

SOCIO-ECONOMIC DETERMINANTS AND CONSTRAINTS TO ACCESS AND UTILIZATION OF AGRICULTURAL INFORMATION BY FARMERS IN ABOH MBAISE LOCAL GOVERNMENT AREA OF IMO STATE, NIGERIA

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ABSTRACT

This study analyzed the socio-economic determinants and constraints to access and utilization of agricultural information by farmers in Aboh Mbaise Local Government Area of Imo State. Purposive and multi-stage random sampling techniques were employed to select 120 respondents. Primary data were collected with aid of a well-structured questionnaire and analyzed using inferential statistics such as multiple regression and factor analyses. Result showed that the coefficient of multiple determinations (R^2), was high with a value of 81.91%. This means that about 81.91% variations in the access and utilization of agricultural information was as a result of the combined effects of the socioeconomic characteristics of the respondents. The agricultural information accessed mostly were production techniques (53%) and harvesting (23%). The constraints that limited access and utilization of agricultural information for agricultural production included; lack of formal education, lack of willingness to learn, lack of simplicity in training/information, high cost of ICTs facilities, corruption, lack of government encouragement and lack of fund. It was concluded that improving the socio-economic status of the farmers could lead to greater access and utilization of agricultural information in the area. The following recommendations were made based on the research findings; Rural farmers should be encouraged to access formal education as this will help them improve their access to agricultural information which results to increase in agricultural productivity, there should be subsidization of cost of agricultural information as this will increase the access and utilization by rural farmers who have been observed to earn low and farmers should be encouraged to access agricultural credits which will encourage access and utilization of such funds in agricultural production.

Keywords: Accessibility, Utilization, Agricultural Information, Small Scale Farmers, Socio-economic characteristics, Constraints

INTRODUCTION

Agricultural information is operationally defined as the various sets of information and messages that are relevant to agricultural production activities of farmers such as crop production and protection, animal production

and conservation. Samuel (2001) defined agricultural information as the data for decision-making and as resources that must be acquired and used in order to make an informed decision.

However, Obinwa (2014) observed that when farmers needed agricultural information like the best planting distance, best specie of crop, best extension practices, best time of planting, best chemicals to apply etc, there is increased production as a result of accessed information. Uzundu (2015) reported that increase in access to agricultural information leads to increase in utilization and furthermore, increase in productivity. Nsulgbe (2014) noted that there is a positive relationship between the increased flow of knowledge and information and agricultural development. Unfortunately, resource poor farmers are mainly affected by the digital divide which is a gap between groups or individuals in their ability to use ICTs effectively due to differing literacy, technical skills, and useful digital content (Ghatak, 2007). Nevertheless, the emergency of low cost ICTs (such as radio, call phones, and the media provided by the telecenters) may bridge the digital divide (Lwoga and Ngulube, 2008) given the fact that there are disparities to the accessibility and utility of the ICTs especially in the developing countries.

According to Eze (2013), agricultural information is an integral part of extension service. It exposes the farmers to new technologies to enable them improve their

production, incomes and standards of living when properly utilized. Similarly, Ozowa (2013) reported that utilization of agricultural information is the proper putting into practice the information gotten in order to bring about increase in production, increase in income, improvement in management and handling of inputs and outputs, as well as improved standard of living.

Agriculture in Nigeria had not been open to outside information due to many factors and consequently, its technological progress has been restrained for a long time. It is a fact beyond dispute that technology can play an important role in increasing production, income and efficient use of resources for the economic development of the country (Agbamu, 2016). According to Adedoyin (2013), a thriving agricultural economy is critical for reducing poverty, ensuring food security and managing natural resources, and to this effect, agricultural extension is expected to play an acceleratory role not only in information access but also in utilization for proper achievement of the aims and objectives of set innovations packaged in the form of information.

According to Agbami (2012), most African countries have not devoted their efforts to the dissemination of knowledge and information, especially in rural areas, where 70 and 80

percent of the African population lives. Only a small amount of agricultural information is accessible to rural farmers, despite the large body of knowledge that exists in research institutions, universities, public offices and libraries (Adomi, 2003). This situation is largely attributed to the weak linkages between research, extension, not for profit organizations, libraries and farmers and thus these technologies have neither reached nor been adopted by their intended beneficiaries to improve their farming activities in developing countries including Nigeria (Tire, 2006).

Despite so many literature on the availability of agricultural information, its access and utilization for agricultural productivity, there seems to be dearth in empirical knowledge on socio-economic determinants and constraints to access and utilization of agricultural information by rural farmers in Aboh Mbaise L.G.A of Imo State. Thus, the research was conceptualized to find answers to the following research questions; What is the influence of socio-economic characteristics on access and utilization of agricultural information? What are the constraints limiting rural farmers from accessing and utilizing agricultural information?

Objectives of the study

The broad objective of the study analyzed the socio-economic determinant and constraints to access and utilization of agricultural information by rural farmers in Aboh Mbaise L.G.A of Imo State while the specific objectives were to;

- i. analyze the influence of socio-economic characteristics on access and utilization of agricultural information; and
- ii. identify constraints to rural farmers' access and utilization of agricultural information in the study area.

Hypothesis

H0₁: Socio-economic characteristics of rural farmers do not influence their access and utilization of agricultural information for agricultural productivity.

METHODOLOGY

The study area lies within latitude 5°27'N and longitude 7° 14'E, covering an area of 184 km² and a population of 195, 652 people (NPC, 2006). The L.G.A is made up of nine communities to include; Nguru-Nweke, Okuato, NguruAhiato, NguruNwankwo, EnyioGugu, Lorgi, Amuzu, Uvuru and Umuorobala. The major crops grown in this area include; oil palm, cassava, groundnut, melon, maize while goat, sheep and poultry are the major livestock. The major

occupation of inhabitants of this area include; farming and trading, though a few public servants. The climate of the area is divided into two major seasons, rainy which runs from April – October with July and September as peak and dry season which runs from November – March. Atmospheric temperature in the area varies from 18°C to 34°C within the year.

Sampling Techniques

Purposive and multi-stage random sampling techniques were employed to sample the population in stages.

Stage one: This involved purposive selection of six (6) communities to include; Nguru-Nweke, Okwuato, NguruAhiato, NguruNwankwo, EnyioGugu and Lorgi. This was done based on the level of farming activities in the area.

State two: This involved purposive selection of two (2) villages from each selected community to make twelve (12) villages.

Stage three: This involved purposive selection of ten (10) farmers from each of the villages to make a total of one hundred and twenty (120) respondents who formed the sample size for the study.

Data Collection

Primary data were collected using questionnaire administered as interview schedule.

Data Analysis

Data collected were analyzed using inferential statistics such as multiple regression, factor analysis and F-test.

Models Specifications

Multiple Regression Model

Multiple regression analysis was used to analyze the influence of socio-economic characteristics on access and utilization of agricultural information of rural farmers in the study area. The model is implicitly represented below as;

$$Y = F(X_1, X_2, X_3, X_4, X_5, X_6, X_7)$$

The explicit form of the model is represented thus;

$$Y = k_0 + k_1X_1 + k_2X_2 + k_3X_3 + k_4X_4 + k_5X_5 + k_6X_6 + K_7X_7 + et$$

Where;

Y = Amount spent on accessing and utilizing information (₦).

X₁ = Sex of Respondent (dummy)

X₂ = Age of respondent (years)

X₃ = Farm size of respondent (ha)

X₄ = Household size of respondents (number)

X₅ = Income level of respondents (₦)

X₆ = Marital status (dummy)

X₇ = Educational qualification of respondents (years)

k-k₇ = Estimated Parameters

k₀ = Autonomous level of amount known as the constant

Et = Error term

Factor Analysis Model

Factor analysis was used to identify constraints limiting farmers from accessing and utilizing agricultural information for improved productivity. Also, it was used to identify the factors that influence access and utilization of information by rural farmers in the study area.

In order to obtain the factor loadings of each of the variables necessary for achieving aspects of objective v, factor analysis presented below was used.

$$X_{ij} = \Psi_{i1}F_{i1} + \Psi_{i2}F_{i2} + \Psi_{i3}F_{i3} + \dots \Psi_{jm}F_{iK} + e_{ij}$$

Where;

X_{ij} = Observation on variable X_j for the i th sample number

F_{iK} = Score on factor FK ($K = 1, 2, 3, \dots, m$)

$F_1 - F_m$ = Common factors

E_{ij} = The value on the residual variable E_j for the i th sample member

$\Psi_{ji} \dots \Psi_{jm}$ = Factor loadings (regression weights).

The associated assumptions were applied accordingly while the suitable number of factors were subjectively selected based on varimax rotated factor matrix obtained using SPSS analytical software. The exploratory factor analysis techniques using the principal

factor model with interactions and varimax rotation was adopted in this study. The factor loading under each constraint (beta weight) represented a correlation of the variables (constraint areas) to the identified constraint factors and has the same interpretation as any correlation coefficient. Kaiser's criterion using factor loading of 0.40 and above in naming and interpreting the factors and constraint variable was adopted (Alimb and Akubuilu, 2002).

Test of Hypothesis

The stated null hypothesis H_{01} was tested using the F-test at 5% level of significance. The formula for calculating F-cal is shown below;

$$F\text{-cal} = \frac{R^2(N-K)}{(1-R^2)(K-1)}$$

Where;

R^2 = Coefficient of multiple determination

N = Sample size

K = Number of Variable

Decision Rule: If $F\text{-cal} > F\text{-tab}$, reject the null hypothesis otherwise accept.

RESULTS AND DISCUSSION

Influence of Socio-economic Characteristics on Access and Utilization of agricultural

information. The result of multiple regression analysis is shown in Table 1.

Table 1: Multiple Regression Analysis on Influence of Socio-economic Characteristics on Access and Utilization of Agricultural Information in the study area

Variable name	Variable code	Coefficient	Standard	T-cal	Sign
Constant	B ₀	1.040	0.259	4.015	*
Sex	X ₁	0.402	0.112	3.589	*
Age	X ₂	-0.791	0.315	-2.511	NS
Farm size	X ₃	0.616	0.305	2.019	**
Household size	X ₄	0.446	0.215	2.074	**
Income level	X ₅	0.887	0.211	4.203	*
Marital status	X ₆	0.963	0.432	2.229	*
Educational qualification	X ₇	0.733	0.364	2.013	**
R ²	81.91%				
Adj R ²	81.01%				
Standard error	0.310				

Source: Field Survey, 2019.

The result of the multiple regression analysis on Table 1 showed that the coefficient of multiple determinations (R^2), was high with a value of 81.91%. This high value revealed that about 81.91% variations in the explained variable (access and utilization of agricultural information) were as a result of the combined effects of the explanatory variables (socioeconomic characteristics) included in the regression model. This showed that the model was well-specified as relevant variables were included. The statistical reliability of this result was established by having a low standard error of the estimates (0.810).

Furthermore, the overall influence of the explanatory variables on the explained variable was indicated by F-statistics, whereas the close relation of the R^2 which constituted about 18.09% of the total variation that was not explained implied that the explanatory power of the chosen model was not exaggerated. The implication is that this result can be used for forecasting purpose since its output is of economic and econometric relevance.

The coefficient of sex was positive and statistically significant at 1%. This implied that there is equal access and utilization of agricultural information by both males and

females. This does not meet the a priori expectation since males have been known to have greater access and utilization of agricultural information. This does not corroborate with Okolo (2013) who reported that males and females do not access and utilize agricultural information equally.

Age had a negative coefficient and was not statistically significant. This implied that the higher the age of the small scale rural farmer, the lower the access and utilization of agricultural information. This is true to the priori expectation as farmers who are much aged do not have strength for agricultural activities and so may not be available to receive and utilize agricultural information. Also, it has been observed over the years that older farmers find it difficult to access new agricultural information as they may feel they already know the right things to do in order to increase productivity. This does not synchronize with the finding of Adomi (2003) who reported that older farmers may access and utilize agricultural information for agricultural production though they may be old.

The coefficient of farm size was positive and statistically significant at 5%. This means that any increase in the farm size of small scale farmers may increase the farmer's access and utilization of agricultural

information. This corroborates with the priori expectation of the researcher since increase farm size creates more need for more information to increase production and improve income. In the account of Tadese (2008), increase in farm size of rural farmers increase their need to access and utilize agricultural information.

The coefficient of household size was positive and statistically significant at 5%. This indicates that any increase in the number of household size of small scale farmers may lead to increase in the access and utilization of agricultural information. This supports the researcher's a priori view that increase in household size may lead to increase in the information base of the rural farmer which may result to increase in access and utilization of agricultural information. Ciarlo (1996) reported that increase in household size increases the tendencies of a farmer gaining agricultural information either from radio, extension agents, television, town crier, fliers, newspaper etc.

The coefficient of income was positive and statistically significant at 1%. This indicates that any increase in annual income will result to increase in access and utilization of agricultural information in the study area. This is in line with the priori expectation of the research which anticipated that any

increase in income level of small scale farmer may lead to increase ability to pay to access and utilize agricultural information. Furthermore, Endrias (2003) reported that increase in income of farmer leads to increase in access and utilization of agricultural information as increase in farmer's income may increase investment ability.

The coefficient of marital status was positive and statistically significant at 1%. This indicates that both married and unmarried people access and utilize agricultural information equally. This is not in line with the a priori expectation of the researcher since married people may have more family needs and responsibilities to meet and so may require agricultural information to increase productivity. Barbara (2012) reported that rural farmers who are married had greater access and utilization of agricultural information for increased production.

The coefficient of educational qualification was positive and statistically significant at

5%. This indicates that any increase in the educational qualification of the farmers may lead to increase in access and utilization of agricultural information whereas any decrease in educational qualification will lead to the reverse. This is in line with the a priori expectation of the researcher since increase in educational level of the farmer should lead to increase in access and utilization of agricultural information for production.

The final regression model result is presented thus;

$$Y = 1.040b_0 + 0.402X_1 - 0.791 X_2 + 0.616 X_3 + 0.446 X_4 + 0.887 X_5 + 0.963 X_6 - 0.733 X_6$$

(0.259) (0.112) (0.315) (0.305)
(0.2215) (0.211) (0.432) (0.364)

Classes of Information Accessed and Utilized by Farmers

The result of the classes and sources of Agricultural information accessed and utilized by farmers is shown in Table 1.

Table 1: Distribution of Farmers according to Classes of Information

Classes of information	Frequency	Percentage
Input distribution	05	4.00
Production techniques	63	52.00
Harvesting techniques	28	23.00
Management	03	2.00
Storage techniques/ facilities	06	5.00

Marketing strategies	15	10.00
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Source: Field Survey, 2019.

The result of the analysis on the classes of information received by the small scale rural farmers in the study area showed that the most predominant classes of agricultural information received by the small scale rural farmers were on; production techniques (52.00%) and harvesting techniques (23.00%) while the least classes of agricultural information received by the small scale rural farmers were on; management (2.00%) and marketing strategies (4.00%). Furthermore, some others among the farmers received agricultural information on storage techniques/facilities (5.00%) and input distribution (4.00%). This implied that most small scale farmers only

received information on the production techniques as well as the best harvesting methods. This is in line with the finding of Okoto (2013) which reported that the predominant agricultural information small scale rural farmers seek were on best production techniques.

Constraints to Access and Utilization of Agricultural Information

Constraints to rural farmers' access and utilization of agricultural information in the study area. The result of constraints to access and utilization of agricultural information by small scale farmers in the study area is shown in Table 2.

Table 2: Constraints to Access and Utilization of Agricultural Information

Constraints	Political	Socio-economic	Institutional
Inadequate/lack of power supply	0.062	0.907	0.209
Poor/lack of network coverage	0.076	0.001	0.853
High cost of ICT facilities	0.190	0.607	-0.317
Heavy family responsibilities	0.201	0.480	-0.608
Lack of formal education	0.128	0.662	-0.205
Lack of awareness on information	0.080	0.145	0.719
Traditional/cultural rejection of information	0.007	0.604	0.121
Long distance training venues and lack of fund	0.010	0.084	0.807
Lack of government encouragement	0.553	-0.025	0.185
Lack of adequate working materials	0.765	0.019	0.092
Lack of resources personnel with specialist knowledge and time inconsistency in training programmes	0.010	0.237	0.825
Lack of incentive for specialist	0.206	0.106	0.515
Lack of incentive for specialist	0.208	-0.414	0.494
Lack of technical competence of extension workers	0.300	-0.212	0.511
Communication barrier	0.084	-0.212	0.798
Lack of willingness to learn	0.031	0.612	0.118
Lack of simplicity in training/information	-0.981	-0.319	0.998
Corruption	0.862	0.098	-0.675

Source: Field Survey, 2019.

The socio-economic constraints that limited access and utilization of agricultural information for agricultural production include; inadequate/lack of power supply (0.907), lack of formal education (0.662), lack of willingness to learn (0.612), poor/lack of network coverage (0.607), traditional/cultural rejection of information (0.604) and heavy family responsibilities (0.480). However, the institutional constraints included; lack of simplicity in training/information (0.998), high cost of ICT facilities (0.853), lack of adequate working materials (0.825), long distance training venues and irregular programmes (0.807), communication barrier (0.798), inconsistency in training programmes (0.793), lack of awareness on information (0.719), lack of technical competence of extension workers (0.511), lack of resource personnel with specialist knowledge and time (0.515) and lack of incentive for specialist (0.494).

In addition, the political constraints include; corruption (0.862), lack of government encouragement (0.765) and lack of fund (0.553). This implies that lack of formal education is among the major constraints that militated against access and utilization of agricultural information by rural farmers. This is because increase illiteracy may result

to poor understanding of the farmers on the need to seek for important agricultural information which may be important to improve productivity. Also, increase in illiteracy may result to poor understanding on the side of the farmers even when the extension agents are trying to train them on the best methods to utilize agricultural information obtained.

Test of Hypothesis

The null hypothesis which stated that socio-economic characteristics of small scale rural farmers do not influence their access and utilization of agricultural information for agricultural production was tested at 5% level of significance.

Decision Rule: If $F_{cal} > F_{tab}$, reject null hypothesis otherwise accept the alternative.

If $F_{cal} > F_{tab}$, reject null hypothesis otherwise accept the alternative. Therefore, from appendix three, since $F_{cal} (72.44) > F_{tab} (2.09)$ at 0.05 level of significance, the null hypothesis which stated that socio-economic characteristics of small scale rural farmers do not influence their access and utilization of agricultural information for agricultural productivity was rejected and the alternative which stated that socio-economic characteristics of small scale rural farmers do influence their access and utilization of

agricultural information for agricultural productivity was accepted.

Conclusion and Recommendations

The result from the research showed that the rural small scale farmers had accessed and utilized some agricultural information for their agricultural production. It was observed that socio-economic characteristics of farmers actually influenced their access and utilization of agricultural information though there were some constraints which retarded their access and utilization of agricultural information. The result implies that if these constraints are tackled, there will be increased access and utilization of agricultural information which will improve agricultural production in the study area. The following recommendations were made; Rural farmers should be encouraged to access formal education as this will help them improve their access to agricultural information which results to increase in agricultural production; There should be subsidization of cost of agricultural information as this will increase the access and utilization by rural farmers who have been observed to earn low; Farmers should be encouraged to access agricultural credits which will encourage access and utilization of such funds in agricultural production;

Farmers should be trained on the how best to utilize accessed agricultural information as this will increase agricultural production.

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