

*Full Length Research Paper*

# A study of the socio-economic characteristics and disparity in gender access to ICTs

Olumide Adebayo\*, Israel Oyedepo and Bolaji Awojobi

Department of Agricultural Economics, Faculty of Agricultural Sciences, Ladoké Akintola University of Technology, Ogbomosho, Oyo State, Nigeria.

Accepted 12 September, 2016

This study critically examined the access of women farmers to Information and Communications Technology (ICTs) as against their male counterparts. A total of 120 respondents were randomly selected and interviewed using structured questionnaires. Data collected were subjected to descriptive statistics, Chi-square and rank test. The results indicated that the women folk, despite their dominance in agricultural activities, were dominated in terms of access to and full participation in the use of ICTs. Chi-square analysis on the relationship between socio-economic characteristics of the respondents with their access to ICTs showed that age and education have significant relationship with the respondents' access to ICTs. Kruskal Wallis rank test showed that there was a significant difference in the gender access to and the uses of ICTs ( $P \leq 0.005$ ) with the male dominating the female gender. Chi-square analysis revealed that age and educational background of the respondents had significant relationships with their access to ICTs ( $P \leq 0.005$ ).

**Key words:** Information and Communications Technology (ICTs), gender, rural, access, agriculture, development.

## INTRODUCTION

Gender in this context is defined as the roles exhibited by male and female in a social system (Munyua, 2003). In Africa and most particularly in Nigeria, agricultural activities are characterized by gender division of labour. However, gender analysis has for a very long time been conceptualized as being synonymous with 'women' studies (Mafimisebi and Fasina, 2009). Gender is a socio-economic variable which assist a researcher to analyze roles, responsibilities, constraints and opportunity of both men and women. Most of the African countries because of their cultural and religious inclinations have relegated women to the background. The process of change has affected the traditional pattern of gender roles in agricultural production due to greater male participation in non-farm activities and wage

employment as well as the breakdown of the traditional patterns leaving women and youths in most agricultural activities (Adisa and Okunade, 2005).

Arokoyo (2005) defined ICTs as technologies that facilitate communication and the processing and transferring of information by electronic means to those that need them. This definition encompasses the full range of ICTs from Radio, and Television to Telephone (Fixed and Mobile), Computers and the Internet. It can be said that if information on improved farming systems are made available for the womenfolk with effective communication system, their productivity in agriculture will fully be enhanced and the cumulative effect will reduce or alleviate rural poverty (Adebo and Ewuola, 2005).

Several studies have shown that the womenfolk constitute a formidable and significant source of labour in small-scale farming in most developing nations especially in Nigeria. Hence, their access to information on agricultural production and other aspect of rural life is pertinent. However, women access to ICTs and technical resources are inadequate for their agricultural production (Ogbona and OKoroafor, 2004). The resultant effect of the lack of access to improved knowledge through effective communication is that women continue with the traditional practices despite the negative effects on agriculture (Nnadozie and Ibe, 2000). It is stressed that the inadequate accessibility to ICTs among farmers is more pronounced in the rural communities than the urban areas (Obansa and Eke, 2010). ICTs give a stream of opportunities for rural farmers irrespective of their sex, to source variety of information on how best to go about their agricultural production for maximum yield and profit, since agriculture employs 75 to 80% of the rural workforce. A central pillar of CTA's strategy to making ICT accessible to the rural women is to ensure that both the rural women and men benefit from agricultural information and communication sources. This goal is enshrined in the Cotonou Agreement and CTA's strategic plan and framework action which state that it expect "a strong presence of women, the young and resource poor farmers among the potential beneficiaries" of agricultural information in the information and communication society (CTA, 2005). The womenfolk require information on agricultural inputs, market prices, transportation systems, production potential, new environmentally sound production techniques and practices, new agricultural technologies, new markets, food processing, the resource base, trade laws, and trends in food production, demand and processing. Women also need to exchange indigenous knowledge (Munyua, 2003). This is the pathway towards ensuring that ICTs plays a role in helping rural women to overcome the hurdles they encounter daily as farmers, entrepreneurs and agent of community development. CTA (2009) reported that good agricultural information can make all the difference to household's revenue and food security.

In several developing countries, the initiatives of adoption of ICTs in agricultural and rural development are receiving a boost. Worthy of mention is a CTA sponsored small Grants Fund to Address Gender Issue in Information and Communication Technology for Agricultural and Rural Development (GenADRI) in Africa, Caribbean and Pacific countries. The uses of ICTs in rural development have been taken by the government, development agencies and Non-governmental Organisations (NGOs), yet the current effort are hampered by a wide range of structural constraints (Kiplang'at, 2003). These constraints include: Government lack of political will to improve poor and costly telecommunication services, telecommunication services; rural development organizations have insufficient technical know-how to

develop relevant content; and rural areas are often characterized by continuous cycle of poverty and low level of literacy. Hence, this research is designed to investigate the gender access to ICTs and peculiar problems women encounter in gaining access to ICTs.

## Objectives of the study

The objectives of this study are to:

- (1) Determine the socio-economic characteristics of the respondents in relation to their access to ICTs.
- (2) Determine gender access to ICTs in the study area.
- (3) Examine the reasons for disparity in gender access to ICTs

## METHODOLOGY

### The study area

This research was carried out in Dekina Local Government Area, east of Kogi State, Nigeria. The area falls between latitude  $6^{\circ}.33^1$  and  $8^{\circ}.44^1$ , and longitude  $5^{\circ}.22^1$  and  $7^{\circ}.49^1$ . The study area has a land mass of  $2,461 \text{ km}^2$  and a population of 260,312 heads at the 2006 census. The area is made up of 3 districts: Dekina, Okura and Braidu. The choice of this area for this research is drawn from the fact agricultural activities are done based on gender division of labour. The people of this area are predominantly small-scale farmers. They engaged themselves in both crop and animal production for domestic and commercial purposes. The major language of the people is Igala, though there are some dialects that slightly differs in both pronunciations and intonation.

### Data collection

A structured questionnaire was administered while oral interview complemented the questionnaire. A total of 120 respondents were randomly selected from a population of 480 and out of this, forty respondents each from 160 persons in each of the three districts of the Local Government Area were randomly selected. Information on the respondents' perception of the roles exhibited by men and women in the area; and particularly availability of ICT facilities and access to ICTs were elicited.

### Data analysis

Descriptive statistics was used to analyze some of the data, Kruskal Wallis rank test was used to investigate whether there was a significant difference in gender access to ICTs and Chi-square analysis was used to test the relationship between the socio-economic characteristics (age, farming experience and educational background) of the women farmers and their access to ICTs. The formula for computing Kruskal wallis rank test is:

$$H = \frac{12}{N(N+1)} \sum \frac{R_i^2}{n_i} - 3(n+1)$$

Where, N = Total number of observations over all samples,  $R_i^2 =$

**Table 1.** Personal characteristics of respondents.

Variable	Frequency	Percentage
<b>Age</b>		
1 – 20	35	29.17
21 – 40	40	33.33
41 – 60	30	25.00
61 and above	15	12.50
Total	120	100
<b>Sex</b>		
Male	64	53.33
Female	56	46.67
Total	120	100
<b>Educational background</b>		
Non Formal Education	40	33.33
Primary School	30	25.00
Secondary School	23	19.17
Tertiary Institution	12	10.00
Adult Education	15	12.50
Total	120	100
<b>Farming experience (Years)</b>		
1 – 8	38	31.67
9 – 16	34	28.33
17 – 24	28	23.33
25 – 32	15	12.50
33 and above	5	4.17
Total	120	100

Source: Field survey, 2010.

square of the sum of rank for samples  $i$ ,  $n_i$  = Sample size of sample  $i$ ,  $\sum$  = summation sign.

#### Decision rule

The rejection region for the H test is  $H > X^2$ , where  $X^2$  is based on  $(k - 1)$  degrees of freedom ( $P \leq 0.05$ ). The formula for computing Chi-square is:

$$X^2 = \sum (f_o - f_e)^2 / f_e$$

Where  $f_o$  = observed frequencies in each cell;  $f_e$  = expected frequencies in each cell.

$f_e$  can be computed as:

$$f_e = \frac{R \times C}{N}$$

Where, R = Row total, C = Column total, and N = Number of cases.

#### Decision rule

if  $X^2$  – calculated is greater than  $X^2$  – tabulated the null hypothesis

( $H^0$ ) is rejected and the alternative hypothesis ( $H^a$ ) is accepted and if otherwise, the  $H^0$  is accepted. Degree of freedom is  $(C - 1)(R - 1)$  and  $P \leq 0.05$ .

## RESULTS AND DISCUSSION

### Age of respondents

Table 1 revealed that 29.17% of the respondents were within the ages 1 to 20 years, 33.33% said they were within ages of 21 to 40 years, 25.00% were found to have fallen within the ages 41 to 60 and those that fell within the range of ages over 60 years were only 12.50% of the respondents. This implies that majority of the respondents were in their youthful and active age which will enable them participate in ICTs efficiently.

### Sex of the marketers

Table 1 showed that the respondents were dominantly male (53.33%) while 46.67% were female marketers.

**Table 2.** Distribution of respondents according to access to ICTs.

ICTs	Young male	Adult male	Young female	Adult female	Total male (%)	Total female (%)	Dominant gender
Radio	28 (23.33)	50 (41.67)	18 (15.00)	22 (18.33)	65.00	33.33	Male
Television	15 (12.50)	25 (20.83)	6 (5.00)	10 (8.33)	33.33	13.33	Male
Computer/Int.	5 (4.17)	1 (0.83)	2 (1.67)	0 (0.00)	5.00	1.67	Male
GSM	20 (16.67)	30 (25.00)	15 (12.50)	10 (8.33)	41.67	20.83	Male

Source: Field survey, 2010; Figure in parentheses are in percentage.

**Table 3.** Kruskal Wallis rank test results on gender access to ICTs.

ICTs	Young male	R <sub>1</sub>	Adult male	R <sub>2</sub>	Young female	R <sub>3</sub>	Adult female	R <sub>4</sub>
Radio	28	11	50	13	18	8	22	9
Television	15	7.5	25	10	6	5	10	6.5
Computer/Internet	5	4	1	2.5	2	3	0	1
GSM	20	8	30	12	15	7.5	10	6.5
Total	68	30.5	106	37.5	41	23.5	42	23.0
		H = 10.09		X <sup>2</sup> = 6.25		P ≤ 0.05		

Source: Field survey, 2010.

This result implies that all things being equal, both genders should have access to ICTs.

### Educational background of the respondents

Table 1 indicated that 33.33% of the respondents never obtained any form of formal education, 25.00% of them said they attended primary school, 19.17% of the respondents said they attained secondary school education while only 10.00% of the respondents attained tertiary education and 12.50% attained adult education. Most of the respondents attained one form of education or the other at least a primary school education. If their educational background can be improved from the status quo, it will go a long way in enhancing their efficiency in the use of ICT since Modern ICTs like Computer/Internet require some form of education or skills to operate them.

### Farming experience

Table 1 reflected the farming/marketing experience of the respondents of which 31.67% had the experience of 1 to 8 years, 28.33% had 9 to 16 years of experience, 23.33% had 17 to 24 years, 12.50% had 25 to 32 years of experience while only 4.17% had the experience of 33 years and above. Several studies have shown that the more experienced a farmer is in farming business, the more exposed he is to sources/channels of information (Ibrahim et al., 2009). This will avail the farmer of the opportunities in accessing agricultural information.

### Access of respondents to ICTs

Tope (2005) defined access "as to have opportunity to use resources without having the authority to decide about the product/output and the exploitation methods". In Table 2, the male gender as against their female counterpart, dominantly have access to radio (33.33%), television (13.33%), computer/internet (1.67%) and GSM telecommunication (20.83%). This result generally indicated a low access for both male and female alike to that of contemporary ICTs except for that of GSM where there was a relatively appreciable access to ICTs. This implies that if the enabling environment is provided for contemporary ICTs like computer/internet, it will also blossom and spread even to the rural areas as in the case of GSM.

As reflected in Table 3, Kruskal Wallis Rank Test H = 10.09, X<sup>2</sup> = 6.25, P ≤ 0.05 showed that there was a significant difference in the access of male and female gender to ICTs with the male gender dominating Chi-square analysis on the relationship between the farmers' socio-economic variable and access to ICTs as indicated in Table 4 revealed that age and education are have significant relationship (P ≤ 0.05) with their access to ICTs. However, farming experience does not have significant relationship (P ≤ 0.05) with their access to ICTs as seen in several studies. This is due to the fact that farmers are seen to have lower access to particularly contemporary ICTs (computer/internet, and except GSM) than they do to the conventional ICTs (radio and television). The significant relationship in age with access to ICTs as indicated in this study agrees with Omotayo (2011) who said that younger people are more disposed

**Table 4.** Chi-square analysis showing the relationship between socio-economic characteristics of respondents and access to ICTs.

Socio-economic variables	Access to ICTs	
	$\chi^2$ - Calculated	$\chi^2$ - Critical value
Age	23.66	22.36**
Farming Experience	6.72	27.58
Educational Background	37.31	27.58**

\*\* = Significant ( $P \leq 0.05$ ).

**Table 5.** Reasons for gender disparity in gaining access to ICTs.

Reasons	Male	Female	Dominant gender
Religious/cultural barrier	2 (1.67)	60 (50.00)	Female
Language barrier	50 (41.67)	45 (37.50)	Male
Cost of possessing and accessing ICTs	43 (35.33)	55 (45.83)	Female
Gender prejudice	-	42 (35.00)	Female
Illiteracy	48 (40.00)	54 (45.00)	Female

Source: Field Survey, 2010. Note: Figures in parentheses are in percentages (%).

to ICTs especially the modern ICTs (computer/internet and GSM) than the older ones hence, age of the farmers determine to some extent their accessibility to ICTs. Ibrahim et al. (2009) confirmed that education does not only affect women accessibility to credits and other factors of production but also, affect their accessibility to sources/channels of agricultural information (radio, television, extension agents, Newspaper).

### Reasons for disparity in gender access to ICTs

Result in Table 5 showed that female were the dominant gender in the reasons for low participation in ICTs which include: Religious/Cultural barrier (Female), cost of possessing and accessing ICTs (Female), Gender prejudice (Female), Illiteracy (Female), and only in language factor that the male became the dominant gender. This implies that women have more constraints in gaining access to ICTs than their male counterpart and these are the reasons for gender disparity in access to ICTs.

### CONCLUSION AND RECOMENDATIONS

Female and male farmers in the study area face similar problems, but they affect the female farmer more adversely. Information is essential for facilitating agricultural and rural development and bringing about social and economic change. Unfortunately, the female genders in Dekina Local Government Area of Kogi State, Nigeria who participate more in agricultural activities have less access to Information and Communication Technologies

(ICTs) compare to their male counterpart as reflected results of this research. This inequality in gender access to ICTs in the study area can be addressed by the following recommendations:

- (i) Involvement of women in decision making and policy formulation in the development of agricultural sector especially at the grassroots (Local Government Areas) where, particularly the issue of their access to ICTs and other factors of production.
- (ii) Addressing the issue of alienation of women farmer by all stakeholders in the social development of the study area. This is of a view to address the social prejudice against the women as a result of traditions, customs, culture, and religions in Dekina Local Government Area that have depicted womenfolk as exploitable tools and deprived them of access to ICTs.
- (iii) Empowering women in the rural areas so as to improve their agricultural production; and this will in turn better their socio-economic status to afford some of these ICT facilities.
- (iv) Development planners need to be gender-sensitive. The need to adopt a gender empowerment approach which would not marginalize women or subordinate women's interest to those of men is imperative.
- (v) Education of the girl-child and adult women in the study area is important, because it is a function of women empowerment and development toward gaining access to ICTs. Especially in the area of computer literacy programs.
- (vi) Government should intensify its effort on the policies of liberalization and deregulation of the economy to incorporate ICT infrastructure, so that the prices of ICT facilities like the television, telephone sets, computer and

other accessories will be affordable by both male and female farmers alike at the grassroots.

## REFERENCES

- Adebo GM, Ewuola SO (2005). Impact of Micro Credit and Effective Communication System on Income of Women in Ondo and Ekiti State of Nigeria. *J. Agric. Exten.* 8:158.
- Adisa BO, Okunade EO (2005). Women in Agriculture and Rural Development. In: Atudoyin SF (ed) "Agricultural Extension in Nigeria", Published by Agricultural Extension Society of Nigeria (AESON). pp. 69–77.
- Arokoyo T (2005). ICTs Application in Agricultural Extension Delivery "Agricultural Extension in Nigeria". Ed. Adedoyin SF (2005). Published by Agricultural Extension Society of Nigeria (AESON). pp 245-250
- CTA Spore, (2009). Top Schemes for Women and ICTs. *CTA Spore Magazine* 139:4.
- CTA Spore (2005). CTA Passes the Torch". *CTA Spore Magazine* 115:11ua
- Ibrahim MK, Adejoh SO, Edoke MH (2009). Sources and Uses of Agricultural Information Among Rural Farmers in Government Area of Kogi State, Nigeria. *Proceedings of the 43<sup>rd</sup> Annual Conference of the Agricultural Society of Nigeria (ASN), held on the 20<sup>th</sup>–23<sup>rd</sup> October, 2009, at Abuja, Nigeria.* pp. 558 -561.
- Kiplang'at J (2003). Does Agricultural Extension Have a New Beginning Because of ICTs?" Reflection on Experiences in Sub-Saharan Africa. *Proceedings of the Regional Overview of CTA Consultative Expert Meeting on ICTs. 23<sup>rd</sup>– 25<sup>th</sup> of September, 2003.* Wageningen, The Netherland. p. 8.
- Mafimisebi TE, Fasina OO (2009). Rural Women's Productivity and Welfare Issues: A Cause for Concern. Ed. Agbamu, J. U. " Perspective in Agricultural Extension. *Rural Develop.* Springfield Publishers Ltd, Asaba, Nigeria. pp. 361-383.
- Munyua H (2003). Application of ICTs in Africa's Agricultural Sector: A Gender Perspective. Ed. Rathgeber E, Odera EO. *International Development Research Centre (IDRC) Books.* pp. 23-85.
- Nnadozie B, Ibe I (2000). Women in Agriculture: Problems and Prospect. In: Nwosu AC, Nwajiuba CU Mbanasor JA (eds). *Agricultural Transformation in Nigeria.* Novelty Ind. Enterprise Ltd. pp. 106-110.
- Obansa SAJ, Eke CI (2010). ICT Deployment in Calabar, Cross River State, Nigeria: An Examination of Consumer Factors. *J. Agric. Rural Develop.* 1(1):30-39.
- Ogbona K.I, Okoroafor E (2004). Enhancing the Capacity of Women for Increased Participation in Nigeria Main-streaming Agriculture: A Re-designing of Strategies. *J. Farm Manage. Assoc. Nig.* 7(2):33–48.
- Omotayo OM (2011). ICT and Agricultural Extension: Emerging Issues in Transferring Agricultural Technology in Developing Countries. In: Madukwe, M.C. (ed). *Agricultural Extension in Nigeria.* Published by Agricultural Extension Society of Nigeria (AESON). pp. 200–215.