

# Elements of Opportunity and Poultry Farms Performance in Delta State, Nigeria

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## Abstract

The paper examines the existence, if any, of differences in gross margin between rural and urban areas in Delta State, Nigeria. Data were collected from all 275 poultry farmers registered with the Delta State Ministry of Agriculture, Livestock Department. The null hypotheses was that there is no significant difference in poultry farm gross margin between locations in terms rural and urban areas; managers with formal education in agriculture and managers who have no formal education in agriculture; and managers who have and who do not have prior experience in poultry business. Data were collected from all 275 poultry farmers registered with the State Ministry Agriculture using copies of a structured questionnaire and were analyzed using frequency counts, means and T-test. Amongst the findings were: Majority of poultry business operators have low level formal education in disciplines not related to agriculture; there was a significant difference in the mean number of years of schooling and courses studied between rural and urban areas but that there was no significant difference in number of years of prior experience. The T-test results failed to reject the three null hypotheses. The study concluded that indeed elements of opportunity may vary from place to place but the ability to exploit the benefits may moderate or accentuate performance. Entrepreneurial capacity building was recommended for poultry business operators' state wide.

**Keywords:** elements of opportunity, entrepreneur, gross margin, rural, urban

## 1. Introduction

A type of dual economy, one rural and the other urban, results when social and economic infrastructures are unevenly distributed across a nation. This phenomenon presents part challenges of competitive demand for land particularly in urban centers when large expanse of land are either underutilized or lying waste in rural areas. Increasing concentration of agricultural ventures, of which poultry business is one, contributes to these challenges.

Entrepreneurial activity results when elements of opportunity and motivation converge. However, given motivation, Shane et al. (2003), opine that entrepreneurship depends on differential access to information about economic opportunities and to the resources needed to launch a new venture. Baum et al. (2001), in a slightly different but more definitive terms reported that motivation and factors related to the organization affect the performance of the venture. By this, differences between or among organizations in motivation and organizational factors will lead to variation in performance among organizations. Jackson and Okhomina (2006) found that the level of education of the individual entrepreneur and his/her prior experience in a related business, influence business outcome. Low, Hendersen, and Weiler, (2005) added that proximity to densely populated area, infrastructure (roads and telecommunication networks and access to financial capital) also affect business success.

There is therefore *prima facie* justification for the concentration of economic activities in the cities or urban areas in Nigeria, like in many developing countries, where there is marked disparity in social and economic infrastructure distribution between rural and urban areas. There is however need to ascertain the veracity of the submission by Low, Hendersen, and Weiler, (2005) in different economic environment. Results from such study could provide inputs for a policy that would provide part solution to the imbalances in the availability of social and economic amenities.

The overall objective of this study is to assess the veracity of the claims made in the literature that organizations specific factors and proximity to population, social and economic infrastructure affect business performance. The specific objectives are to:

- a) ascertain the existence, if any, of difference in gross margin between poultry farms in urban and rural areas,
- b) ascertain the existence, if any, of difference in the gross margin of poultry farms with managers who have formal qualification in agriculture or related disciplines and poultry farms with managers without formal education or qualification in agriculture or related discipline; and
- c) ascertain any significant difference in gross margin between poultry farms with managers who have and poultry farms with managers who do not have prior experience in poultry farm management.

The hypotheses tested were:

*H<sub>01</sub>: There is no significant difference in poultry farm gross margin between poultry farms in urban areas and poultry farms in rural areas.*

*H<sub>11</sub>: There is significant difference in poultry farm gross margin between poultry farms in urban areas and poultry farms in rural areas.*

The performance of business organizations in agriculture is commonly measured in terms of gross margin. Gross margin is the excess of revenue over the variable costs incurred to generate it. Sustained and growing gross margin ensures business survival in the short run and possible expansion and diversification in the long run. The urban area contrasts the rural area in terms of high population, availability of market and favored in terms of the presence of social and economic infrastructure. If significant difference in business performance can be traced to these factors, valuable input would have been made for policy initiative that could redress part causes of urbanization.

*H<sub>02</sub>: There is no significant difference in poultry farm gross margin between poultry farms with manager who have formal qualification in agriculture or related disciplines and poultry farms with managers who do not have formal education or qualification in agriculture or related disciplines.*

*H<sub>12</sub>: There is significant difference in poultry farm gross margin between poultry farms with manager who have formal qualification in agriculture or related disciplines and poultry farms with managers who do not have formal education or qualification in agriculture or related disciplines.*

*H<sub>03</sub>: There is no significant difference in poultry farm gross margin between poultry farms with managers who have and poultry farms with managers who do not have prior experience in poultry farm management*

*H<sub>13</sub>: There is significant difference in poultry farm gross margin between poultry farms with managers who have and poultry farms with managers who do not have prior experience in poultry farm management.*

Hypotheses ii and iii have to do with the organization specific factors. The rationale for them is predicated on the rural urban migration syndrome in Nigeria which has virtually deprived the rural areas of needed educated and skilled manpower to drive economic activities in those areas. Empirical evidence regarding the claims in the literature of the positive effects of organization specific factors on business performance, which is the focus of these two hypotheses, will be useful in formulating policy initiatives that could redress the imbalance that results in rural-urban drift of human capital.

## **2. Materials and Methods**

### *2.1 Area of Study*

The study area is Delta State of Nigeria. Delta State lies between longitude 5<sup>0</sup> and 6<sup>0</sup> 45<sup>1</sup> East and latitude 5<sup>0</sup> 20<sup>1</sup> and 6<sup>0</sup> 30<sup>1</sup> North of the Equator. The study covered the three agricultural zones in the State, namely; Delta North, Delta Central and Delta South agricultural zones. The projected population of the State for 2015 is 4.9million.

### *2.2 Population and Sampling Procedure*

About 100% of households in Delta State are involved in one form of poultry keeping or another (Adene & Oguntade, 2006). A total of 275 poultry (chicken) farmers were registered with the Ministry of Agriculture, Delta State, Asaba, as per records of the Livestock Department, as at February 2010. The total registered poultry farms were covered in the study.

### *2.3 Data Collection Procedures*

Information on location of poultry farms was gathered from the records at Ministry. Data were collected using copies of a structured questionnaire. Staff of the Ministry, in Poultry extension Unit under the Livestock department, assisted in administering the questionnaire after a one day orientation. Staffs were assigned to cover their respective zonal office areas.

## 2.4 Data Analysis

Data were grouped by location into rural and urban farms and analyzed by the use of frequency counts and means. Gross margin of poultry farms was determined by using the formula  $GM = TR - TVC$ . Where GM is gross margin, TR is total revenue and TVC is total variable costs. The three hypotheses were tested by applying t-test of difference between mean gross margins.

## 3. Results

### 3.1 Socio-Economic Characteristics of Poultry Farmers

The 275 poultry farmers was made up of 153 (55.60%) in the rural areas and 122 (44.40%) in urban areas. Their ages ranged from 18 to 68 years with a mean of 43.91 years. The mean age varied between locations but not significantly so ( $t = 0.92$ ,  $df = 273$ ,  $P = 0.33$ ). It was 43.28 years with a standard deviation of 10.84 years for farmers in rural areas and 44.51 years with a standard deviation of 7.83 years for farmers in urban areas. The modal age bracket of respondents was 38 – 47 years state wide but higher for the urban areas where it was 48 - 57 years.

Female (58.18%) predominate the subsector (Table 1). Concerning marital status, about 77.50% of the respondents were married, 20% had never married and 2.50% were single again. Poultry production is apparently not popular with especially the single again in Delta State, Nigeria.

Table 1. Demographic characteristics of Poultry farmers by location

| Group          | Location            |                     | Total             |
|----------------|---------------------|---------------------|-------------------|
|                | Rural               | Urban               |                   |
| Age            |                     |                     |                   |
| Group (yrs)    |                     |                     |                   |
| 18-27          | 6 (2.20%)           | 14 (5.10%)          | 20 (7.30%)        |
| 28-37          | 15 (5.50%)          | 22 (8.00%)          | 37 (13.50%)       |
| 38-47          | 76 (27.60%)         | 33 (12.00%)         | 109 (39.60%)      |
| 48-57          | 48 (17.50%)         | 46(16.70%)          | 94 (34.20%)       |
| 58-67          | 6 (2.20%)           | 7(2.50%)            | 13(4.70%)         |
| 68-77          | 2 (0.7%)            | 0 (0.00%)           | 2 (0.70%)         |
| <b>Total</b>   | <b>153 (55.60%)</b> | <b>122 (44.40%)</b> | <b>275 (100%)</b> |
| Gender         |                     |                     |                   |
| Female         | 93 (33.80%)         | 67 (24.40%)         | 160 (58.20%)      |
| Male           | 60 (21.80%)         | 55 (20.00%)         | 115 (41.80%)      |
| <b>Total</b>   | <b>153 (55.60%)</b> | <b>122 (44.40%)</b> | <b>275 (100%)</b> |
| Marital status |                     |                     |                   |
| Single         | 28 (10.20%)         | 27 (9.80%)          | 55 (20.00%)       |
| Married        | 120 (43.60%)        | 93 (33.80%)         | 213 (77.50%)      |
| Single again   | 5 (1.80%)           | 2 (0.7%)            | 7(2.50%)          |
| <b>Total</b>   | <b>153 (55.60%)</b> | <b>122 (44.40%)</b> | <b>275 (100%)</b> |

Source: Field survey 2010.

### 3.2 Human Capital Characteristics

On educational status, (Table 2), about 4.40% of the respondents had no formal education another 4.40% had primary school leaving certificate and 21.10% had Senior secondary school certificate (SSC) or its equivalent. National Diploma (ND)/Nigerian Certificate of Education (NCE) are the prevalent qualifications in the subsector. These are low education, low agriculture content qualifications. University degree holders constitute about 28% of the respondents. There was significant difference in mean number of years of schooling ( $t = 2.63$ ,  $df = 273$ ,  $P = 0.01$ ) between the urban area (14.79 years) and the rural areas (13.54 years).

A high percentage of the respondents (90.54%) had prior experience in poultry management. This figure is near evenly distributed between the rural (48.72%) and urban (41.82%) areas. There was no significant difference in the mean number of years of prior experience ( $t = 0.52$ ,  $df = 247$ ,  $P = 0.61$ ). Apparently, apprenticeship is an important approach to human capital development for poultry production in the state.

Respondents who have formal educational qualification in agriculture were 13.50% while 11.30% studied agriculture related courses. The urban area was less favored in respondents who studied agriculture or related courses. Majority (57.10%) had their training in management, medicine and more importantly others which had nothing to do with agriculture. The importance of formal education to successful entrepreneurship is expressed profusely in the literature.

Table 2. Human capital characteristics of Poultry farmers

|                                 | Group                   | Location            |                     | Total             |
|---------------------------------|-------------------------|---------------------|---------------------|-------------------|
|                                 |                         | Rural               | Urban               |                   |
| Education                       | No formal               | 9 (3.30%)           | 3 (1.10%)           | 12 (4.40%)        |
|                                 | Primary                 | 6 (2.20%)           | 6 (2.20%)           | 12 (4.40%)        |
|                                 | Secondary               | 36 (13.10%)         | 22 (8.00%)          | 58 (21.10%)       |
|                                 | ND/NCE                  | 69 (25.10%)         | 47 (17.10%)         | 116 (42.20%)      |
|                                 | First degree/equivalent | 27 (9.80%)          | 39 (14.20%)         | 66 (24.00%)       |
|                                 | Higher degree           | 6 (2.20%)           | 5 (1.80%)           | 11 (4.00%)        |
|                                 | <b>Total</b>            | <b>153 (55.60%)</b> | <b>122 (44.40%)</b> | <b>275 (100%)</b> |
| Prior Experience                | No                      | 101 (36.70%)        | 79 (28.70%)         | 180 (65.50%)      |
|                                 | Yes                     | 52 (18.90%)         | 43 (15.60%)         | 95 (34.50%)       |
|                                 | <b>Total</b>            | <b>153 (55.60%)</b> | <b>122 (44.40%)</b> | <b>275 (100%)</b> |
| Operated business before age 20 | Yes                     | 54 (38.20%)         | 51 (18.60%)         | 105 (38.20%)      |
|                                 | No                      | 99 (36.00%)         | 71 (25.80%)         | 170 (61.80%)      |
|                                 | <b>Total</b>            | <b>153 (55.60%)</b> | <b>122 (44.40%)</b> | <b>275 (100%)</b> |
| Area of study                   | Agriculture             | 26 (9.50%)          | 11 (4.00%)          | 37 (13.50%)       |
|                                 | Agriculture related     | 22 (8.00%)          | 9 (3.30%)           | 31 (11.30%)       |
|                                 | Management              | 23 (8.40%)          | 17 (6.20%)          | 40 (14.50%)       |
|                                 | Medicine                | 4 (1.50%)           | 6 (2.20%)           | 10 (3.60%)        |
|                                 | Others                  | 78 (28.40%)         | 79 (28.70%)         | 157 (57.10%)      |
|                                 | <b>Total</b>            | <b>153 (55.60%)</b> | <b>122 (44.40%)</b> | <b>275 (100%)</b> |

Source: Field survey 2010.

### 3.3 Economic Characteristics of Poultry Farmers

The flock sizes ranged from 50 to 10,000 birds with a mean of 1470 birds. About 81.10% of the respondents had between 50 and 2049 birds (Table 3) and 14.20% had birds numbering from 2049 to 4049. Only 1.50% (4) of the respondents had birds numbering 8050 or above, most of which were in the urban areas. Out of the 275 poultry farmers, about 55.60% (153) were in the rural area and 46.40% (122) were in the urban area. There was however no significant difference in the mean number of birds between the two locations ( $t = 0.53$ ,  $df = 273$ ,  $P = 0.60$ ).

Table 3. Distribution of birds by location

|              | Group        | Location            |                     | Total             |
|--------------|--------------|---------------------|---------------------|-------------------|
|              |              | Rural               | Urban               |                   |
| No. of birds | 50 - 2049    | 120 (43.60%)        | 103 (37.50%)        | 223 (81.10%)      |
|              | 2059 - 4049  | 26 (9.50%)          | 13 (4.70%)          | 39 (14.20%)       |
|              | 4059 - 6049  | 6 (2.20%)           | 3 (1.10%)           | 9 (3.30%)         |
|              | 6050 - 8049  |                     |                     |                   |
|              | 8050 - 10049 | 1 (0.40%)           | 3 (1.10%)           | 4 (1.50%)         |
|              | <b>Total</b> | <b>153 (55.60%)</b> | <b>122 (44.40%)</b> | <b>275 (100%)</b> |

Source: Field survey 2010.

### 3.4 Relationship between Poultry Farm Performance and Farm Location

To realize objective one, the hypothesis:

$H_{01}$ : There is no significant difference in poultry farm performance between poultry farms in the rural areas and poultry farms in the urban areas was tested using t-test of equality of mean gross margin between rural and urban areas.

The result (Table 4) shows that there was no significant difference (t-statistic = 0.681, P = 0.50) in mean gross margins between the two locations. We therefore accept the null hypothesis and reject the alternative that there is significant difference in farm performance between poultry farms in the urban areas and poultry farms in the rural areas. That mean gross margin per farm was higher in the urban areas by ₦214,785.00 was however indicated.

Table 4. T-test for equality of mean gross margin between urban and rural areas

|       | N   | Mean    | df  | Mean difference | t-ratio | Sig. (2-tailed) |
|-------|-----|---------|-----|-----------------|---------|-----------------|
| Rural | 153 | 1222100 | 273 | -214785         | -0.68   | 0.50            |
| Urban | 122 | 1436900 |     |                 |         |                 |

Source: Field survey data analysis result, 2010.

### 3.5 Relationship between Farm Performance and Organization Factors (Human Capital)

Two elements of human capital, relevance of education (area of study) and prior experience in poultry production management were used to realize objectives two and three in that order. On the relevance of education, the hypothesis states:

$H_{02}$ : There is no significant difference in poultry farm gross margin between poultry farms with manager who have formal qualification in agriculture or related discipline and managers who do not have formal education or qualification in agriculture related discipline.

The t-test result presented in Table 5 shows that there is no significant difference in the mean gross margin of poultry farms with managers who had formal qualification in agriculture or related disciplines and farms managers who had no formal education in agriculture or related disciplines. Farms with managers who had qualification in agriculture or related discipline had a mean of ₦1,075,500.00 with a standard deviation of ₦236,048.00. Similar statistics for poultry managers who had no formal qualification in agriculture or related disciplines were ₦1,396,900.00 and ₦266,900.00. The no significant difference in gross margin implies a rejection of the alternative hypothesis and the acceptance of the null hypothesis that there is no significant difference in poultry farm gross margin between poultry farms with managers who have formal qualification in agriculture or related disciplines and poultry farms with managers who do not have formal education or qualification in agriculture related discipline.

The result of the third Hypothesis:

*H<sub>03</sub>: There is no significant difference in poultry farm gross margin between poultry farms with managers who have and poultry farms with managers who do not have prior experience in poultry farm management before coming to present farm,*

presented in Table 6 indicates that prior experience failed to account for any significant variation in poultry farm gross margin ( $t = 0.89$ ,  $df = 273$ ,  $P = 0.70$ ) between locations.

Table 5. T-test for equality of mean gross margin with respect to formal qualification in agriculture or related courses

|           | N   | Mean    | df  | Mean difference | t-ratio | Sig. (2-tailed) |
|-----------|-----|---------|-----|-----------------|---------|-----------------|
| Agric     | 68  | 1075500 | 273 | -321324         | 0.89    | 0.38            |
| Non Agric | 207 | 1396900 |     |                 |         |                 |

Source: Field survey data analysis result, 2010.

Table 6. T-test of equality in gross margin with respect to having prior experience in poultry production or not

|                 | N   | Mean    | df  | Mean difference | t-ratio | Sig. (2-tailed) |
|-----------------|-----|---------|-----|-----------------|---------|-----------------|
| With prior exp. | 181 | 1231200 | 273 | -130897         | 0.40    | 0.70            |
| Without         | 94  | 1362100 |     |                 |         |                 |

Source: Field survey data analysis result, 2010.

Hence we accept the null hypothesis that there is no significant difference in gross margin between poultry farms with managers who have and poultry farms with managers who do not have prior experience in poultry management.

#### 4. Discussion

Empirical results failed to reject any of the three null hypotheses that guided this study. The average of 14.79 years spent in school falls short of the minimum of 16 years required to obtain a university degree in Nigeria. The implication is that on the average poultry business operators have low education and low skills which may not be adequate for transforming the subsector in a dynamic business environment. It also implies that individuals who enter into this class of entrepreneur through apprenticeship could not have been properly equipped. This is deduced from the fact that about 57.10% of these poultry farmers had their education in areas other than agriculture. They therefore lack agriculture specific knowledge. Ferrante and Sabatini (2007) are of the opinion that the higher the level of sophistication in technological innovation the higher the level of education necessary to enable both the adaptation and advancement in technology in the particular industry. Furthermore, that the motive for entrepreneurship tend to include need to apply ones excess capacity profitably for the highly educated, whereas for the less educated it tends to be reasons of 'no other job'. Holcombe (2003) is of the view that learning or education is central to creating insight and alertness and the capability of responding to changes in the business environment. Following Holcombe (2003), the lack of knowledge specific to agriculture among a greater majority of the poultry farmers could impair the ability of poultry farmers to see opportunity in policy changes since they lack the required knowledge to interpret the opportunity symptoms therein and to make the required response by way of adaptation of technology in the subsector which could have translated into higher productivity. This, in part, may account for the technical inefficiency observed by Alabi and Aruna (2005) in the poultry subsector. Empirical results from ascertaining the effects of elements of opportunity on business performance in this circumstance could therefore give unreliable signals in the absence of necessary human capital required to infuse the entrepreneurial capital for effective poultry business performance in the subsector. Be this, as it may, it is worthy of note that not rejecting the null hypotheses could indicate integration of market in poultry production in the State.

#### 5. Conclusion

There is ample evidence to suggest that poultry business operators across Delta State, Nigeria, are ill equipped to operate in the subsector by way of proper education and/or training. This has adverse implications for their ability to complement the poultry business environment in the State resulting in the not rejecting the three null hypotheses

in this study contrary to *a priori* expectations. This leads to the conclusion that indeed elements of opportunity may vary from one business organization to another but that differences in ability to exploit the benefits may moderate or accentuate the initial differences. It is therefore essential that the entrepreneurial capacity of the poultry business operators be built-up to enable them to effectively explore the elements of opportunity that may be available in their environment and globally

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