the performance of women in modern poultry and piggery management system in Abia State. Specifically, the study analysed and compared the performance of women involved in poultry and piggery management; it also analyzed the factors that influence the performance of women in modern poultry and piggery management.

The following null hypotheses were tested in the study:

HO_1: There is no significant difference between the performances of women involved in modern piggery and poultry management.

HO_2: The performance of women in either poultry or piggery enterprises is positively related to marital status, level of education, household size, experience of the manager stock size, number of hired labour, amount invested, breeding stock, household income and amount of credit received, and negatively related to age, cost of farm input, household expenditure, location of the enterprise and risk of management index.

METHODOLOGY

The study was carried out in Abia State, Nigeria. The State was created out of the former Imo State on August 27, 1991. Abia State has a landmass of 700km2 with seventeen Local Government Areas. Abia State has three Agricultural zones namely Aba, Ohafia and Umuahia. The state lies between longitudes 7^{o} 23^{1} and 8^{0} 02^{1} East of Greenwich meridian and latitudes 5^{o} 49^{1} and 6^{o} 12^{1} North of the equator. Abia State is bounded on the East by the Cross River and AkwaIbom Sates, on the North by Ebonyi and Enugu States, on the West by Imo State and on the South by Rivers State. The State has a population of 2,833,999 million people, according to National Population Commission, estimate of 2006. Major occupation of the people is farming. The major food crops grown in the state are cassava, yam, melon, vegetable, three-leaf yam and cowpea. Some important cash crops grown in the state include oil palm and cocoa, while animals reared are goats, sheep, pigs and poultry.

Multi stage sampling technique was employed for the study. The first stage was selecting the three Agricultural zones which included the seventeen Local Government Areas (L.G. As). Each of the agricultural zones has an average of six local government areas. Second phase was the selection of two Local Government Areas from each agricultural zone, then the selection of three communities from each LGA. Also, three villages were selected from each of the communities while five poultry and piggery managers respectively were randomly selected from each village making it ninety (90) respondents. Data for this study were obtained from primary source. The primary data were obtained through administration of a well-structured questionnaire. The questionnaire was used to elicit information on selected socio-economic variables of the respondents. Data obtained for the study were analyzed

using z-test and Ordinary Least Square model involving multiple regression analysis technique.

The Z-test was used to test for the significant difference between the revenue as well as

$$Z_{cal} = \frac{\bar{X}_i - \bar{X}_j}{\sqrt{\frac{S^2\bar{X}_i}{n_i} + \frac{S^2\bar{X}_j}{n_j}}} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where
$\bar{X}_i$= mean value of output (N) of women involved in modern poultry management.
$\bar{X}_j$= mean value of output (N) of women involved in modern piggery management.
$S^2\bar{X}_i$ = variance of value of output of women involved in modern poultry management.
$S^2\bar{X}_j$ = variance of value of output of women involved in modern piggery management.
n_i= number of poultry women farmers sampled
n_j= number of piggery women farmers sampled

The multiple regression analysis models that were used in actualizing the factors influencing the performance of women in modern poultry and piggery management system.

$Y = f(X_1, X_2, X_3 \ldots X_{14}, e)$ ……...…….. (2)

Where
Y = Value of output of women involved in either modern poultry or piggery management (₦)
X_1 = Marital status (married = 1; single = 0)
X_2 = Level of education (years)
X_3= Household size (number of persons living in a household)
X_4= Experience of managers (years).
X_5= Stock size (kg).
X_6= Number of hired labour (counts)
X_7= Amount invested (₦)
X_8= Breeding stock

Model Specification

profitability of poultry and pig management systems respectively.

X_9= Household income and amount of credit received (₦)
X_{10}= Age of the respondents (years)
X_{11}= Cost of farm inputs (₦)
X_{12}= General Household expenditure (₦)
X_{13} = Location of the enterprise (urban=1, rural=0)
X_{14}= Risk of management index (an index of choice of management practice over range of management practice scored for the study

The risk of management element includes:
- risk arising from diseases, weather condition, poor feeding and management routine, lack of training, absence of extension agent.

Four functional forms analysis involving linear, exponential, semi-log and double log were tried in order to select the lead equation. The choice of the lead equation was based on the magnitude of coefficient of multiple determination (R^2); the number of significant variables in each functional forms, the sign on each significant variable that conforms the theoretical a priori expectation, and the level of significant variable and their F-values

RESULTS AND DISCUSSION

Comparison of the performance of women in modern poultry and piggery enterprises

The result of the z–test used to compare the significant difference between the cost of women into poultry and piggery management systems in the study area is presented in Table 1 below.

Table 1: Test of significant of the difference between the cost as well as profitability of women into poultry and piggery management systems

Samples	Mean Revenue (N)	Std. Deviation	Std. Error Mean	DF	Z – value
Cost					
Piggery management	2096100	1936438	249993		
Poultry management	767105	612212	79036.2		
Difference (a-b)	1328995	1324226	170957	89	7.774***
Profit					
Piggery management	98,967.00	60445.75	11035.85		
Poultry management	136,593.33	77509.31	14151.20		
Difference (a-b)	37626.67	94123.77	17184.57	89	2.190**

Source: Computed by the author from field survey data, 2016.
*** and ** represent 1% and 5% significance level (a-b) represent parried sample difference

From Table 1, women into modern piggery management had mean cost of ₦2, 096,100.00 whereas women into modern poultry management had mean cost of ₦767, 105.00. There was a significant different (z-value = 7.774 at 1% level of significance) in the mean cost between women into modern piggery management and those in modern poultry management. This indicated that women into modern piggery management had more cost than the women in modern poultry management. The investment of higher capital and high selling price, may give justification for the higher amount of expenditure by women into modern piggery management than women into modern poultry management. This result compared favourably with the finding of Mohamed *et al*. (2013) who opined that higher investment of capital and selling of products at higher price increased the income of enterprise operators than enterprise operators with lower investment capital and low selling price for their product.

Table 1 also shows that women into modern piggery management had mean profit of ₦98,967.00 whereas women into modern poultry management had mean profit of ₦136,593.33. There was a significant different (z-value = 2.190 at 5% level of significance) in the mean profit between women into modern piggery management and women into modern poultry management. This indicated that women into modern piggery management make lesser profit than the women in modern poultry management. Frequency of sales turnover and high lower total cost of production, may give justification for the higher profitability earned by women into modern poultry management than women into modern piggery management.

Factors Influencing the Performance of Women in Modern Poultry and Piggery Management

The result of the multiple regression analysis of the factors affecting performance of women in modern poultry and pig management presented in Table 2.

Table 2: Regression analysis result on affecting performance of women in modern poultry management
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Variables	Linear+	Exponential	Double-log	Semi-log
Constant	32.150	0.055	-1.389	-14007.8
	(4.164)***	(1.210)	(-0.639)	(-2.697)**
Marital status	1.014	0.000	0.145	650.419
	(2.477)**	(-0.915)	(1.104)	(1.901)*
Level of education	0.182	0.013	0.005	-505.308
	(1.588)*	(1.940)*	(0.019)	(-0.824)
Household size	47.500	0.024	0.707	1340.103
	(1.761)*	(0.476)	(2.453)**	(1.957)*
Experience of managers	24.824	-0.024	0.034	-571.882
	(2.937)***	(-1.595)	(0.163)	(-1.093)
Stock size	2.554	-0.089	-0.144	-588.189
	(1.586)	(-0.539)	(-1.002)	(-1.589)
Number of hired labour	514.710	0.009	-0.088	-385.409
	(1.469)	(-0.679)	(-0.518)	(-0.996)
Amount invested	3.480E-05	0.003	-0.011	-503.036
	(3.234)***	(3.068)***	(-0.044)	(-0.821)
Breeding stock	1.458	6.484	0.625	1826.128
	(2.601)**	(11.694)***	(2.582)**	(3.369)***
Household income	0.742	0.005	6.346	794.549
	(4.832)***	(4.226)***	(4.415)***	(5.109)***
Age	0.025	0.000	0.105	157.653
	(0.384)	(0.448)	(2.248)**	(0.579)
Cost of farm inputs	-10.660	-0.004	0.123	-508.920
	(-1.095)	(-0.927)	(1.483)	(-1.262)
Household expenditure	39.894	0.008	3.210	159.689
	(0.524)	(2.320)**	(2.485)**	(0.549)
Location of the enterprise	8.130	0.003	0.196	-48.163
	(0.353)	(0.232)	(1.105)	(-0.234)
Risk of management index	118.706	0.162	2.774	12.376
	(0.498)	(1.466)	(0.755)	(0.055)
R^2	0.768	0.669	0.665	0.528
Adj.R^2	0.732	0.563	0.558	0.406
F-statistic	21.491***	6.313***	6.206***	4.332***

Source: Computed by the researcher from field survey data 2016

*** Significant at 1%, ****** significant at 5%, * significant at 10%. + indicates lead equation. The figures in parenthesis are the t-ratios. + = Lead equation.

The linear model was chosen as the lead equation based on the significance of the F- ratio, the number of significant variables, the signs on the variables and the explanatory power of the model. The model gave an f-ratio that was significant at 1 percent. The variation in the performance of women in modern Marital status, level of education, household size, years of experience of the managers, amount invested, breeding stock and household income were the significant variables that influenced the performance of women in modern poultry management system.

poultry management seen in Table 2 is accounted for by the independent variables (marital status, level of education, household size, experience of managers, amount invested and breeding stock) by about 76.8% while the remaining 23.2% could be linked to other factors not included in the equation.

The regression coefficient of marital status, level of education and breeding stock was positively related to performance of women in modern poultry management at 5% level. This implies that the higher the level of education, being married and use of exotic breeding stock, the higher the performance of

women in modern poultry management. Married women have comparative advantage over single farmers as their spouses will probably be engaged with the tedious aspects of the poultry activities of which single females may find it difficult and energy exerting to perform. Similarly, higher level of education will position the female poultry farmers better to adopt better and efficient poultry management technologies that will enhance the performance of the poultry farm. Use of prolific breed of birds is an advantage to the female farmer as she will be able to recover her cost of production as presented with high outputs of marketable poultry birds.

The regression coefficient of household size, experience of managers, amount invested, and household income and amount of credit received were positively related to the performance of women in modern poultry management at 1% levels each. This implies that the higher household size, experience of managers, amount invested, and household income, the is the performance of women in modern poultry management.

The result of the multiple regression analysis of the effect of factors on the performance of women in modern piggery management is presented in Table 3, the double-log model was chosen as the lead equation based on the significance of the F-ratio, the number of significant variables, the signs on the variables and the explanatory power of the model. The model gave an f-ratio that was significant at 1 percent. The variation in the performance of women in modern piggery management as seen in Table 3 is accounted for by the significant independent variables - marital status, amount invested, breeding stock, household income, age, cost of farm inputs and household expenditure) by about 88.7% while the remaining 11.3% could be linked to other factors not included in the equation. Marital status, amount invested, breeding stock, household income, age, cost of farm inputs and household expenditure were significant that influenced the performance of women in modern piggery management system.

The regression coefficient of marital status, amount invested, breeding stock, household income and amount of credit received were positively related to monthly expenditure on egg at 5%, 10%, 5% and 1% levels respectively. This implies that being marital has an advantage for a higher amount of investment to be made at 5% significant level, more so, the higher the use of improved breeding stock, the higher the household income significant at 10% level. The higher the household income and credit received the higher the performance of women in modern piggery management. Also, the regression coefficient of age, cost of farm inputs, and household expenditure were negatively related to performance of women in modern piggery management at 1% levels respectively. This implies that the higher the age of the female farmers, cost of farm inputs and household expenditure, the lower the performance of women in modern piggery management.

Table 3: Regression analysis result of factors that influences the performance of women in modern pig management

Variables	Linear	Exponential	Double-log+	Semi-log
Constant	-499.678	-3.609	0.554	239.520
	(-1.156)	(-22.035)**	(2.568)**	(1.726)*
Marital status	0.632	-2.21E-02	0.621	-185.682
	(2.471)**	(-1.516)	(2.177)**	(-1.197)
Level of education	-0.062	-5.15E-08	0.138	154.002
	(-1.918)*	(-2.334)**	(0.318)	(0.588)
Household size	1.188	7.28E-07	-0.237	-0.965
	(0.208)	(2.477)**	(-0.731)	(-0.005)
Experience of managers	45.438	1.707	-0.114	132.754
	(0.950)	(2.211) **	(-0.410)	(0.942)
Stock size	12.209	4.77E-02	0.425	78.542
	(0.862)	(1.397)	(1.643)	(0.524)
Number of hired labour	22.801	8.95E-09	-0.094	-192.336
	(0.155)	(0.477)	(-0.232)	(-0.834)
Amount invested	-0.142	-6.23E-07	0.801	455.428
	(-0.557)	(-2.731)***	(2.050)*	(2.199)**
Breeding stock	-1.678	-3.11	0.765	23.520
	(-1.156)	(-2.035)**	(2.568)**	(1.726)*
Household income	0.475	0.0002	1.554	424.073
	(3.028)***	(3.281)***	(6.910)***	(1.557)
Age	-0.092	-8.76E-06	-1.122	-334.356
	(-1.065)	(-0.236)	(-4.291)***	(-0.754)
Cost of farm inputs	-11.035	0.0012	-1.339	-1313.332
	(-0.691)	(0.176)	(-8.552) ***	(-1.669)
Household expenditure	176.797	0.068	-0.150	246.277
	(1.594)	(1.230)	(-3.240) ***	(0.487)
Location of the enterprise	42.824	0.026	0.227	475.567
	(4.247)***	(1.346)	(0.996)	(2.294)**
Risk of management index	-406.068	0.025	0.133	-356.186
	(-1.166)	(0.136)	(1.648)	(-0.909)
R^2	0.726	0.726	0.887	0.651
Adj.R^2	0.655	0.627	0.876	0.561
F-statistic	42.234***	40.305***	53.213***	24.271***

Source: Computed by the researcher from field survey data 2016
*** Significant at 1%, ****** significant at 5%, * significant at 10%. + indicates lead equation. The figures in parenthesis are the t-ratios. + = Lead equation.

CONCLUSION AND RECOMMENDATION

The study on the determinants of the performance of women in modern poultry and piggery management practices in Abia State showed that women in modern piggery management earned more revenue than the women in modern poultry management while women in modern piggery management make lesser profit than the women in modern poultry management. Marital status, level of education, household size, years of experience of the managers, amount invested, breeding stock and household income significantly influenced the performance of women in modern poultry management system whereas marital status, amount invested, breeding stock, household income, age, cost of farm inputs and household expenditure significantly influenced the performance of women in modern piggery management system.

Based on the findings and conclusion of the study, the following recommendations are proffered:

1. Government intervention programme should be introduced in order to encourage more women to participate in both pig and poultry farms
2. There should also be policy measures that will ensure increase in the purchasing power of people's income especially those in the rural area which will invariably contribute positively to the improvement of farm size and business operations of the people.

3. Government should also formulate policies that help to stabilize poultry and pig prices so as to enhance household's revenue and reduce the high cost of production which is predominant in their farms
4. There is need for the government to make policies and give capital interventions that will encourage more people of the state to go into commercialized poultry and pig production so as to reduce the high own price effect for chicken that makes it a luxury rather than a normal good in the state.
5. Policies such as Urban Agriculture Policy, Empowerment Policy, Land Reform Policy, Employment Generation in Agriculture etc. which help to alleviate poverty among households by increasing their income and improving their working conditions in this study area should be formulated so as to enhance their purchasing power and enable them demand for these commodities effectively.
6. The farmers are strongly recommended to always use higher breed for better profit and performance.

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