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SOCIO-ECONOMIC STATUS AND PSYCHOLOGICAL CONSTRUCTS OF HEADS OF FARM FAMILIES IN DELTA STATE NIGERIA

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ABSTRACT

This study examined the empirical relationship between socio-economic status and psychological construct of heads of farm families in Delta State. Simple random sampling procedures done on multi-stage basis was used in composing the sample. The sample was made up of 510 heads of farm families drawn from Delta Ibo (174), Urhobo (147), Ijaw (87), Isoko (60), and Itsekiri (42). Questionnaire was used in data collection. Psychological constructs were measured by the use of Sigma scoring method, Data were analyzed by the use of mean, analysis of variance, multiple regression and factor analysis. The valid psychological constructs were adoption behaviour, leadership abilities, cosmopoliteness, education level, and attitude to innovation. There was a significant relationship between socio-economic status and the valid psychological constructs of the heads' of farm families (F=333.29497; p = 0.00). The multiple regression analysis showed that 76.78 percent of socio-economic status was explained by the valid psychological constructs of heads of farm families. The psychological constructs of socio-economic status of heads of farm families in any locality should be understood by the extension agent so as to foster a good working relationship with the farmer.

Key words: Socio-economic Status, Adoption, Leadership, Cosmopolitness, Education, Attitude, Innovation.
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INTRODUCTION

Background of the Study

According to Chapin (1933) as cited by Akinola and Patel (1987), Rogers (2003). Tubbs (1988), and Onwueme and Ugbor (1994), defined socio-economic status as the position an individual occupies with respect to the amount of cultural possession, effective income, material possession, prestige and social participation. Goode (1974), stated that it was the family and not the individual that was ranked in a class society He noted that the family is the keystone of any stratification system and the social mechanism by which it was maintained.

Socio-economic status scale serves two major importance in measuring changes in socio-economic status, and establishing its implicit relationship to related psychological constructs. The Psychology Glossary (2013) defined a construct as any complex psychological concept.

These include a person's motivation, anger, personality, intelligence, love, attachment or fear. Constructs were not concrete materials which could be easily measured. However constructs were useful in interpreting empirical data and building theories. DeVellis (1991) stated that scale development was concerned with measuring phenomena that we believe to exist but that cannot be observed directly. In the social sciences, these phenomena were referred to as constructs (often said to be concepts in the humanities), and measures were considered proxies for these constructs. When we assess the relationships between measures, we infer relationships between the constructs they were intended to measure.

STATEMENT OF THE PROBLEM

Many researchers have qualitatively established relationships between socio-economic status and certain psychological constructs of farmers. Bernard *et.al* (2011) reported that fatalism as a construct was customarily, if not always formally or explicitly, attributed to Ethiopians - particularly to those who were poor or low in socio-economic status. Ogunfiditimi (1981), Gartrell and Gartrell (1985), and Akinoa and Patel (1987), found a positive relationship between socio-economic status and adoption of new technologies. Rogers (2003) stated that opinion leaders have higher socio-economic status than their followers. AIao (1976) affirm that there was a positive relationship between socio-economic status and cosmopoliteness. Onwueme and Ugbor (1994), and Obasi (1987), stated that there was a positive relationship between education and socio-economic status. In these studies there was no evidence to show the use of a socio-economic status scale in determining the empirical relationship between socio-economic status and psychological constructs.

This study, therefore, sought to establish the quantitative relationship between socio-economic status and psychological constructs of heads of farm families in Delta State by using a socio-economic status scale, The specific objectives were to: (i) validate the psychological constructs related to socio-economic status in the study area; (ii) measure quantitatively the valid psychological constructs; and (iii) ascertain the relationship between socio-economic status and psychological constructs of the heads of farm families.

Hypothesis The null hypothesis tested that; there was no significant relationship between socio-economic status and psychological constructs of heads of farm families.

MATERIALS AND METHODS

Brief Description of Delta State

Delta State was created from the then Bendel State on 27th August 1991. It's capital is Asaba Delta. The State shares common boundaries with Edo and Ondo States to the north west, Imo and Anambra to the north east, Rivers and Bayelsa States to the south east. In the south west and south it has approximately 122 kilometres of coastline bounded by the Bight of Benin on the Atlantic ocean. The State is made up of twenty five Local Government Areas namely Oshimili South, Oshimili North, Aniocha South, Aniocha North, Ika South, Ika North East,

Ndokwa West, Ndokwa East, Ukuani, Ughelli South, Ughelli North, Ethiope West, Ethiope East, Sapele, Okpe, Uvwie, Udu, Isoko South, Isoko North, Bomadi, Burutu, Warri North, Warri South, Warri South West and Patani. The Major ethnic groups are Urhobo, Igbo, Ezon, Isoko and Itsekiri (www. nigeriagalleria. com/Nigeria/States_ Nigeria /Delta_ State.htm)

SAMPLING PROCEDURE AND SAMPLE SIZE

Heads of farm families in the five major ethnic groups (Urhobo, Delta lbo, ljaw, Itsekini and lsoko) were sampled using multistage simple random sampling procedure. Ten Local Government Areas were randomly selected from the 25 Local Government Areas in the State on the basis of ethnic and sub- ethnic groups. Forty percent of the towns and villages in a selected Local Government Area were randomly selected. Twelve percent of heads of farm families were randomly selected from the selected Local Government Areas. This gave a sample size of 510 respondents consisting Delta Ibo (174), Urhobo (147), Ijaw (87), Isoko (60), and Itsekiri (42). Five contact and five non-contact farmers were selected from each ethnic group to validate the psychological constructs related to socio-economic status. The latter sample was made up of fifty (50) respondents.

INSTRUMENT FOR DATA COLLECTION

Two sets of questionnaires were used in data collection. The first set was administered to the fifty contact and non contact farmers for the purpose of validating the psychological constructs. The second set of questionnaire was administered to measure and establish the relationship between the valid psychological constructs and socio-economic status of the five hundred and ten (510) heads of farm families. The second questionnaire consisted of five sections: adoption of recommended technologies, leadership positions, cosmopoliteness, education, and attitude to innovations. A socio-economic status scale constructed for heads of farm families in Delta State by Ovwigho (2000) and validated in 2012 was used to measure the socio-economic status of the heads of farm families. The researcher together with fifteen trained enumerators collected the data within a period of three months.

MEASUREMENT OF VARIABLES

The validation of the psychological constructs was done by the use of a four-point Likert type scale. The scale consisted of Strongly Agree (4); Agree (3); Disagree (2) and Strongly Disagree (1). A cut-off point below and above 2.50 was used to dichotomize the responses into not valid and valid constructs respectively. The valid psychological constructs were scored by the use of Sigma scoring method. The Sigma scoring was used to demonstrate the conversion of qualitative to quantitative responses (Tables 2, 3, 4, 5 & 6). A four-point rating scale was used to measure attitude to innovation. A total of ten attitude questions made up of four positive questions and six negative questions were constructed. Leadership was measured by the various leadership positions held by the head of farm family. Educational level was measured by the last qualification. Cosmopoliteness was measured by the number

of times the individual has travelled outside the village. Adoption was measured by adoption responses to the application of inorganic fertilizers.

DATA ANALYSIS

Mean scores were used to validate the psychological constructs. Sigma scoring method was used to demonstrate the measurement of psychological constructs. The relationship between socio-economic status and psychological constructs of heads of farm families was analyzed by the use of multiple regression and factor analysis.

RESULTS AND DISCUSSION

Validation of Psychological Constructs

A universe of ten (10) psychological constructs related to socio-economic status was collated from secondary sources. These included fatalism, conservatism, adoption of innovations, feelings of inferiority, leadership abilities, social participation, cosmopoliteness, level of education, risk aversion and attitude to innovations. The respondents' ratings of the extent to which these constructs were contiguous with socio-economic status was presented in Table 1,

Five (5) constructs of socio-economic status were valid. These were: adoption behaviour (M =3.18), leadership abilities (M=3.00), cosmopoliteness (M=2.86), level of education (M=3.10) and attitude to innovation (M=2.92). . Fishbein (1980), Oladele (2005), Pannell et.al. (2006), and Parminter (2011) stated that the term adoption could be described as conscious decision to implement a new practice or apply a new technology on continuous basis. Basically, it described the process of decision making and behaviour change. They agreed that during this decision making process the intended beneficiaries could reject a change and seek to re-establish the previous practice or technology. Rogers (2003) in a study conducted on Brazilian farmers, found that opinion leaders had larger farms, more change agent contact and high agricultural innovativeness.

Jagne and Patel (1981), and Alao (1976), defined cosmopoliteness as the degree of participation by an individual in the communication processes of an external system. Sofranko (1984), stated that the values of rural people include fatalism, low empathy, aversion to risk, traditionalism, immediate gratification and submission to nature.

SCORING PROCEDURE OF THE VALID PSYCHOLOGICAL CONSTRUCT

The first four valid psychological constructs (adoption behaviour, leadership abilities and cosmopoliteness and education level) were scored using Sigma scoring method. Attitude to innovation was scored using four-point Likert type scale

SCORING OF ADOPTION BEHAVIOUR

Adoption behaviour was scored by using adoption of inorganic fertilizer which was disseminated to the farmers by the Delta Agricultural Development Programme (Tables 2 and

3). Based on the responses the scores for the items measure under adoption were awareness of fertilizer (yes=4, no=0), actual application (yes=5, no=2), intention to continue (yes=5, no=2), less than 5 months of fertilizer application (0), 6-10 months (2), 11- 15 months (2), 16—20 months (3), 21 — 25 months (4), 26— 36 months (4), and above 3 years (6). The total score for a respondent in the two Tables were added up to give the score for adoption behaviour of the respondent.

SCORING OF LEADERSHIP ABILITIES

This was measured by asking the farmers to mention the leadership positions they have held or presently holding and were scored using Sigma scoring method (Table 4). A respondent who has been a village head was scored 7, executive member of a social club (8), contact farmer (7), opinion leader (7), Chief (7), religious leader (7), executive member of a cooperative society (6), and no leadership position (3). The scores were aggregated to make up the leadership score for a respondent

SCORING OF COSMOPOLITENES

This was measured by the frequency of times the respondent has left his immediate community within the year. The frequencies were converted to Sigma scores and converted to T-scores (Table 5). The scores obtained were more than 15 times a year (61), 10-15 times a year (55), 6-9 times a year (51), 3-5 times a year (48), 1-2 times a year (45) and rarely travelled (38)

SCORING OF EDUCATION LEVEL

The education level of the respondents were scored using Sigma scoring method and transformed to T-scores (Table 6). A respondent who holds a postgraduate degree was scored 79, HND/First degree (71), NCE (65), City & Guilds/OND (62), TC II/Model School (59), WASC/SSCE (56), Below SSCE (52), primary Six (48), Below Primary Six (41), and no formal education (30). Education can also be measured by the number of years the individual spent in formal education.

SCORING PROCEDURE FOR ATTITUDE TO INNOVATION

This was measured by a four-point Likert type scale and scored by using nominal values of 4 for strongly agree, agree (3), disagree (2) and strongly disagree (1) for ten attitude to innovation statements. The scores ranged from 10-38

RELATIONSHIP BETWEEN SOCIO-ECONOMIC STATUS AND VALID CONSTRUCTS OF HEADS OF FARM FAMILIES

The relationship between socio-economic status and valid psychological constructs was analysed and presented in Tables 7, 8 and 9. The summary of the multiple regression

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coefficients between socio-economic status (dependent variable) and psychological constructs (independent variables) were:

Multiple R = 0.87624

R square = 0. 76779
Adjusted R square = 0.76549
Standard error = 20.74544
The variables in the equation and analysis of variance are shown in Tables 7 and 8 respectively.

In Table 7, there was significant relationship between socio-economic status and adoption (*t* =4.55; p = 0.00), leadership (*t* = 3.26; p=0.001), cosmopoliteness (*t* = 19.07; p = 0.00), education level (*t* = 2.37; p = 0.01), and attitude to innovation (*t* = -2.11; p = 0.03). The results of the Analysis of Variance in Table 8 showed an overall significant relationship between socio-economic status and adoption, leadership, cosmopoliteness, education level and attitude to innovation (*F* = 333.29, p = 0.00). The results corroborate the views of Alao (1976), Rogers (2003), Ekong (2003), Ogunfiditimi (1981), and Akinola and Patel (1987), that there was a positive relationship between socio-economic status and personal characteristics of farmers. These characteristics include adoption behaviour, leadership abilities, education, cosmopoliteness and attitude to innovation. This meant that the higher the socio-economic status, the higher the adoption behaviour, leadership abilities, cosmopoliteness, education and positive attitude to innovation.

The R^2 value of 0.76779 meant that the constructs could predict socio-economic status of the heads of farm families up to 76.78%. Adoption behaviour, leadership abilities, cosmopolitenes, education level and attitude to innovation could be used to explain socio-economic status. Based on the variables in the equation the prediction equation could be written as follows:

$\dot{Y}=3.11 + 0.24x_1 \div 0.52x_2 + 2.14x_3 + 0.34x_4 - 0.47x_5 - 0.49$. The above equation could be used to predict socio-economic status of heads of farm families in Delta state given X_1, X_2, X_3, X_4, and X_5. This study unlike previous studies established the empirical relationship between socio-economic status and psychological constructs of heads of farm families

FACTOR ANALYSIS

The principal component method of factor analysis was used to determine the factor, which accounted for most of the variance in the data (Table 9)..

Adoption has the highest eigen value followed by leadership, comopoliteness, education level and attitude to innovation. Adoption of innovation is the most significant construct that could be used to predict socio-economic status of heads of farm families.

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CONCLUSION AND RECOMMENDATION

The study established an empirically relationship between socio-economic status and adoption behaviour, leadership abilities, cosmopolitenes, education level and attitude to innovation. This study has demystified the notion that psychological constructs cannot be operationalised and measured. Socio-economic status has a significant relationship with adoption, leadership, cosmopoliteness, education and attitude to innovation. The socio-economic status of heads of farm families in Delta state, Nigeria could be deduced once the adoption, leadership, cosmopoliteness, education level and attitude to innovation scores were known. A fore knowledge of the psychological constructs of heads of farm families is important in determining socio-economic status which is a necessary criterion in relating with the farmer. The psychological constructs of socio-economic status of heads of farm families in any locality should be understood by the extension agent so as to foster a good working relationship with the farmer.

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APPENDIX

Table 1: Valid constructs of socio-economic status of heads of farm families

S/N	Construct	Item Total Score	Mean Max=4	Remarks
1	Fatalism	73	1.46	Not valid
2	Conservatism	76	1.52	Not valid
3	Adoption behaviour	159	3.18	Valid
4	Feelings of inferiority	89	1.78	Not valid
5	Leadership abilities	150	3.00	Valid
6	Social Participation	120	2.40	Not valid
7	Cosmopoliteness	143	2.86	Valid
8	Level of Education	155	3.10	Valid
9	Risk aversion	94	1.88	Not valid
10	Attitude to innovation	146	2.92	Valid

Table 2: Sigma scoring for awareness, actual application and intention to continue the use of fertilizer

Item	Response Categories	F	Proportion	Z	Standard Score (Z +2) 2
Awareness of fertilizer	Yes	498	0.512	0.030	4
	No	12	0.012	0.257	0
Actual application	Yes	293	0.706	0.542	5
	No	205	0.206	-0.820	2
Intention to continue	Yes	229	0.609	0.227	5
	No	64	0.109	-1.238	2

NB: F= Frequency, P = Proportion (convert to proportion of 100), Z= Sigma score (Check Table of normal deviates z)

Table 3: Sigma scoring procedure for duration of fertilizer use

Response categories	F	CF	CFM	CPM	Z	Standard score (Z+2)x2-
Less than 5 months	22	22	11	0.038	-1.774	0
6-10 months	23	45	33.5	0.114	-1.206	2
11- 15 months	32	77	61	0.208	-0.815	2
16—20 months	25	102	89.5	0.305	-0.510	3
21 — 25 months	36	138	120	0.410	-0.228	4
26— 36 months	28	166	152	0.519	0.048	4
Above 3 years	127	293	229.5	0.783	0.782	6

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NB: F= Frequency CF = Cumulative Frequency CFM = Cumulative Frequency to Mid-point CPM = Cumulative Proportion to Mid-point, Z = Sigma Score (Check Table of normal deviates z).

Table 4: Scores for leadership positions

S/N	Leadership Positions	F	%	Proportion	Z	Standard score (Z+2)x2
1	Village Head	50	9.80	0.951	1.655	7
2	Executive member of a social club	38	7.45	0.963	1.787	8
3	Contact Farmer	78	15.29	0.924	1.433	7
4	Opinion leader	62	12.16	0.939	1.546	7
5	Chief	72	14.12	0.929	1.463	7
6	Religious	70	13.73	0.93 1	1.483	7
7	leader	121	23.73	0.881	1.180	6
8	Executive member of a cooperative society	237	46.47	0.232	-0.732	3
	No leadership position					

Table 5: Scores for cosmopoliteness

Response categories	F	CF	CFM	CPM	Z	T-Score 10(Z)+50
More than 15 times/year	133	510	443.5	0.810	1.126	61
10-15 times/ year	65	377	344.5	0.675	0.454	55
6-9 times/year	71	312	276.5	0.5212	0.105	51
3-5 times/year	44	241	219	0.429	-0.179	48
1-2 times/year	87	197	153.5	0.30 1	-0.522	45
Rarely travel	110	110	55	0.108	-1.237	38

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Table 6: Scores for education level

S/N	Response categories	F	CF	CFM	CPM	Z	T-Score 10(Z) 50
1	1 Postgraduate degree	4	510	508	0.996	2.862	79
2	HND/First degree	15	506	498.5	0.977	1.995	71
3	NCE	27	491	477.5	0.936	1.522	65
4	City & Guilds/OND	29	464	449.5	0.881	1.180	62
5	TC II/Model School	56	435	407	0.798	0.834	59
6	WASC/ SSCE	42	379	358	0.702	0.530	56
7	Below SSCE	93	337	290.8	0.570	0.176	52
8	Primary Six	83	244	202.5	0.397	-0.261	48
9	Below Primary Six	140	161	91	0.178	-0.923	41
10	No formal education	21	21	10.5	0.021	-2.034	30

Table 7: Variables in equation

Variable	B	SEB	Beta	T	T sig
1. Adoption	0.235952	0.051887	0.154088	4.547	0.000
2. Leadership	0.524386	0.160801	0.083538	3.261	0.0012
3. Cosmopoliteness	2.136536	0.112024	0.720874	19.072	0.000
4. Education Level	0.337762	0.142651	0.075761	2.368	0.0183
5. Attitude to Innovation	-0.46667	0.221022	-0.079444	-2.11	0.0352
Constant	3.112800	5.531578		0.563	0.5739

Table 8: Analysis of variance

Sources	DF	Sum of squares	Mean sum of square
Regression	5	717205.95037	143441.19007
Residual	504	216908.04179	430.37310
F =333.29497		Siq F = 0.000	

Table 9: Results of factor analysis of psychological constructs of heads of farm families.

Factor	Eigen value	% of variance
Adoption X_1	4.20029	70.0
Leadership X_2	0.63970	10.7
Cosmopohteness X_3	0.42424	7.1
Education level X_4	0.31797	5.3
Attitude to innovation X_5	0.29859	5.0
SES X_6	0.11922	2.0