



## Exploring the Effects of Information and Communication Technologies in the Marketing of Broiler Birds in Enugu State, Nigeria

Ikenna Charles Ukwuaba<sup>1,a</sup>, Collins Nzeribe Ngwuoke<sup>1,b</sup>, Chinedum Jachinma Chiemela<sup>1,c,\*</sup>,  
Cynthia Uzoamaka Nwachukwu<sup>1,d</sup>, Ridwan Mukaila<sup>1,e</sup>, Chikaosolu Maryqueen Ileka<sup>1,f</sup>, Stella Nwawulu Chiemela<sup>1,g</sup>

<sup>1</sup>Department of Agricultural Economics, University of Nigeria, Nsukka. 410001, Enugu, Nigeria

\*Corresponding author

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### ABSTRACT

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Information-intensive and precise knowledge-based marketing approaches is a key aspect in ensuring the long-term viability of agriculture. Unfortunately, the economic potential of information and communication technologies uses in agricultural marketing is not fully utilized. This study, therefore, unravelled the effects of information and communication technologies in the marketing of broiler birds in Enugu state, Nigeria. Primary data collected from 90 marketers were analysed using descriptive and inferential statistics. The result showed that all the marketers accessed and used mobile phones very often to communicate their customers but only a few (40%) used social media platforms while radio and television were rarely used. The gross margin analysis showed that broiler marketing was a viable enterprise with ₦80,972.72 (USD 197.29) gross margin monthly. The degree of use of information and communication technologies, level of education and marketing experience significantly affected the revenue margin of the respondents. High cost of information and communication technology facilities, inconsistency power supply, poor network coverage and connectivity and high cost of airtime and data were among the major constraints faced by the marketers. The study recommends that the problem of inconsistent power supply and poor network coverage should be rectified by the government and the network providers, respectively. The national communication commission should as a matter of urgency regulate, moderate and reduce the high call tariffs and internet data cost to enhance the profit margin of the broiler marketers.

<sup>a</sup> [ikenna.ukwuaba@unn.edu.ng](mailto:ikenna.ukwuaba@unn.edu.ng)

<sup>b</sup> <https://orcid.org/0000-0002-3534-9785>

<sup>b</sup> [nzeribe111@gmail.com](mailto:nzeribe111@gmail.com)

<sup>b</sup> <https://orcid.org/0000-0001-9337-536X>

<sup>c</sup> [chinedum.chiemela@unn.edu.ng](mailto:chinedum.chiemela@unn.edu.ng)

<sup>d</sup> <https://orcid.org/0000-0002-8605-0871>

<sup>d</sup> [uzo.cynthia@gmail.com](mailto:uzo.cynthia@gmail.com)

<sup>d</sup> <https://orcid.org/0000-0002-8107-9595>

<sup>e</sup> [ridwan.mukaila@unn.edu.ng](mailto:ridwan.mukaila@unn.edu.ng)

<sup>e</sup> <https://orcid.org/0000-0001-8584-0858>

<sup>f</sup> [chikaosolu.maryqueen@unn.edu.ng](mailto:chikaosolu.maryqueen@unn.edu.ng)

<sup>f</sup> <https://orcid.org/0000-0002-3881-809X>

<sup>g</sup> [stella.chiemela@unn.edu.ng](mailto:stella.chiemela@unn.edu.ng)

<sup>g</sup> <https://orcid.org/0000-0002-2922-3182>



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## Introduction

The evolution in the marketing process has continued to unfold; from the traditional product concept through the product and selling concepts to the current marketing concept; in which marketers meet the needs of the target markets at a profit. Increasing communication facilitated by information and technologies (ICTs) is one of the tools of marketing concepts. ICTs now play major roles in the day-to-day management of many businesses and enterprises. The twenty-first-century marketing managers have embraced the continuous innovation and evolutions in the ICTs sectors and have continued to maximize the tools. According to Singh et al. (2015), ICTs include traditional ICTs such as radio, television, and telephone, as well as newer ICTs such as computers, satellite, mobile handsets, and the Internet. These heterogeneous tools can now interact and combine to develop our network world, a

vast network of interconnected telephone services, standardized computing gear, the internet, radio, and television that covers every corner of the planet.

Agriculture was driven by bid in previous decades, but today it is driven by demand; nevertheless, all indications are that agriculture will be driven by information in the future. To take advantage of prospective opportunities, new information must reach end-users as quickly and easily as possible. Information-intensive and precise knowledge-based marketing approaches will be key aspects in ensuring the long-term viability of agriculture (Phougat, 2006). Unfortunately, the economic potential of ICTs uses in agriculture and marketing is not fully utilized in terms of precision marketing; however, proper adoption and use of ICTs could help managers of agriculture-related businesses, as well as policymakers, make more efficient

decisions. E-commerce, e-banking, and e-learning are all well-known, but “e-agriculture” is a newer concept, it is also called Digital Agriculture or ICT for Agriculture (ICT4Ag) which is the application of ICTs to solve problems in agriculture. E-agriculture is luring young people to agriculture, and some have recognized prospects for income generation through businesses that provide farmers and other agricultural actors with ICT-enabled services. The introduction of ICT into the agricultural sector is transforming the face of African agriculture and is currently one of the factors driving young people to the enterprise (Okediji, 2016).

According to Chapman and Slaymakers (2002), the internet is rapidly becoming a more affordable and faster means of accessing agricultural information. The emergence of technology, which enabled the automation of many agricultural organizations that provide various services and products; and the introduction of e-mail and the internet, which enabled access to information, are two major trends and developments that are shaping current agriculture. Many agree that knowledge has always been at the heart of development, and vast amounts of knowledge and information have been formed over the years to improve food security and promote long-term development (Food and Agricultural Organization (FAO), (2015). Increased priority for ICTs and their resources for information exchange has the potential to improve rural poor access to and benefit from development activities while also creating a more informed policy environment (FAO, 2003). ICT in agriculture facilitates knowledge and information sharing within and among agricultural channels that include researchers, importers/exporters, extension services, and farmers. The business venture must be able to leverage on ICTs to position its marketing strategies, a step ahead of competitors.

Agricultural marketing encompasses the services required to move farm produce from the farm to the consumer including all activities involved in the value chain (Mukai et al., 2021). Planning and forecasting, planting and harvesting, grading, packing and branding, transportation, storage, food processing, distribution, advertising, and sale are just a few of the interconnected operations involved. Marketing activities, especially in agriculture cannot take place without the exchange of information, and cannot be carried out effectively without proper communication between the parties involved. Nigeria produces a wide range of agricultural products, and marketing all of these farm products is typically a complicated procedure. Marketing in agriculture entails a variety of operations and processes that move food and raw materials from the cultivated farm gate to the final consumer via middlemen. Agricultural marketing, particularly in developing countries, plays a significant role in long-term poverty reduction and household food security (Katengeza, 2012). Most marketers in Nigeria and other developing countries have little or no means of finding out the true prices of their commodities. Many are sometimes in poor bargaining positions and do not even understand the market negotiation (Nigeria Geography Association, 1996). This may be due to their inability to get accurate, timely, current and relevant market information which could be accessed through ICTs.

The use of ICT has resulted in a fundamental shift in agriculture at all levels, with marketing being one of the key benefactors. It is very possible that introducing an ICT based marketing into the selling of broiler birds will bridge the market information gap that exists between the broiler producers and consumers including the middlemen in agricultural marketing and transaction processes, ICT stands to play a major role in their marketing activities. Proper utilization of ICTs especially mobile phones, radio, social media and television technologies can go a long way in helping agricultural producers who are often unaware of current market prices thereby relying on the information gathered from traders in determining when, where and how much to sell their produce, to have relevant and timely information to this regard. Internet as new technology has created great evolution on marketing methods and selling of agricultural products. In most nations throughout the world, farmers are attempting to take advantage of new technologies and tactics to improve the quality and quantity of their goods while also dealing with new scientific issues (Jalali 2012).

Poultry offers the greatest potential for bridging the available protein gap due to the short-generation intervals (Ahaotu et al., 2016). When compared to other livestock, poultry, particularly broilers, have the quickest and largest turnover rates. The poultry sector also has a significant impact on the Nigerian economy. It is a key source of eggs and meat, both of which are high in nutritional value, especially in terms of protein supply. Additionally, the poultry sector provides job opportunities for the wider populace, as well as a source of revenue. Nigeria's poultry sector can benefit from the advancement of ICTs to increase poultry output. However, to fully leverage this advantage, it is necessary to establish the extent to which poultry farmers have access to ICTs and how they use them for marketing and development. For this study, the ICT considered include mobile phones, television, radio and social media platforms like Facebook and WhatsApp used in facilitating sales and accessing market information.

Most of the previous works on ICT in agriculture focused generally on agricultural marketing (Adejo and Haruna, 2009; Mittal and Mehar, 2016; Okediji, 2016, Kante et al., 2017; Alavion et al., 2017; Hoang, 2020). However, little or no research has been carried out specifically on the role of ICT on broiler marketing especially in the Enugu state, this is the knowledge gap the present study intends to fill. The study aims to examine the effects of ICTs and in the marketing of broiler birds in Enugu State, Nigeria. The specific objectives of the study were to: identify the type of ICTs available to broiler marketers, describe the level of access and usage of ICTs among broiler marketers; ascertain the gross margin in broiler marketing, and determine the effect of degree of usage of ICTs and socio-economic factors on the total revenue of broiler marketers. The benefits of the study cannot be overemphasized especially in the current coronavirus pandemic ravaging the world where physical distancing is being advocated to help curb the menace of the disease. ICTs have become great tools for bridging marketing gaps.

## Materials and Methods

### Study Area

This study was conducted in Enugu State, Nigeria. The state is one of the 36 states in Nigeria. It has seventeen local government areas with Enugu as the capital. Enugu state has an area of 71,161 square kilometres with a population of about 3,257,298 people (National Population Commission, 2006). It lies between Latitudes 5°55'N and 7°08'N of the equator and longitudes 6°55' E and 7°08' E of the Greenwich meridian. The state shares national boundaries with Anambra State to the West, Benue State to the Northeast, Kogi State to the Northwest, Ebonyi State to the East and Abia State and Imo State to the South.

### Sampling Procedure and Data Collection

A multi-stage sampling technique was adopted for the study. In the first stage, three LGAs (Enugu North, Enugu East and Enugu South) located in the Enugu metropolis were purposively selected based on the urban nature of the LGAs and the relatively higher literacy rate compared to other LGAs in the state. In stage two, three popular commodity markets were purposively selected from each LGA. The markets include; Ogbete main market, the New market and Old Artisan market in Enugu North LGA; Abakpa market, Orié Emene market and Kenyatta market in Enugu East LGA and Garriki market, New Artisan Market and Mayor market in Enugu South LGA which gave a total of nine markets. Finally, from each of the nine markets selected, 10 broiler marketers were randomly selected. Thus, in all, a total of 90 broiler marketers were selected for the study.

### Data Analysis

Descriptive statistics such as percentages, frequencies and mean, gross margin model and inferential statistics were employed in analyzing the data collected. Following Isitor & Ugwumba (2014), Baba et al. (2014), Ibitoye et al. (2016), Ukwuaba et al. (2019) and Onyekuru et al. (2020), the gross margin model was used to ascertain the gross margin of broiler marketers; mathematically, it was expressed as:

$$GM = TR - TVC \quad (1)$$

Where;

GM = Gross Margin

TR = Total Revenue

TVC = Total Variable Cost (transportation cost, cost of feed, cost of vaccines, rent and labour costs).

The Multiple regression model was used to ascertain the effect of the degree of usage of ICTs and socio-economic factors on the total revenue of broiler marketers. The model was adapted following Kainga (2013), Ali et al. (2017), Ukwuaba et al. (2018) and Okpukpara et al. (2021) and implicitly specified as:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + e \quad (2)$$

Where;

Y = Revenue of broiler marketers

$b_0$  = Constant

$X_1$  = Gender (Female 1, Male 0)

$X_2$  = Age of marketer (years)

$X_3$  = Marital status (married 1, single 0)

$X_4$  = Level of education (in years)

$X_5$  = Household size (Number of persons)

$X_6$  = Marketing experience (in years)

$X_7$  = Membership to market association (member 1, otherwise 0)

$X_8$  = degree of usage of ICTs by the broiler marketers (high degree 1, otherwise 0)

$b_{1-8}$  = Coefficient

e = Error term

The four functional forms were tested and the one with the best fit was chosen as the lead equation

A four-point Likert type scale was used in analysing the constraints of using ICTs in the marketing of broiler in the study area. It was adapted following Mukaila et al. (2021). The scale was rated as follows; very serious (VS) = 4, serious (S) = 3, less serious (LS) = 2, and not serious (NS) = 1. The model was computed thus;  $4+3+2+1 = 10/4 = 2.50$  (mean score cut off point). Items  $\geq 2.50$  mean score was rated as serious constraints, otherwise not significant and thus not constraints to the use of ICTs among broiler marketers.

## Results and Discussion

### Socio-economic Characteristics of the Respondents

The socio-economic characteristics considered in the study include sex, age, marital status, household size, educational level, marketing experience, membership to market association and monthly income of the respondents (Table 1). The result showed that the majority (55.6%) of broiler marketers in the Enugu metropolis were male while 44.4% were females. The relatively higher proportion of men was because men can withstand the rigorous nature of broiler marketing than women. This is in contrast with the findings of Chavula (2013) who was of the view that women undertake 60-90% of broiler marketing. The marketers had a mean age of about 42 years which implied that the majority of the marketers were in their relative economic young and active age and therefore, can withstand the rigorous broiler marketing. This finding supports the study of Oyeyinka and Bello (2013) who found that marketers of agricultural products were in their economic active age of 40-49 years. The majority (80%) of the marketers were married while only 20% were single. The result suggests that the enterprise is an important form of livelihood for the sustenance of a family or household. The result is in agreement with Adejo and Haruna (2009) who found that married couple assists themselves in marketing agricultural products thereby raising adequate income for their family wellbeing.

The result of the socioeconomic characteristics also showed that the majority (57.8%) of the respondents spent about 7-12 years obtaining formal education with a mean age of educational attainment of 10 years.

Table 1. Socio-economic characteristics of the respondents

Socio-economic characteristics	Frequency	Percentage	Mean
Sex			
Male	50	55.6	
Female	40	44.4	
Age (years)			
Less than 31	22	24.4	
31 – 40	23	25.6	
41 – 50	25	27.8	41.51
51 – 60	14	15.6	
Above 60	6	6.7	
Marital status			
Single	18	20.0	
Married	72	80.0	
Educational level (Years)			
1 – 6	27	30.0	
7 – 12	52	57.8	10.04
Above 12	11	12.2	
Household size (Number of people)			
1- 2	18	20.2	
3 – 4	37	41.6	3.81
5 – 6	29	32.6	
Above 6	5	5.6	
Marketing Experience (Years)			
1 – 10	58	64.4	
11 – 20	26	28.9	
21 – 30	3	3.3	10.13
Above 30	3	3.3	
Membership to market association			
Yes	77	85.6	
No	13	14.4	
Monthly Income (₦)			
≤ 50,000	9	10.0	
50,000 – 100,000	33	36.7	
100,000 – 150,000	10	11.1	N102, 096.67
150,000 – 200,000	12	13.3	
Above 200,000	26	28.9	

USD 1 = 410.42; Source: Field surveys, 2019

The relatively high mean educational attainment suggests that the respondents were very knowledgeable and can use ICT tools such as phones, and social media tools in their customer relationship management, retention and general marketing activities. The finding is in line with that work of Oyeyinka and Bello (2013) which reported that the average years of formal education of agricultural product marketers was eight years. The household size indicated that the greater percentage (41.6%) of the marketers had a household size of 3-4 persons while only 5.6% had a household size of above six persons. However, the mean household was four persons in the study area. The mean household size of four persons is very essential as it could support the available labour in the marketing of broilers and thus reduce the expenditure on hired labour. Broiler marketing could be labour intensive; therefore, an average household size of four is in contrast with Ukwuaba et al. (2018) who stated that the average family size of the agricultural marketers was six.

As regards the marketing experience, the result revealed that the majority (64.4%) of respondents had a marketing experience within the range of 1-10 years while 3% had marketing experience above 30 years, with a mean

marketing experience of 10 years. The relatively high mean marketing experience of about 10 years indicates that they were very knowledgeable and skilled in the enterprise which are veritable tools for the success of any business.

Results of the market association showed that the majority (85.6%) of the broiler marketers belonged to one form of market association or the other and only 14% of the marketers do not belong to any market association. This result is a clear indication that marketers in the study area are highly socialized and also participate actively in market unionism. Lastly, the result indicated that the larger proportion (36.7%) of the broiler marketers earned ₦50,000 to ₦100,000 monthly, while only about 29% earned above ₦100,000 in a month. The mean monthly income was ₦102, 096.67. Thus, most broiler marketers earn a tangible amount of income monthly in broiler marketing, which is far above the national minimum wage of ₦30,000 for civil servants in Nigeria.

#### *Types of ICTs Used by the Respondents*

The type of ICTs available to the respondent include mobile phones and social media which they used to facilitate their marketing as stated in Table 2.

Table 2. Types of ICTs used by the broiler marketers

Variables	Frequency	Percentage
Availability of ICT facilities		
Yes	90	100.0
*Types of ICTs used in broiler marketing		
Mobile phone only	59	61.5
Mobile phone and social media platforms	37	38.5
Social media use		
Yes	37	41.1
No	53	58.9
If yes, do you conduct marketing through it?		
Yes	35	94.6
No	2	5.4
Aspects of marketing		
Customer outreach	32	91.4
Product advertisement	3	8.60

\*Multiple Response; Source: Field surveys, 2019

Table 3. Level of Access and Usage of ICTs among broiler marketers

Variables	Frequency	Percentage
Frequency of ICT Facilities Usage		
Mobile Phone		
Very often	90	100.0
Radio		
Not often	1	1.1
I do not use it in marketing	89	98.9
Television		
Not often	1	1.1
I do not use it in marketing	89	98.9
Social Media Platform		
Very often	36	40.0
Not often	1	1.1
I do not use it in marketing	53	58.9
Access to ICT facilities		
How do you access		
I operate them	90	100.0
Degree of use		
High degree	36	40.4
Low degree	53	59.6
Daily access to facilities		
Yes	80	88.9
No	10	11.1
Customer coverage through ICT		
Yes	90	100.0

Source: Field survey, 2019

All broiler marketers had ICT facilities which they used to reach out to their customers. The majority (61.5%) used only mobile phones to market their broilers while 38.5% adopted both mobile phone and social media platforms. This implies that ICTs, particularly mobile phones, can offer agricultural marketers several avenues to create beneficial networks with other marketers, get vital market information such as agricultural commodity prices, and gain access to reliable knowledge and information. The result is consistent with Tonny et al. (2019) and Haong (2020) who found that mobile phone was the most popular ICTs used by Bangladeshi and Vietnamese agricultural produce marketers. Aside from mobile phones, about 95% of the broiler marketers used social media tools such as

Facebook and WhatsApp in marketing and obtaining information about the poultry enterprise.. The result aligns with the findings of Alavion et al. (2017) and Mittal and Mehar (2016) who found that agribusiness entrepreneurs use diverse information sources in marketing agricultural produce in India.

#### *Level of Access and Usage of ICTs among Broiler Marketers*

The result in Table 3 revealed that 100% of the respondents accessed and used mobile phones very often to communicate and/or reach out to their customers. The result suggests that the marketers greatly accessed and used ICTs in the study area irrespective of the cost. Mobile

phones were instrumental in collecting most of the information regarding marketing activities. The timely and reliable information accessed by the marketers would help to identify the best markets, reduce price volatility, decline in wastage and achieve higher revenue and profit. This is because using ICTs to market agricultural products helps to eliminate intermediaries, lower transaction costs, and find new customers (Alavion and Allahyari, 2012; Bachaspati, 2018). The result is in line with the findings of Ferris, Engoru and Kaganzi, (2008) which reported that 86 per cent of the agricultural producers and marketers had access to a mobile phone which thus contributed towards developing their linkage with other people including extension experts. This is in tandem with most literatures (Alavion et al., 2017; Abebe and Mammo Cherinet (2018); Haong, 2020) which showed high rate of adoption of ICTs in agricultural related activities and value chain. The result also showed that 99% of the respondents do not use both radio and television in the marketing of broilers. The result indicated a very low degree of usage of the two ICT tools in marketing their products. This could be connected to the high cost of accessing or advertising on these two platforms. On the degree of usage of social media platforms, the result showed that the majority of the respondents (59.6%) do not make use of social media platforms such as Facebook and WhatsApp in conducting their business compared to the frequency of the use of a mobile phone. This indicates that the degree of usage of social media is presently low in the study area. The low use of social media platforms is not unconnected to the high cost of data in Nigeria presently. Lastly, the result showed that all the respondents (100%) operated the ICT tools by themselves, the majority (88.9%) accessed the ICT tools daily and all the respondents (100%) reach out to their customers through ICT tools.

#### **Monthly Gross Margin of the Broiler Marketers**

The result in Table 4 showed that the mean variable cost of broiler marketers was ₦513,402.62 while the mean monthly revenue was ₦594,375.34. The gross margin was estimated as ₦80,972.72. This shows that the enterprise is

very lucrative as an average broiler marketer earns twice above the national minimum wage of ₦30,000. This finding is in relation with Demo, Mariam and Ueda (2007) in their study of Economics Analysis of Broiler Production at Miango, Plateau State which they reported that broiler production and marketing was a profitable business.

#### **Effect of the Degree of Use of ICTs and Socio-economic Factors on the Revenue of Broiler Marketers**

Table 5 shows the effect of the degree of usage of ICTs and socio-economic factors on the total revenue of broiler marketers. The result showed that the linear function had the best fit and was therefore chosen as the lead equation. Results showed that the  $R^2$  was 0.340. This implies that 34.0% variation in the revenue of broiler marketers was jointly explained by the independent variables included in the model. The F-value of 5.095 ( $P < 0.05$ ) implied that the overall model had a good fit. Educational level ( $P < 0.05$ ), marketing experience ( $P < 0.05$ ) and degree of ICT use ( $P < 0.10$ ) were the significant variables.

The result showed that educational level, marketing experience and degree of ICT use had a significant influence on the respondents' total revenue. The educational level was positive and significantly influenced the revenue at a 5% probability level. It implied that the higher the educational attainment, the higher the revenue from the sale of broiler birds by the respondents. This could be attributed to the mental alertness and increased knowledge of the respondents on the marketing strategies and as a consequence increases the level of revenue. Marketing experience was also positive and significantly affected the total revenue at a 5% level. Thus, the higher the years of experience, the more revenue is generated in the enterprise. The result is understandable as the marketers continue to sharpen their skills with each passing day and master the arts and strategies effectively to increasing revenue. This could also be due to engaging in strategies that minimize costs and maximize revenue. The degree of ICT use was positive and significantly to revenue at 10%.

Table 4. Gross Margin of Broiler Marketing

Cost and return items	Mean value (₦)	Total value (₦)
Revenue (₦)		
Selling price per bird (₦)	1912.22	
quantity sold (Number of birds)	310.83	
Total Revenue		594,375.34
Variable Costs Broiler birds		
The purchase price per bird (N)	1418.33	
Quantity purchased (Number of birds)	320.83	
Cost of birds:		455,042.81
Transportation		10,498.89
Rent		5,594.32
Feeds		20,020.19
Vaccines		4,080.00
Labour		3,063.33
Other expenses (recharge cards for calls and data market levy)		15,103.08
Total Variable Cost (TVC)		513,402.62
Gross Margin (GM)		80,972.72

USD 1 = 410.42; Source: Field Survey, 2019

Table 5. The effect of the degree of use of ICTs and socio-economic factors on the revenue of broiler marketers

Variables	Linear <sup>+</sup>	Semi-Log	Double-Log	Exponential
(Constant)	-2076347.759 (901793.627) [2.302]	4.436 (.372) [11.925]	2.267 (1.360) [1.667]	5.220 (3.131) [1.667]
Sex	126930.983 (201450.177) [0.630]	0.132 (.083) [1.590]	0.159 (0.082) [1.939]	0.366 (0.189) [1.937]
Age	24379.962 (21697.151) [1.124]	0.014 (.009) [1.556]	1.384 (0.859) [1.611]	1.384 (0.859) [1.611]
Marital Status	-879569.669 (472770.730) [1.860]	0.096 (.195) [0.492]	-0.048 (0.231) [0.208]	0.111 (0.532) [0.209]
Educational level	106841.104* (41793.172) [2.558]	0.028 (.017) [1.647]	0.608 (0.355) [1.713]	0.608 (0.355) [1.713]
Household size	-91631.954 (117179.789) [0.781]	-0.055 (.048) [1.146]	-0.271 (0.384) [0.706]	-0.271 (0.384) [0.706]
Marketing experience	41831.519* (19281.791) [2.169]	0.015 (.008) [1.875]	0.432* (0.209) [2.067]	0.432* (0.209) [2.067]
Membership to market association	319876.407 (259736.612) [1.232]	0.140 (.182) [0.769]	0.046 (0.182) [0.253]	0.107 (0.418) [0.256]
Degree of ICT use	1189820.113** (440751.316) [2.699]	0.138 (.107) [1.289]	0.204 (0.108) [1.889]	0.470 (0.249) [1.888]
F-value	5.095	5.063	5.229	5.229
R <sup>2</sup>	0.340	0.339	0.346	0.346

\*and \*\* denote significance at 5% and 10% Probability levels.; Figures in ( ) are standard errors, figures in [ ] are t-values; Source: Field survey, 2019; + : Lead Equation

Table 6. Constraints to the use of ICTs among broiler marketers

Constraints	Mean	Std. Deviation
Inadequate skill and personnel for handling ICT tools	3.90	0.303
High cost of ICT tools	3.80	0.404
Inconsistence power supply	3.79	0.412
Low network connectivity	3.71	0.482
Long-distance to repair and maintains ICT tools	3.64	0.569
High cost of maintenance	3.70	0.462
High cost of Airtime and data	3.61	0.556
Poor awareness of the benefit of ICTs	3.74	0.512

Source: Field survey 2019

The result implied that respondents' use of ICT tools increased the total revenue. This is expected as the marketers now have convenient ways of reaching out to potential customers via mobile phones, Facebook or WhatsApp messengers without face-to-face meetings. This is made easier as the marketers can easily reach out to thousands of potential customers through social media advertisements which cost little or nothing, unlike traditional media like television and radio. More so, many of the broilers marketers also engage in-home delivery and this also boosts their sales and profit margin. The results affirm the findings of Hoang (2020), who found that the adoption of ICTs especially mobile phones for marketing was positively and significantly associated with income among fruit marketers in Vietnam.

#### **Constraints to the Use of ICTs among Broiler Marketers**

The result presented in Table 6 showed the constraints encountered by the broiler marketers with the use of ICT in the study area which include inadequate skill and personnel for handling ICT tools ( $\bar{x} = 3.90$ ), high cost of ICT tools ( $\bar{x} = 3.80$ ), inconsistence power supply ( $\bar{x} = 3.79$ ), low network connectivity ( $\bar{x} = 3.71$ ), long-distance to repair and maintains ICT tools ( $\bar{x} = 3.64$ ), high cost of maintenance with the mean of ( $\bar{x} = 3.73$ ), high cost of airtime and data ( $\bar{x} = 3.61$ ) and poor awareness of the benefit of ICTs ( $\bar{x} = 3.74$ ). All the constraints were major limiting factors to the use of ICT in the marketing of broiler birds in the Enugu metropolis. The result implied that any efforts or policies by government or NGOs that will reduce the effects of the variables will enhance the ease of use of

ICTs and also boost the profit margin of the marketers. This finding is in tandem with that of Singh et al. (2014); Kale et al. (2015); Taragona and Gelb (2005); Anoop and Ashok (2015) which reported that high cost of ICT facilities, inadequate skill and personnel for handling ICT tools, limited financial resources, inconsistency power supply among others were the major hindrances in ICTs use among marketers.

## Conclusion and Recommendations

The study explored the role of ICTs in the marketing of broiler birds in Enugu state, Nigeria. It can be deduced from the above findings that mobile phone was the most commonly used ICTs in the study area. Findings also indicated that ICT facilities had improved the market information of the respondents, raising their standard of living and has contributed to the growth of their total revenue. Also, it showed that broiler marketing is profitable especially now that the country is facing recession and emphasis are being made on diversification of the economy. The study further showed that educational attainment, marketing experience and use of ICT facilities significantly influence the total revenue of the respondents. However, some constraining factors were identified such as the high cost of ICT facilities, inadequate skills and personnel for handling ICT tools, inconsistency power supply, low network connectivity, high cost of maintenance and airtime, and low awareness of ICT benefits, were among the constraints that demand urgent attention. The study thus recommends that the problem of inconsistent power supply and poor network coverage should be rectified and improved on by the appropriate authorities such as the government and the network providers. The national communication commission should as a matter of urgency regulate, moderate and reduce the high call tariffs and internet data cost to enhance the profit margin of the broiler marketers in the study area.

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