Entrepreneurial Traits and the Distribution of Poultry Farm Entrepreneurs in Delta State, Nigeria

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Abstract

The authors attempted to ascertain the entrepreneurial potential of poultry farmers in Delta State using farmers' scores in six entrepreneurial traits measured on a five-point Likert scale. The study covered the population of 275 poultry farmers in the State. The objectives were to ascertain the level of entrepreneurial traits of Poultry farmers and to determine the distribution of poultry farm entrepreneurs by category, namely; low, average and high potential, across the three agricultural zones. The hypotheses tested were that entrepreneurial traits of poultry farmers were not above average and that there was no significant variation in poultry farmers' entrepreneurial potentials across the three agricultural zones. Primary data were collected using copies of a structured questionnaire. By using analysis of variance and test of differences between a test value of 3.4, major findings were that poultry farmers were above average in three entrepreneurial traits but with significant variation across the zones; that entrepreneurial potential was generally below average, finally, that the three categories of poultry farm entrepreneurs were randomly distributed across the zones. The authors concluded that while there may not be any inherent biases in drawing sample of poultry farmers across the State for development projects purposes, there may be differences in cost implications for farmers' entrepreneurial development.

Keywords: Entrepreneurial trait, Entrepreneurial potential, Agricultural zones

Introduction

The entrepreneur is the mechanism through which society converts technical information into the goods and services that are produced and offered to the society. With the embodied quality of efficiency in resource utilization, the entrepreneur is increasingly becoming a confidence-eliciting factor that financiers and change agents look for in individuals who they would want to cooperate with to complement their efforts towards desired goals. Furthermore, the entrepreneur has become the basis for

assessing temporal and spatial inefficiencies in any economy and therefore a window for providing solution towards mitigating identified inefficiencies. Notwithstanding these recommending qualities, Low *et al.* (2005) opined that policy makers are at a loss in promoting economic growth through entrepreneurial development due to the lack of appropriate entrepreneurial cognitive tools with which to select the right people to participate in such projects. This has the implication that whereas the importance of the entrepreneur is recognized and desired, the methodology for identifying him/her remains unclear. The prolonged delay in designing an appropriate tool for identifying the entrepreneur is not without cost to the society. In addition to the statement

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credited to Low *et al.* (2005) above, Galor and Michalopoulos (2006) demonstrated that the delay in the selection of growth promoting traits in developing economies has contributed to the persistence of poverty. Obviously such growth promoting traits may not have to do with only lead sectors in the economy but also key growth factors in the economy of which the entrepreneur is recognized as one. Conscious effort towards a scientific approach to identifying the entrepreneur therefore, will be an effort in the right direction.

A number of tools have been put forward for identifying the entrepreneur in the literature and have been applied empirically in many economies. Foremost among these is the trait approach. The traits include: need for achievement (n Ach), internal locus of control, and Risk Taking. Others are need for autonomy, need for power, Tolerance of Ambiguity, need for affiliation and Endurance (Driessen and Zwart, 2002). Johnston *et al.* (2009) modified the traits to include innovativeness, pro-activeness, risk taking, autonomy, a need to achieve, opportunity drive, self-reliance and commitment. Driessen and Zwart (2002) were of the opinion that the three most common traits among entrepreneurs were need for achievement (n Ach), internal locus of control and risk taking. Scales have been constructed over the years to measure these traits in individuals and the entrepreneur has been found to score above average in them. The objectives of this paper therefore are to; ascertain the level of entrepreneurial traits of Poultry farmers in Delta State and to determine the distribution of poultry farm entrepreneurs across the three agricultural zones in the State. We hypothesize that entrepreneurial traits of poultry farmers in the study area are not above average and, that there is no significant variation in poultry farmers' entrepreneurial potential across agricultural zones in Delta State.

Materials and Methods

The study covered the three agricultural zones in the State, namely; Delta North, Delta Central and Delta South Agricultural zones. Primary data were collected from a population of 275 poultry farmers in the State. The list was obtained from records of the Livestock Department, Delta State Ministry of Agriculture, Asaba, by an interview schedule using copies of a structured questionnaire. By the interview schedule method, the 275 copies of the questionnaire (39 to Delta North, 177 to Delta Central and 59 to Delta South) administered were all retrieved. There were two parts to the questionnaire. The first part contained the personal characteristics of the farmers' (age, education, and family background), while the second section was concerned with the personal opinion of the poultry farmers on their entrepreneurial traits. The items were phrased as statements with a possible response continuum of a 5-point Likert scale (strongly disagree =1, disagree =2, uncertain =3, agree =4, or strongly agree =5). This measurement scale has been used in several previous entrepreneurial researches with acceptable levels of reliability (Covin *et al.*, 1997). Each entrepreneurial trait was measured by multiple items in order to minimize inaccuracies in concept measurement. There were 30 entrepreneurial trait items in the questionnaire, five items for each of the six traits studied, namely: need for achievement, tolerance of ambiguity, internal locus of control, risk taking propensity, need for affiliation and need autonomy.

Copies of the questionnaire were administered to poultry farm owner-Managers, poultry farm owner non-Managers and poultry farm non-owner-Managers and Supervisors. Field officers of the Livestock Department of the Delta State Ministry of agriculture assisted in administering the questionnaire. The questionnaire was pre-tested to ensure clarity. Reliability of the scales, though established previously, was retested given the different context of the study. The six entrepreneurial trait subscales gave an overall Cronbach alpha 0.76.

Likert scale is widely used to measure entrepreneurial traits/orientation (Van Eeden, 2004; and Smith *et al.*, 2006; and Johnston *et al.*, 2009). It is never an individual item; it is always a set of several items, with specific format features, the responses to which are added or averaged to produce an overall score or measurement (Uebersax, 2006; Abreu *et al.*, 2008).

Entrepreneurial trait (ET) was assessed by asking respondents to indicate the intensity of their agreement or disagreement with each of the 30 Likert scale items that measure entrepreneurial traits. The final score for each subscale (construct variable) was calculated using the formula:

$$ET = \sum_{i=1}^{n} A_i \Big/ n_1 \quad \text{------------} 1$$

where:

ET_i is average score in the ith trait,

A_i is the actual score in ith trait items,

n_i is the number of items constituting the ith trait

Respondents' trait ratings were classified as low or average or high using the cut off mark of less than 2.6 for low, 2.6 to 3.4 for average and above 3.4 as high (Van Eeden, 2004 and Smith *et al.*, 2006). Dawis (1987); Diochon *et al.*, (2002), Hmieleski and Corbett (2006), and the BDC Group (2007) however, aggregated the raw scores to categorize respondents. Persons with higher level properties in the variable being measured are expected to get higher scores than those persons from lower properties (Clason and Dormody, 1994).

Analysis of variance (ANOVA) was used to test the hypothesis that there is no significant variation in poultry farmer's entrepreneurial traits among agricultural zones. Chi- test was used to determine if there were any significant differences in the distribution of the three categories of entrepreneurs, namely; low, average and high potential entrepreneurs, across the three agricultural zones.

Results and Discussion

Socio-economic Characteristics of Poultry Farmers

Table1 shows the age distribution of poultry farmers in Delta State by Agricultural zone. The figures in bracket are the percentage of the column total, that is, of the population of poultry farmers in the respective zones. The ages of the respondents ranged from 18 to 68 years with a mean of 43.91 years and a standard deviation of 9.29 years. The mean age varies among the agricultural zones. It was 45.89 years with a standard deviation of 9.47 for Delta North Agricultural zone, 42.74 years with a standard deviation of 8.94 for Delta Central Agricultural zone and, 45.02 years with a standard deviation of 10.28 for Delta South Agricultural zone. The age distribution of poultry farmers' therefore has a wider spread in Delta South agricultural

Table1: Demographic Characteristics of Poultry Farmers in Delta State
Age distribution of farmers

Age distribution of farmers	Delta North	Delta Central	Delta South	Total
Age Group				
18 – 27	2(5.10)	12 (6.80)	6 (10.20)	20 (7.30)
28 – 37	4 (10.30)	30 (16.90)	3 (5.10)	37 (13.50)
38 – 47	22 (56.40)	69 (39.00)	18 (30.50)	109 (39.60)
48 – 57	6 (15.40)	60 (33.90)	28 (47.50)	94 (34.20)
58 – 67	4 (10.30)	5 (2.80)	4 (6.80)	13 (4.70)
68 – 77	1 (2.60)	1 (0.60)	0 (0.00)	2 (0.70)
Total	**39 (100.00)**	**177 (100.00)**	**59 (100.00)**	**275 (100.00)**
Gender				
Female	17 (43.60)	106 (59.90)	37 (62.70)	160 (58.18)
Male	22 (56.40)	71(40.10)	22 (37.30)	115 (41.82)
Total	**39(100.00)**	**177(100.00)**	**59(100.00)**	**275(100.00)**
Marital status				
Single	2(5.13)	39(22.03)	14(23.73)	55(20.00
Married	37(94.87)	132(74.58)	44(74.58)	213(77.45)
Single again	0(0.00)	6(3.39)	1(1.69)	7(2.55)
Total	**39(100.00)**	**177(100.00)**	**59(100.00)**	**275(100.00)**

Source: Field survey 2010

zone. The ANOVA test of differences between means however revealed that there was no significant difference among the mean age of poultry farmers across Agricultural zones.

The age group 38 - 47 years has the highest frequency of poultry farm entrepreneurs in the State. In Delta South Agricultural zone, however, the age group 48 – 57 years predominates (47.50%). The age group 48 – 57 (34.20%) came closely behind. Again, for Delta South the age group 38 – 47 years was in the second position. It can safely be said that over 70% of poultry farm entrepreneurs were in the age groups38 – 47 years and 47 – 58 years. Table 1 also shows female entrepreneurs predominate the subsector (58.18 state-wide) except in Delta North Agricultural zone where the male were in majority (56.40%).

Finally for Table 1, the information on the marital characteristics of the respondents indicates that about 77.45% of the respondents were married and 20% single and 2.55% were single again, that is, once married. Poultry production is apparently not popular with the singles and single again in Delta North Agricultural zone.

Human Capital Characteristics
The distribution of poultry farmers by qualification is shown in Table 2. Middle level manpower that is, national diploma (ND) and National Certificate of Education (NCE) holders constitute a simple majority (42.18%) of the farmers' population State wide and indeed for each of the three zones, though to varying

degrees. An appreciable percentage of poultry farmers in Delta North (37.78%) and Delta Central (24.30%) had at least a university degree.

On the importance of formal education to successful entrepreneurship Ferrante and Sabatini (2007) were 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 will tend to be for reasons like '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. These are fundamental requisite qualities for entrepreneurial firm survival and growth. While the poultry subsector may not be using that sophisticated technology presently, the prevalence of not highly educated operators in the subsector may have implications for the technological development and growth of the sector.

The number of years of experience prior to setting up the poultry farm is also shown in Table 2. About 65.45% of the respondents indicated that they had experience in poultry farm management prior to being in the present farm.

Table 2: Human Capital Characteristics of Poultry Farmers
Formal educational qualification

Qualification	Delta North	Delta Central	Delta South	Total
No formal edu.	1((2.60)	9(5.10)	2(3.40)	12(4.36)
PSLC	0(0.00)	6(3.40)	6(10.20)	12(4.36)
SSSCE/equiv.	11(28.20)	37(20.90)	10 (16.90)	58(21.09)
ND/NCE	12(30.08)	82(46.30)	22(28.80)	116(42.18
First deg/equiv.	12(30.08)	37(20.90)	17(6.18)	66(24.00)
Higher degree	3(7.70)	6(3.40)	2(3.40)	11(4.00)
Total	**39(100)**	**177(100)**	**59(100)**	**275(100)**
Prior experience				
Yes	32(82.10)	109(61.60)	40(67.80)	180(65.45)
No	7(17.90)	68(38.40)	19(32.20)	95(34.55)
Total	39(100.00)	177(100.00)	59(100.00)	275(100.00)

Source: Field survey 2010

It is deductible, given the high percentage of poultry farmers who have prior experience before moving to the present farm in the three agricultural zones, that apprenticeship was an important means of human capital development in poultry production.

Levels of Entrepreneurial Traits of Poultry Farmers in Delta State

Mean Scores of Farmers on Entrepreneurial Traits Scale

Table 3 shows the mean score of respondents on entrepreneurial traits on a five point likert scale. The hypothesis tested here was:

H_{01}: *The entrepreneurial traits of poultry farmers in Delta State are not above average*.

By using t-test, the findings as contained in Table 3, were that scores in need for achievement, risk taking and need for autonomy were significantly higher than average while mean scores for tolerance of ambiguity, internal locus of control and need for affiliation were lower than average (3.4 test value) at 5% significant level.

Table 3: Test Statistic of the Hypothesis that Entrepreneurial Traits of Poultry Farmers in Delta State is not Above Average

Entrepreneurial traits	Mean	d.f	Mean diff	t-stat	Sig (1-tailed)
Need achievement	3.67	274	0.27	5.09	0.00
Tolerance of ambiguity	3.14	274	-0.26	-7.38	0.00
Internl locus of control	3.16	274	-0.24	-7.32	0.00
Risk taking	3.61	274	0.21	4.80	0.00
Need affiliation	3.18	274	-0.22	-7.85	0.00
Need autonomy	3.54	274	0.14	3.73	0.00
EPOT	3.38	274	-0.17	-1.00	0.31

Source: Field survey 2010

Low ratings in tolerance for ambiguity and internal locus of control impact negatively on the resilience of the entrepreneur to take up challenges or to face uncertainty. This can lead to poor performance and eventually, high rate of business fold ups. Browning (2004) opined that entrepreneurs are resilient people and that high motivation for tolerance of ambiguity and internal locus of control were two traits that can make for this.

Traits may not be additive. But it is the gestalt of these traits that constitute the entrepreneurial potential (Endsley and Carland, 1998). Furthermore, the above average display in these qualities makes the individual to be entrepreneurial (Shane *et al*, 2003). It was on this basis that a mean score of all six traits was determined to serve as a proxy to entrepreneurial potential (EPOT). Caliendo and Kritikos (2007) determined the average of scores for need for achievement, internal locus of control, problem solving orientation and assertiveness and they labelled the new variable "entrepreneurial skill".

EPOT, in this circumstance, has a mean score of 3.38. This is less than the test value of 3.4 but not significantly so (t-statistic = -1.00, df = 274 and P = 0.31). Hence we cannot reject the null hypothesis that the entrepreneurial potential of poultry farmers in Delta State is not above average. We therefore accept the hypothesis..

This finding therefore tends to confirm the fears of development agencies and policy makers in promoting economic growth. If, therefore, there is any invariable positive relationship between entrepreneurial potential and farm performance, the implication of the finding that the entrepreneurial potential of poultry farmers in Delta State is below average may explain the short fall in domestic supply of poultry products and, probably, the inability of the operators in the sector to respond appropriately to policy changes or to exercise the unending adaptation to the ever changing environment required in order to speed up the growth of the sector.

Levels of Entrepreneurial Traits of Poultry Farmers

Scores on entrepreneurial traits were aggregated by Agricultural zone to enable the determination of the the levels of entrepreneurial traits of Poultry farmers by agricultural zones. The hypothesis tested was:

H_{02}: *There is no significant variation in poultry farmers' entrepreneurial traits across Agricultural zones in Delta State.*

Table 4 shows the result of the analysis of variance (ANOVA) of mean scores in entrepreneurial traits among the three agricultural zones. This hypothesis was modified slightly to read "There is no significant variation in poultry farmers' X_i trait among Agricultural zones in Delta State" where X_i stands for a trait type out of the six traits under study. The ANOVA result shows that there was significant variation, at 5% critical level, in the three traits of need for achievement, tolerance of ambiguity and need for affiliation. The null hypothesis that there is no significant variation in these three

entrepreneurial traits among poultry farmers' across the three agricultural zones was therefore rejected and the alternative hypothesis that there is significant variation in poultry farmers' entrepreneurial traits in namely; need for achievement motivation, tolerance of ambiguity and need for affiliation among agricultural zones was therefore accepted. This being the case, further analysis was carried out to determine which zone has a trait significantly higher than those of other zones in each of the three traits using the Scheffe's test of unequal population/sample sizes. The result, contained in Table 5, shows that Delta North Agricultural zone mean score of 4.29 in need for achievement was significantly higher, at 5% critical level, than the 3.52 and 3.70 of Delta Central and Delta South Agricultural zones, respectively. There was no significant difference in mean scores between Delta Central and Delta South agricultural zones in need for achievement. The mean scores in the three agricultural zones were however significantly above average.

Table 4: ANOVA Result of no Significant Variation in Poultry Farmers' Entrepreneurial Traits among Agricultural Zones

		SS	d.f	MS	F	Sig.
Need ach	Between Groups	18.602	2	9.301	12.999	0.00
	Within Groups	194.629	272	0.716		
	Total	213.231	274			
T. ambiguity	Between Groups	3.206	2	1.603	4.811	0.009
	Within Groups	90.632	272	0.333		
	Total	93.838	274			
ILC	Between Groups	0.830	2	0.415	1.373	0.255
	Within Groups	82.224	272	0.302		
	Total	83.054	274			
N. Affiliation	Between Groups	2.542	2	1.271	6.204	0.002
	Within Groups	55.727	272	0.205		
	Total	58.269				
N. autonomy	Between Groups	0.483	2	0.241	0.600	0.550
	Within Groups	109.529	272	0.403		
	Total	110.012				
Risk taking	Between Groups	1.760	2	0.880	1.750	0.176
	Within Groups	136.791	272	0.503		
	Total	138.551				
EPOT	Between Groups	0.518	2	0.259	3.289	0.039
	Within Groups	21.438	272	0.079		
	Total	21.956				

Source: Field survey 2010

The mean score for tolerance of ambiguity for Delta North Agricultural zone of 3.41 was significantly (at 5% significant level) higher than those of Delta Central (3.09) and Delta South (3.10) Agricultural zones. The mean scores for these two latter traits were significantly below average. Need for affiliation was significantly higher for Delta Central Agricultural zone than in Delta North Agricultural but not for Delta South Agricultural zone. The mean score in tolerance of ambiguity for the three zones were significantly below average.

The entrepreneurial potential proxy variable, EPOT, varies significantly (Table 5) across the three agricultural zones ($P < 0.05$). The Scheffe's test of differences among means shows that farmers in Delta Central agricultural zone were significantly lower (3.35) in EPOT than farmers in Delta North (3.48). The mean score of farmers in Delta South (3.39) cannot, however, be separated from those of Delta Central nor from those of Delta North. Thus we reject the null hypothesis that there is no significant variation in poultry farmers' entrepreneurial potential among agricultural zones in Delta and accept the alternative hypothesis that there is a significant variation in entrepreneurial potential across the State. It should, however, be noted that while score in EPOT of Delta North agricultural zone (3.48) is significantly above average (3.4), the mean score in entrepreneurial potential of the remaining two zones were less than average.

Table 5: Scheffe's Test Result of Differences between Means in Entrepreneurial Traits

Subset for alpha = 0.05			
Need Achievement			
Agric zone	N	1	2
Delta Central	177	3.5254	-
Delta South	59	3.6983	-
Delta North	39	-	4.2872
Sig.	-	0.523	1.00
Tolerance of ambiguity			
Agric zone	N	1	2
Delta Central	177	3.0938	-
Delta South	59	3.1017	-
Delta North	39	-	3.4051
Sig.	-	0.997	1.00
Need Affiliation			
Agric zone	N	1	2
Delta Central	39	3.0051	-
Delta South	59	3.0915	3.0915
Delta North	177	-	3.2508
Sig.	-	0.568	0.148
Entrepreneurial potential			
Agric zone	N	1	2
Delta Central	177	3.35	-
Delta South	59	3.39	3.39
Delta North	39	-	3.48
Sig.	-	0.7	0.2

Means for groups in homogeneous subsets are displayed
Source: Field survey 2010

Table 6: Distribution of Poultry Farm Entrepreneurs by Entrepreneurial Potential Category by Agricultural Zone

Entrepreneurial Potential category	Agricultural zones			Total
	Delta North	Delta Central	Delta South	
Low	0(0.00)	0(0.00)	0(0.00)	**0(0.00)**
Average	18(46.15)	114(64.41)	37(62.71)	**169(61.45)**
High	21(53.85)	63(35.59)	22(37.29	**106(38.55)**
Total	**39(100.00)**	**177(100.00)**	**59(100.00)**	**275(100.00)**

Figures in bracket are column percentages of total
Source: Field survey 2010

Distribution of Entrepreneurs by Category of Potential by Agricultural Zone

Following the above finding, farmers were categorized on the basis of low, average and high potential farm poultry entrepreneurs using the cut off mark of less than 2.6 for low, 2.6 to 3.4 for average and above 3.4 as high (Van Eeden, 2004 and Smith, Okhmina, and Mosley, 2006). The result is presented in Table 6.

The entrepreneurial potential proxy variable, EPOT, indicates that over 61% of poultry farmers in the State had "average" entrepreneurial potential. No farmer had low entrepreneurial potential. Over 60% of poultry farm entrepreneurs in Delta Central and Delta South Agricultural zones had "average" entrepreneurial potential. About 46% of the farmers in Delta North Agricultural zone had "average" and 53.85% had "high" entrepreneurial potential. The percentage of farmers that had high entrepreneurial potential were 35.59 and 38.55 for Delta Central and Delta South agricultural zones, respectively.

The Chi-Square test for equality of proportion in the distribution was carried out. The null hypothesis was that the proportion of farmers falling into each category across the agricultural zones was the same since the result of the test was not significant (χ^2= 4.545, df= 2 and P= .10). This finding therefore suggests that poultry farm entrepreneurs were randomly distributed across the State in terms of potential.

Conclusion

Delta State poultry farmers have above average need for achievement, risk taking and need for autonomy, among six entrepreneurial traits studied. Although poultry farmers in Delta North agricultural zone have significantly higher entrepreneurial potentials than their counterparts in Delta South agricultural zone, poultry farmers' entrepreneurial potentials are generally below average in the State, though not significantly so and randomly distributed among the three agricultural zones. Hence while there may not be inherent bias in drawing sample of poultry farmers across the State for the purpose of development projects, there may be differences in cost implications for developing poultry farmers entrepreneurially in the State.

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