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INFLUENCE OF INFRASTRUCTURES ON AGRICULTURAL EXTENSION SERVICE VISITATIONS IN NIGER STATE, NIGERIA

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ABSTRACT

The study examined the influence of infrastructures on agricultural extension service visitations in Niger State, Nigeria. To achieve the study objectives, multistage sampling technique was used to randomly select 152 respondents for the study, using validated interview schedule with reliability coefficient of 0.79. Data collected were analyzed using descriptive statistics and regression model. Result showed that the mean age of the respondents was 58years, while the mean household size of the respondents was 6 persons. Findings indicated that radio signals (100.0%), schools (63.8%) and motorable roads (53.3%) were the common infrastructural facilities available in the study area. The result further revealed that infrastructural facilities such as motorable roads ($p<0.01$), research institutes ($p<0.01$), telecommunication networks ($p<0.01$), electricity supplies ($p<0.01$), television signals ($p<0.10$), schools ($p<0.10$) and health centres ($p<0.10$) had significant influence on extension service visitations in the study area. The study concludes that extension service visitations were determined by the availability of infrastructures like motorable roads, research institutes, telecommunication networks and electricity supplies. Therefore, it was recommended that agencies like National Fadama Development Project and Rural Access and Mobility Project should provide more feeder roads to open-up rural areas and ease transportation or movements of village essential service providers.

Keywords: Extension service, Influence, Infrastructures, Niger State, Visitations,

INTRODUCTION

Development of agricultural sector in the developing countries is hinged on the effectiveness of the extension system in place, because in those countries, small-scale farmers depend on extension personnel for useful information necessary for their production activities (Okunlola, 2005). Agricultural extension service delivery involves educating farmers on improved farming techniques to increase farm productivity and income, as well as promoting socio-cultural, recreational and intellectual opportunities with attendant improvement in the welfare of rural dwellers.

Anderson and Feder (2004) reported that the objectives of agricultural extension services are to transfer useful knowledge from researchers to farmers; involving farmers in

the process of making decisions that affect their day to day activities and to stimulating desirable agricultural development. The authors further stressed that agricultural extension agents often render services that are not directly related to farm activities such as non-farm business management, health, home economics and nutrition. In apparent realization of the significance of extension services to agriculture and rural development, various governments in Nigeria introduced a number of extension systems such as Conventional extension system, Commodity extension system, University-based extension system, Training and Visit extension system, Community-based extension system and Unified agricultural extension system to execute some of the launched agricultural programmes in the country (Jibowo, 2005).

For the effective implementation of the agricultural programmes in Nigeria there is need for infrastructural facilities that could provide conducive working environment for the extension service delivery. Pinstrup-Andersen and Shimokawa (2010) reported that agricultural and rural development depends largely on effective infrastructures which encompass roads, irrigation facilities, electricity, Information and Communication Technologies (ICTs), health and school facilities among others. According to Fan (2004), the provision of these infrastructural facilities will contribute to effective delivery of goods and services that promote prosperity, quality of life, social well-being, health, safety and economic growth of both rural and urban populace.

But in recent times, governments' dwindling developmental budget and poor progress in providing economic and social infrastructures has created a barrier between the farmers and extensions workers, which has hindered successful utilization of agricultural research and technologies. It is against this background that this study was carried out to examine the influence of infrastructures on agricultural extension service visitations in the study area. The specific objectives are to: describe the socio-economic characteristics of the respondents; ascertain infrastructural facilities available in the study area; and to determine the influence of infrastructural facilities on agricultural extension service visitations in the study area.

MATERIALS AND METHODS

Study Area

The study was conducted in Niger State which is located within Guinea Savannah agro-ecological zone of Nigeria, between Latitudes 8^0 22^1 and 11^0 30^1N and Longitudes $3^0 30^1$ and $7^0 20^1$E. With annual growth rate of 3.4%, the state has projected population of 5,337,149 people as of 2015, of which 85% of them are farmers. Annual rainfall of the study area ranges from 1,100mm in the Northern part to 1,600mm in the Southern part of the state. The mean average temperature is around 32^oC. Some of the crops grown in the state include yam, cotton, maize, sorghum, millet, soybean, cowpea, rice and groundnut. While some of the tree crops cultivated are mango, citrus, cashew, banana, pawpaw. Livestock reared include goats, sheep, cattle, chicken, camels and donkeys (Niger State Geographic Information System, 2007).

Sampling and Instrumentation

Multistage sampling technique was used for the selection of respondents for this study. The first stage included random selection of one Local Government Area (LGA) from each of the three Agricultural Zones in the State. The selected LGAs are Lavun, Borgu and Gurara. The second stage was through random selection of three villages in each of the selected LGAs. In the third stage, 10% of the farmers were selected from the sample frame of 1520, making the sample size of the study to constitute 152 farmers. Content validity of the instrument for data collection (interview schedule) was ensured through experts' consultation. Cronbach's Alpha reliability test was used by the researchers to ascertain the reliability of the research instrument and the items used in measuring the research variables were 0.70 and above. Structured questionnaire was administered to the farmers using interview schedule.

Data Collection and Analysis

Socio-economic characteristics such as age was measured in years while the farmers educational attainment was measured based on the status of education attained by the farmer. While house hold size and extension contacts were measured in numbers. Sex and marital status were determined by asking the respondents to indicate their actual sex and marital status from the list of options provided. Infrastructures such as radio signal, television signal and telecommunication networks were measured in numbers. While motorable road, library, school, health centre, internet, borehole and irrigation facilities were measured as dummy variables. Electricity supply was measured in hours and closeness to research institute was measured in kilometers. Descriptive statistics were used to achieve objectives one and two, while objective three was achieved using ordinary least square regression model. The model is specified implicitly and explicitly as follows:

$Y= F (X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12}e)$

$Y=a+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\beta_7X_7+\beta_8X_8+\beta_9X_9+\beta_{10}X_{10}+\beta_{11}X_{11}+\beta_{12}X_{12}+e_1$

Where:

Y= Agricultural extension service visitations-Dependent variable

$\beta_1 - \beta_{12=}$ Parameters estimated

$X_1 - X_{12}$ = Independent variables

X_1=Motorable road

X_2 =Radio signal

X_3 = Television signal

X_4 = Library facility

X_5 = Electricity supply

X_6 = Closeness to research institute

X_7= Presence of school

X_8= Health centre

X_9= Internet facility

X_{10}= Telecommunication network

X_{11}= Irrigation facility

X_{12}= Borehole

e = error term

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Respondents

Table 1 showed that majority (78.9%) of the respondents were male while few (21.1%) were female; this suggests that male farmers dominate agricultural activities in the area, which may be attributed to the fact that male have more access to production inputs including extension services than the female due to cultural and religious barriers.

Table 1: Distribution of the respondents based on their socio-economic characteristics

Variable	Frequency	Percentage	Mean
Sex			
Female	32	21.1	
Male	120	78.9	
Age			
20-30years	2	1.3	57.84
31-40years	3	2.0	
41-50years	31	20.4	
51-60years	63	41.5	
61-70years	44	28.9	
71-80years	9	5.9	
Marital status			
Single	3	2.0	
Married	131	86.2	
Divorced	11	7.2	
Widow	6	3.9	
Widower	1	7	
Family size			
1-6members	93	61.2	16.19
7-12members	59	38.8	
Educational status			
No formal	26	17.1	
Primary	59	38.8	
Secondary	59	38.8	
Tertiary	8	5.3	
Extension visits*			
1-2	19	12.5	
3-4	72	47.4	
5-6	44	28.9	
7-8	17	11.2	

Source: Field Survey, 2017

The result also revealed that the mean age of the respondents was about 58 years. The result implies that majority of the farmers in the study area are ageing. This points the need for extension workers to encourage young individuals into the farming occupation during extension visitations in order to enhance the innovativeness of the respondents in the area. Table 1 indicated that majority (86.2%) of the respondents were married. Married

respondents are likely to produce more food crops for their families and thus may need more information from agricultural extension agents. This assertion supports the view of Onu (2003) who reported that marital status of the farmer has advantage for increased productivity and innovativeness since married people tend to be more committed to task in agricultural activities.

Furthermore, Table 1 showed that the mean family size of the respondents was 6 persons. Availability of family labour could motivate the respondents to produce more crops using the services of agricultural extension workers. Similarly, the result revealed that 38.8% of the respondents had attained primary and secondary education. In view of the fact that sizeable percentages of the respondents were literate in the study area, they can be easily taught or trained by the extension agents during visitations.

Result further showed that about half (47.4%) of the respondents had between 3-4 extension visitations during the production season. While 28.9%, 12.5% and 11.2% of the respondents had between 5-6, 1-2 and 7-8 extension visitations, respectively. This result implies that majority of the respondents had at least 3-4 extension visitations in a year. The result suggests that the respondents are underserved because they are not receiving fortnightly extension visits and this may be attributed to inadequate infrastructures among others.

Availability of Infrastructural Facilities

Findings in Table 2 indicated that radio signals were available in the localities of entire (100.00%) of the respondents. This point to the popularity of radio as a major source of information, because of accessibility of it signals even in the rural areas. Arokoya (2003) also reported that access to radio was higher compared to any other ICT for people living in rural areas. Schools are present in the communities of 63.8% of the respondents. The result further showed that 53.3% and about half (49.3%) of the respondents had motorable roads and health centres, respectively in their areas.

Table 2: Distribution of respondents based on availability of infrastructural facilities (n=152)

Infrastructures*	Frequency	Percentage
Motorable road	81	53.3
Radio signal	152	100.0
Television signal	43	28.9
Library facility	9	5.9
Electricity supply	72	47.4
Research institute	39	25.7
School	97	63.8
Health centre	75	49.3
Internet facility	12	7.9
Telecommunication network	54	35.5
Irrigation facility	7	4.6
Borehole	23	15.1

Source: Field survey, 2017

* Multiple responses

Additional infrastructural facilities present in the study area were electricity supply and telecommunication networks with 47.4% and 35.5% response rate respectively. Other infrastructural facilities available in the study area were television signals (28.9%), research institutes (25.7%), boreholes (15.1%), internet facilities (7.9%), rural community libraries (5.9%) and irrigation facilities (4.6%). The general inference that can be drawn from this result is that the respondents in the study area have low infrastructural facilities, which may hinder the provision of effective and efficient essential service delivery such as extension services in the rural areas. These findings agrees with the report of FAO (2001) which stressed that electricity supplies, telecommunication facilities and other infrastructural services are limited in the rural areas.

Influence of Infrastructural Facilities on Extension Service Visitations

Result in Table 3 revealed that access to motorable roads had significant positive ($p<0.01$) influence on agricultural extension service visitations in the study area. This is likely because access to motorable roads throughout the year would enable the extension workers to visit their clientele any time of the season unrestricted. The finding also indicated that closeness to research institutes significantly influenced ($p<0.01$) agricultural extension service visitations positively in the area. This may be attributed to the fact that presence of research institutes in the vicinity of the respondents would make them more receptive to extension service visitations.

Table 3: Influence of infrastructures on extension service visitations

Infrastructural facilities	Coefficients	Standard Errors	T – ratios
Constant	44783.3	37319.42	1.20
Motorable road	79766.5	15795.35	5.05***
Radio signal	5986.6	3788.99	1.58 ^{ns}
Television signal	7.099055	4.0799	1.74*
Library facility	0.2453219	1.635	0.51 ^{ns}
Electricity supply	1655.6	542.82	3.05***
Research institute	772.59	106.13	7.28***
School	29.5345	17.272	1.71*
Health centre	0.41308	0.2444	1.69*
Internet facility	187.5668	215.59	0.87 ^{ns}
Telecommunication networks	749.938	157.55	4.76***
Irrigation facility	-24.7027	44.112	-0.56 ^{ns}
Borehole	34.0364	130.91	0.26^{ns}
R^2	0.5796		
Adjusted R^2	0.5666		
F – ratio	44.52		
Source: Computed from field survey data, 2017			

***** =** Significant at 1%, * = Significant at 10%, ns = Not significant

Similarly, presence of telecommunication facilities had positive significant influence ($p<0.01$) on agricultural extension service visitations in the area. Availability of signals of telecommunication networks will facilitate direct communication between the farmers and

extension workers regarding dates and times of extension visits. This result affirms the finding of Umar (2015) who stressed that access to cell phone significantly influenced access to demand-driven extension services. Furthermore, availability of electricity power supply had significant positive influence ($p<0.01$) on extension service visitations in the area. This is expected because availability of power supply will make rural areas lively; thereby encouraging the extension workers to reside there for regular extension services or visits. On the other hand, presence of television signals, schools and health centres had positive and significant influence on agricultural extension service visitations at 0.10 level of significance; this is not surprising because the presence of those infrastructures will make working environment conducive for extension service delivery.

CONCLUSION

Based on the findings of the study, it was concluded that majority of the farmers in the study area are ageing. Provisions of infrastructural facilities in the study area are low. Notwithstanding, infrastructural facilities such as motorable roads, research institutes, telecommunication networks and electricity supply had significant positive influence on extension service visitations in the study area.

1. In view of the aging farmers that dominated the farming activities in the study area, village extension workers should encourage young individuals into the farming occupation, in order to enhance the innovativeness of the farmers in the study area.
2. Provision of rural telecommunication infrastructures should be undertaken by telecommunication companies to facilitate access to agricultural information and communication between stakeholders in agricultural extension service delivery.
3. Also, electricity infrastructures should be extended to more rural areas by electricity companies to improve rural welfare and motivate essential service providers such as agricultural extension workers to reside in the rural areas for effective and efficient extension service delivery.
4. Research Institutes and Universities should establish more Adopted Extension Village Projects and demonstration plots in the rural areas, in order to increase extension service visitations to the rural farmers.
5. More feeder roads should be provided to the rural areas by agencies like National Fadama Development Project and Rural Access and Mobility Project (RAMP) to open-up rural areas and ease transportation as well as movements of village service providers.

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