RATE OF INFORMATION COMMUNICATION TECHNOLOGY (ICT) USE: ITS DETERMINANTS AMONG LIVESTOCK FARMERS IN UKWA WEST LGA, ABIA STATE OF NIGERIA.

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Abstract
The study on Rate of ICT Use: its determinants among Livestock Farmers were carried out in Ukwa West LGA, Abia State of Nigeria. The multi–stage sampling technique was used in selecting the respondents. A total of 100 respondents were randomly selected and interviewed with the aid of structured questionnaire. Data were analyzed using simple descriptive statistical tools and multiple regression analysis. Results of the analysis showed that most of the farmers are small scale farmers and literate with reasonable years of experience. The results of the regression analysis also showed that level of education, farming experience, income and size of flock are determinants of ICT use among livestock farmers in the area. The study therefore calls for measures that will enhance farmers’ rate of ICT use in the area.

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Key words: Information Communication Technology, Livestock farmers, Determinants.

Introduction
The agricultural sector accounted for only 41.73% in 2006 and 42.07% in 2008 of the National Gross Domestic Product (GDP). Out of these, livestock accounts for some 10% of the value of total agricultural output. The annual growth rates for livestock were between 2.7 to 5.0% over 2000-2002. These Livestock include cattle, goats, sheep, pigs and chicken (FAO, 2004). Nigerians consume about 7grammes of animal protein daily as against the minimum requirement of 28grammes/caput/day representing a short fall (Dauda et.al., 2010). Therefore, inadequate animal protein intake is a major problem in most developing countries (Nwajiuba et al, 2001). Regrettably, with population increasing at the rate of 3% annually in developing countries as reported by FAO (2002), increase in demand for food especially protein becomes inevitable. Meanwhile, growth of the livestock sector is necessitated by population growth, changing climate and technology needs (Leonard, 1990). These technologies are innovations such as housing, feeds and feeding, artificial insemination which are carried out on the livestock to improve their efficiency and well being of the end users. The efficiency of technology generated and disseminated depends on effective communication which is the key process in information dissemination (Oladele, 1999). Hence, the communication of technology and economic information in the face of global food crisis is a veritable tool for agriculture and rural development. It is pertinent to note that Nigeria’s agricultural policy aims at ensuring food security. It also seeks to promote the use of modern technologies (FMC, 2002). This can be done through the use of information communication technologies. On this note, Koutsouris (2006) recognised the contributions of the media to economic development. According to Dauda et.al., (2010), communication is critical to finding solution to problems of food production through facilitating research- farmer linkage through ICT usage. Information Communication Technology (ICT) is commonly used to embrace a multitude of media including telephone, television, video, telex, voice information systems and fax as well as those requiring the use of personal computers fitted with a modem or supply technologies that facilitate communication processing and transmission of information by electronic means ranging...
from radio, television, telephone (fixed or mobile) and internet (Warren, 2001; CTA, 2003; Omotayo, 2005). Adejo and Haruna (2010) classified ICT into conventional ICT (radio, television) and contemporary ICT (telephones, computer/internet). ICTs are foundation of the new global information based economy (Okwusi et al., 2009). They are increasingly becoming the key drivers for socio-economic growth worldwide (Hellerstein, 2005). Infact, its capacity for immediacy and sharing of large volume of information at minimum cost has been documented (FGN, FAO, 2004). Despite the potentials of ICT use among farmers, its use in Sub Sahara Africa has remained minimal (Kiplang’at, 1999). Moreso, farmers who are hooked up to new technologies do better, however, they are few (Spore, 2004). Idachaba (2000) observed a wide gap between the potential of released improved seed varieties and farmers’ yields. Therefore, information on improved farm technologies and its effect on productivity and income of farmers needs to be investigated. In an attempt to bridge the gap between the digital divide between the rural and urban areas, and between developed and developing countries (Adejo and Haruna, 2009), Federal Government of Nigeria introduced computer education in her curricula. Ironically, most of the Nigerian farmers are illiterates living in the rural areas, hence have no knowledge of ICT (Omotayo, 2005). In view of this therefore, it becomes imperative to investigate the rate of ICT use among livestock farmers in Ukwa West Local Government Area of Abia state. The study set out to achieve the following objectives; to analyse the socio-economic characteristics of the respondents in the area, identify the various ICTs used as well as ascertain the determinants of the rate of ICT use among livestock farmers in the area.

Materials and Methods
The study was carried out in Ukwa west local government area, Abia state. A multi-stage random sampling technique was employed in selecting from the list of livestock farmers which was compiled by the Agricultural Development Programme (ADP) Extension agent. This list was then stratified into goat, pig, poultry farmers respectively in the area. From this sampling frame of 200 livestock farmers comprising 60 goat farmers, 40 pig farmers and 100 poultry farmers; 30, 20 and 50 farmers respectively were proportionately and randomly selected in the area.

Data for the study were collected from both primary and secondary sources. The primary data were obtained using a set of structured questionnaire, which was administered to the selected farmers through oral interview. The secondary sources from research reports, seminar papers, journals and conference proceedings, internet and other relevant literature. Simple descriptive statistical tools such as mean, frequency distribution as well as percentages and ordinary least square multiple regression technique were employed in the data analysis.

The multiple regression model is expressed as:
\[ Y = f (X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, U) \]
\[ Y = \text{Rate of ICT use (number of information obtained / number of information applied X 100)} \]
\[ X_1 = \text{Age of farmer (years)} \]
\[ X_2 = \text{Level of Education (years spent in school)} \]
\[ X_3 = \text{Marital Status (Dummy, 1= married; 0 = single)} \]
\[ X_4 = \text{Farming Experience (years)} \]
\[ X_5 = \text{Flock Size (number)} \]
\[ X_6 = \text{Household Size (number)} \]
\[ X_7 = \text{Income of farmer (naira)} \]
\[ X_8 = \text{Access to credit (Dummy, 1 = access; 0 = no access)} \]
\[ X_9 = \text{Membership of co-operatives (no of association a farmers belongs to)} \]
\[ U = \text{Error term} \]

Results and Discussion

Socio-economic characteristics of farmers in the area.

Table 1: Distribution of the farmers according to their socio-economic characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (X_1)</td>
<td>48 years</td>
</tr>
<tr>
<td>Level of education (X_2)</td>
<td>8 years</td>
</tr>
<tr>
<td>Farming Experience (X_4)</td>
<td>13 years</td>
</tr>
<tr>
<td>Flock Size (X_5)</td>
<td>120</td>
</tr>
<tr>
<td>Household Size (X_6)</td>
<td>6 persons</td>
</tr>
</tbody>
</table>

Source: Field Survey data, 2011

Table shows that the mean age of the farmers was 48 years. This is an indication that livestock farming is dominated by young people who are active and within the productive age group. This finding is similar to that of Audu and Abu (1999) who reported that people from this age constitute the major work force that can be productive. The mean level of education of 8 years suggests that livestock farming is in the hands of enlightened people in the area. There is a positive correlation between level of education and the acceptance of ideas by farmers (Ajala, 1992). Literate individuals are keen to get information and use it.

The farmers are reasonably experienced in livestock enterprise, this is evident in their 13 mean years of experience as livestock farmers. This is plausible in the sense that the higher the farming experience, the more the farmer would have gained more knowledge and technological ideas on how to tackle farm production problems and the higher would be his output and in income (Nwaru, 2004).

The mean size of flock of the farmers was 120, this shows that livestock farming is dominated by small scale farmers in the area.

Moreso, the mean household size of 7 persons was observed. This shows that the farmers had reasonable family labour that...
Table 2: Multiple Responses Recorded

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio</td>
<td>68</td>
</tr>
<tr>
<td>Television</td>
<td>54</td>
</tr>
<tr>
<td>GSM</td>
<td>32</td>
</tr>
<tr>
<td>Fixed Phone</td>
<td>3</td>
</tr>
<tr>
<td>Computer / Internet</td>
<td>2</td>
</tr>
</tbody>
</table>

Field Survey data (2011)
*Multiple Responses Recorded

Table 3: Multiple Regression analysis of determinants of ICT use among livestock farmers in the area

<table>
<thead>
<tr>
<th>Variable</th>
<th>Semi Log</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of farmer (X1)</td>
<td>33378.592 (1.617)</td>
</tr>
<tr>
<td>Level of Education (X2)</td>
<td>-13310.975 (3.127)**</td>
</tr>
<tr>
<td>Marital Status (X3)</td>
<td>4592.734 (0.847)</td>
</tr>
<tr>
<td>Farming Experience (X4)</td>
<td>-4829.734 (3.675)**</td>
</tr>
<tr>
<td>Flock Size (X5)</td>
<td>4648.679 (8.743)**</td>
</tr>
<tr>
<td>Household Size (X6)</td>
<td>-938.825 (1.890)</td>
</tr>
<tr>
<td>Income of farmer (X7)</td>
<td>41393.992 (7.497)**</td>
</tr>
<tr>
<td>Access to credit (X8)</td>
<td>7982.345 (2.738)*</td>
</tr>
<tr>
<td>Membership of co-operatives (X9)</td>
<td>-12220.610 (2.416)*</td>
</tr>
<tr>
<td>Constant</td>
<td>-23830.634</td>
</tr>
<tr>
<td>R^2</td>
<td>0.817</td>
</tr>
<tr>
<td>F-value</td>
<td>22.948</td>
</tr>
</tbody>
</table>

Source: Field Survey data (2010)
*Significant at 5%; ** Significant at 1%

could help to tend their flock. Household size in traditional agriculture determines the availability of labour and level of production (Ani, 2004).

Table 2 shows that majority of the farmers sixty-eight (68) use radio while only two (2) of the livestock farmers use internet. This suggests that radio is mostly used by livestock farmers in the area to obtain information on agricultural technologies. This implies that farmers use conventional ICTs for obtaining agricultural technological information more than the contemporary ICTs. This is consistent with Adejo and Haruna (2009).

From the results of the multiple regression analysis in Table 3, the semi log function was chosen as the lead equation based on conformity with a priori expectation and econometric criteria. Also from the results, the coefficients for level of education, farming experience, flock size and income of the farmers were positive and significant at one percent level while access to credit and membership to co-operatives were positive and significant at five percent level. This shows that they are important determinants of rate of ICT use in the area. This implies that the higher they are among the farmers, the higher the rate of ICT use. Moreso, the coefficients of age, marital status and household size were insignificant, hence are not determinants of the rate of ICT use in the area.

The R^2 value of 0.812 implies that 82% of the variability in the rate of ICT use was explained by the variables included in the model. The F-ratio of 22.948 is equally significant which indicates that the model fits the data. This is consistent with Ndansita et al., (2010).

Conclusion
Most livestock farmers utilise ICT for receiving agricultural information, although the use of contemporary ICT is less. The results also indicate that important factors directly related to ICT use in the area include level of education, farming experience, flock size, access to credit, level of income and membership of co-operative organisation.

Recommendations
Results call for policies designed to improve access to credit, education and formation of co-operatives as it will improve the rate of use of ICT in the study area.

References
7. FAO (2002). Production Year Book of Food and Agricultural Organisation of United nations, Italy, Rome.


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