

USE OF RADIO FOR EXTENSION SERVICE DELIVERY TO FARMERS IN RURAL COMMUNITIES OF ABIA STATE, NIGERIA

Atasie, C. M. and Izuogu, C. U.

Department of Rural Sociology and Extension, Michael Okpara University of Agriculture, Umudike
Correspondence contact details: atasiechikerenmaa@gmail.com

ABSTRACT

This study assessed radio utilisation for extension service delivery to farmers' in rural communities of Abia State, Nigeria. The specific objectives of the study included analyses of the socio-economic characteristics of the respondents, ascertaining the access/ownership of radio and frequency of use of radio for extension service delivery to the respondents. A multi-stage sampling technique was adopted in selecting 126 respondents for the study in the three agricultural zones of the State namely; Umuahia, Aba and Ohafia. Structured questionnaire and scheduled interview were employed to elicit information from the respondents. Data were analysed using frequency distributions, percentages, mean and ordinary least square regression analysis. The result showed that the area was fairly dominated by males (51.59%). The respondents had a mean age of 44 years. It also showed that majority (79.36%) of the farmers were married. The average income earned by a respondent per week was N2631.15k. The findings also revealed that (87.30%) of the respondent had access/ownership to radio and frequency of use of radio was high (83.57%). The factors that significantly influenced the use of radio for extension service delivery were age and marital status at 1% level of probability and frequency of extension contact at 5% level of probability. The study recommended that rural farmers' access to radio should be sustained to ensure adequate awareness of innovations generated by research institutes and other governmental and non-governmental agencies. Rural farmers' radio forum should be formed to increase access to information by farmers. Extension workers should put more concerted effort to develop the use of radio as a valuable source of agricultural information. They should be educated to direct the content of the message to address the needs of the farmers.

Keywords: Rural, technologies, farmers, utilisation, access

INTRODUCTION

Transferring agro-technologies to the clientele at the appropriate time is an effective way of developing agriculture. Hence, the achievements of agricultural growth programmes in developing countries depend, to a large extent, on the environment and level of use of media technology in mobilization of people for progress.

The organisers and planners in developing countries understand that the development of agriculture could be facilitated with the active use of mass media (Salleh *et al*, 2010). Adoption of improved farm technologies is a reliable means to solve the problem of low agricultural productivity in Nigeria. Improved technologies are valueless until they can be put to some practical use for economic and social well-being of the people.

Radio is a mass medium of communication and can reach a large number of people at a given time involving the least expense. In terms of accessibility, radio is perhaps the most direct means of information in rural areas. The accessibility to farm radio programmes depends on the extent of radio ownership, the reception of radio signals, understandability of the message and convenience of listening time. Also, the availability of transistor's radio nowadays makes it easy for almost every family to own a radio (Onuekwusi and Atasie, 2011). For agricultural purposes, radio is one of the most popular means of communicating with farmers. Adekunle *et al* (2004) identified radio to be a very good source of information to farmers in Abia State. The medium

has become the favourable choice of Agricultural Development Projects (ADPs) in communicating useful agricultural information to farmers in remote areas.

The first radio station in the country was run by the Nigerian Broadcasting Service and started its operation in Lagos in the mid-1940s' with limited coverage. According to NBC (2011), there are 136 radio stations of which 43 are owned by the Federal Government and 41 by State governments. Privately-owned stations are 25, while 27 radio stations are campus radio. Radio is a very powerful communication tool. Experience with rural radio has shown the potential for agricultural extension to benefit from both the coverage and relevance that local broadcasting can achieve by using participatory communication approaches (Nwachukwu, 2010).

Since technologies are practices and inputs that can guarantee profitable results of production on the farm and farm family, as well as increase in food production and eradication of poverty must be achieved, efforts must be geared towards effective and efficient means of transferring technologies and the required knowledge especially through the use of mass media in Nigeria. It would be wrong to assume that suitable technologies will become available to farmers without considering and testing the level of awareness and use of technologies by the extension workers who offer the technical advice.

Based on the above fact, a study on use of radio for extension service delivery was carried out



to reveal the extent of access/ownership, frequency of use and ascertain its effect on the socio-economic characteristics of farmers. This study is imperative because it would provide a better way to increase and sustain the utilisation of radio for technology transfer.

The specific objectives of the study were to:

1. analyse the socio-economic characteristics of the respondents;
2. ascertain the access/ownership of radio for technology transfer;
3. examine the frequency of use of radio for technology transfer in the study area.

The research hypothesis was tested in the null form, is that there is no significant relationship between socioeconomic characteristics of respondents - (age, marital status, farming experience, farm size, educational level, ownership/access to radio, frequency to extension contact and income level of the respondents) and level of radio utilisation for extension delivery.

METHODOLOGY

The study was conducted in Abia State which covers a geographical area of about 5243.7sq km, and is approximately 5.8 per cent of the total land area of Nigeria. It is bounded on the north and north-east by Anambra, Enugu and Ebonyi States. On the west of Abia is Imo State. To the east and south-east were Cross River State and Akwa Ibom States, and to the south is River State. Rainfall is heavy in the State with about 2400 mm/year, and it is quite intense between the months of April through October. Abia State shares similar rainfall regime with Imo State (Ifenkwe and Izuogu, 2015).

The population for the study was made up of all farmers in Abia State. Multi-sampling technique was adopted in selecting 126 respondents for the study. The sampling involves the selection of farmers from the three agricultural zones of the State namely; Umuahia, Aba and Ohafia. From the zones 2 blocks were selected each, giving a total of 6 blocks. Out of the 6 blocks, 3 circles were randomly selected giving a total of 18 circles. Seven farmers were randomly selected from each of the circles making a total of 126 farmers.

Primary data were collected with the use of interview schedule and structured questionnaire. The questions were based on the objectives of the study in order to achieve the goal of the research. Descriptive and inferential statistical tools were employed using frequencies, percentages, means and ordinary least square regression analysis. Objective 1 was analysed using frequency, percentage and mean to describe the socio-economic characteristics of the respondents such as sex, age, marital status etc. Objective 2 was analysed using frequency, percentage and mean to

ascertain the access/ownership of radio for extension service delivery. Objective 3 was analysed using frequencies, percentages and means to examine the frequency of use of radio for extension service delivery in the study area. Information on the frequency of use of radio was collected using a 3-point scale which was graded as follows: Daily = 3 points, Weekly = 2 points and Monthly = 1 point

Radio with scale responses of a mean score of 2 and above were described as have been used by the respondents, while those with mean scores of less than 2 was described as not have been used by the respondents.

The research hypothesis was tested using Ordinary Least Square (OLS) regression analysis fitted to the data.

The implicit form of OLS multiple regression models is stated below:

$$Y = f(X_1, X_2, X_3, X_4, \dots, X_n + e) \dots \dots \dots \text{equation 1:}$$

Where;

Y = Use of Radio (Usage = 1, Non-usage = 0)

X₁ = Age (years),

X₂ = Marital status (1for married, and 0 for not married),

X₃ = Farming experience (years),

X₄ = Farm size,

X₅ = Educational level (years in school),

X₆ = Ownership/Access to Radio,

X₇ = Frequency of extension contact,

X₈ = Access to credit,

e = error term.

The implicit forms of the four functional forms (Linear, Double log, Semi Log and exponential) fitted into the equation are specified as follows:

Linear

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + e$$

Double- Log (Cobb-Douglas)

Log

$$Y = b_0 + b_1 \log X_1 + b_2 \log X_2 + b_3 \log X_3 + b_4 \log X_4 + b_5 \log X_5 + b_6 X_6 + e$$

Semi-Log

$$Y = b_0 + b_1 \log X_1 + b_2 \log X_2 + b_3 \log X_3 + b_4 \log X_4 + b_5 \log X_5 + b_6 X_6 + e$$

EXPONENTIAL

$$\text{Log } Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + e$$

The lead equation was chosen based on the one that provides the best fit on the basis of the F-statistics, R square- magnitude of coefficient of multiple determinations, sign and significance of the coefficient (Tanko and Jirgi, 2007).

RESULTS AND DISCUSSIONS

Socioeconomic characteristics of respondents - This section provides the socio-economic characteristics of respondents within the study area. The major findings of the study were presented and discussed with inferences drawn from them.

Data presented in Table 1 showed that 48.41% of the respondents were female, while 51.59% were male. This indicates that males constituted a higher percentage of people engaged in farming activities in the study area and points to the need to encourage their female counterparts to be involved in farming activities. It also agrees with a previous study by Izuogu and Ekumankama (2015).

Table 1 revealed that 66.6% of the respondents were between the ages of 36 -55 years. This result implies that majority of the respondents

were in the productive stage of their lives and were capable of engaging in farming activities. FAO (1992) described this group of people to be economically productive in population (16-64 years). Such a group is most likely to be active in farming and would tend to develop more interest in sourcing for technologies through the mass media.

Most (81.7%) of the respondents were married. This was not surprising as most of them were adults and ready to have their own family. Ekong (2010) observed that getting married is a highly cherished value among ruralities in Nigeria.

Table 1: Socioeconomic characteristics of respondents

Characteristics	Operationalised	Frequency	Percentage (%)
Sex	Female	61	48.41
	Male	65	51.59
Age	26-35	29	23.02
	36-45	46	36.51
	46-55	38	30.16
	56-65	13	10.20
Mean age = 44			
Marital Status	Single	23	18.26
	Married	100	79.36
	Divorced	3	2.38
Income (N) (weekly)	500-2500	76	60.32
	2501-4500	33	26.19
	4501-7500	17	13.49
Mean Income (N) = 2631.15			

Source: Field Survey (2014)

However, it could be deduced that since majority of the respondents were married, it is expected that they will source for agricultural technologies through radio to increase their productivity and enhance their income. The low percentage of divorce is attributed to the fact that though Nigeria has adopted more liberal divorce laws in the last two decades, many households still value the sanctity of marriage (Izuogu *et al*, 2015) Furthermore, marriage is appreciated and honoured among people.

The income earned by the respondents was also described in Table 1. From the result, it was revealed that 60.32% earned N500.00 – N2500.00 per week, and 26.19% earned between N2501.00- N4500.00 per week, while only 13.49% of the respondents earned above N4500.00. The average income earned by a respondent was N2631.15k/week. This implies that a respondent receives an average of N375.88k on daily basis showing a low income level when

compared with the country’s economy and large household size.

Farmers’ access/ownership of radio for technology transfer

Table 2 shows the level of access/ownership of radio as indicated by the respondents. Radio had a high rate of accessibility/ownership as revealed from the Table. From the findings, 87.30% of the respondents had access/owned radio. This may be as a result of the advantages that radio has over other mass media channels. Munyua (2000) found out that radio was successful in the delivery of agricultural technology. It also has the ability of being put to use without necessarily interfering with the activities of the user. This result is also in agreement with Ani and Baba (2009) who stated that radio breaks illiteracy barrier which affect use of newspapers and other books. Also, Ataise (2011) reported that farmers showed favourable attitude toward the use of radio as an information source.

Table 2: Distribution of respondents according to their level of access/ownership to radio for technology transfer

Mass media	Level of access/ownership	
	Yes	No
Radio	110 (87.30)	16 (12.70)

Figures in parenthesis are percentages



Frequency of use of radio for technology transfer

The daily use of radio for extension service delivery was high (83.57%). Almost all homes have radio as a source of news and

entertainment. Radio uses alternative source of power (battery) which is relatively cheaper when compared to electricity or fuelling a generating set. Also radio can be listened to while one is busy with his/her work (Onuekwusi and Atasi, 2011).

Table 3 Distribution of respondents according to their frequency of use of radio for technology transfer

Mass media	Frequency of utilisation			Mean	Decision
	Always	Sometimes	Rarely		
Radio	117*(83.57)	23*(16.42)	-	2.8	High

* Multiple Responses. Figures in parenthesis are percentages

Multiple Regression analysis for hypothesis one on the relationship between socioeconomic characteristics of the respondents and use of radio

Based on statistical and econometric reasons, the Double log model was chosen as the lead equation for the analysis. The F-ratio was 3.690. The coefficient of multiple determinations (R^2) was 0.349, implying that about 34% variations in the use of the radio was determined by the variables included in the model. The coefficients of regression that had expected signs (positive) that are consistent with *a priori* expectations were age and marital status. This implied that those variables that had positive signs were positively related to the use of the radio. In other words, an increase in any of the variables would increase use of radio.

The coefficient of determination for age was positively related to the use of radio by the respondents with a t-value of 2.301, which was significant at 1% level of probability. This suggests that the older the age of the respondents, the more they make use of radio and vice versa. This shows that as their age increases their responsibilities also increases and this makes them to devise means to acquire more information to meet their farming challenges. This indicates that most of the respondents were adults and fall within the group described by FAO (1992) as economically productive population (16-64 years). Such group is usually active in farming and tends to develop more interest in sourcing for agricultural

technology through the mass media channels. This finding is in agreement with Muhammad and Garforth (2001), who reported that radio was the major source of agricultural information, followed by television.

Marital status was also significant and positively related to the use of radio with a t-value of 4.134 at 1% level of probability. This shows that as there is increase in the marital status there is an increase in radio use. However, it could be deduced that since majority of the respondents were married, it is expected that they will source for more information to increase their productivity and enhance their income.

However, the variable that was negative and significant implied that it had negative effect on the use of radio. This means that an increase in the variable would lead to a decrease to the use of radio. Contact with extension workers was negatively significant at 5% level of probability, with a t-value of -0.233. This implies that the more access the respondents had to extension workers the less they made use of radio. It shows that farmers do not make effective use of electronic media in getting agricultural information. The situation demands for more concerted effort in this regard to develop urge for using radio as a valuable source of agricultural information. The result is in consonance to that of Muhammad (2004) who reported that the use of electronic media for getting agricultural information was not encouraging.

Table 3: Testing of hypothesis one - Ordinary Least Square Regression (OLS) estimate of the influence of selected socio-economic characteristics of the respondents on their use of radio for extension service delivery.

Variables	Linear	Semi log	Double log +	Exponential
Constant	1.995 (2.443)**	-8.746 (-1.523)	-2.532 (-1.632)	0.893 (3.942)***
Age	0.031 (2.674)***	1.502 (2.526)**	0.369 (2.301)**	0.007 (2.226)**
Marital status	0.034 (3.424)***	1.114 (3.623)***	0.343 (4.134)***	0.010 (3.804)***
Farming experience	-0.291 (-1.179)	-0.541 (-0.775)	-0.194 (-1.024)	-0.076 (-1.111)

Variables	Linear	Semi log	Double log +	Exponential
Farm size	0.256 (1.325)	0.381 (1.012)	0.064 (0.634)	0.051 (0.954)
Educational level	0.114 (0.363)	0.262 (0.076)	-0.011 (-0.057)	0.017 (0.195)
Ownership/access to radio	-0.278 (-0.699)	0.542 (0.609)	0.206 (0.858)	-0.079 (-0.718)
Frequency of extension contact	-0.843 (-2.170)**	-2.654 (-1.791)*	-0.936 (-0.233)**	-0.256 (-2.379)**
Income Level	0.000 (1.017)	0.404 (0.581)	0.170 (0.904)	3.385E-5 (0.900)
R ²	0.244	0.315	0.349	0.252
Adjusted R	0.169	0.216	0.255	0.178
F-ratio	3.265	3.168	3.690	3.413

Source: Field survey 2014

*** Significant at 1%, ** Significant at 5%, * Significant at 10%

+ represents lead equation

Based on the F ratio value, the null hypothesis was accepted which stated that there is no significant relationship between the selected socio-economic characteristics of the respondents and use of radio for receiving information. This decision was taken since the computed F ratio value (3.690) was greater than the F table value (2.41).

CONCLUSION AND RECOMMENDATIONS

In line with the objectives of the research, the study concluded that; the farmer had a mean age of 44 years and there were slightly more male farmers (51.59%) than female farmers (48.41%). Most (79.36%) of the farmers were married. The farmers had a mean income of N2631:15K per week. Radio had a high rate (87.30%) of accessibility/ownership by the farmers. Its daily use for extension service delivery was also high (83.57%). The coefficient of determination for age and marital status was positively signed and significantly related at 1% level of probability each to use of radio for extension service delivery while contact with extension workers was negatively related and significant at 5% level of probability.

The study recommended that rural farmers' access to radio should be sustained to ensure adequate awareness of innovations generated by research institutes and other governmental and non-governmental agencies. Rural farmers' radio forum should be formed to increase access to information by farmers. Extension workers should put more concerted effort to develop urge for using radio as a valuable source of agricultural information. They should be educated to direct the content of the message to address the needs of the farmers.

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