

The Influence of Chicken Farmers' Demographic Characteristics on Use of Social Media to Access Market Information

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ABSTRACT

Access to information is crucial for the socio-economic development of any society. In the context of chicken farming, small-scale farmers need accurate and timely information to enhance their production. Small-scale chicken farming in Arusha City, Tanzania, has gained economic significance in recent years. The integration of technology in agriculture has transformed the way farmers operate, and social media platforms have emerged as vital tools for farmers to obtain market information. For these reasons, this study assessed the influence of demographic characteristics on small-scale chicken farmers' utilization of social media for accessing market information in Arusha City. Both quantitative and qualitative data were collected during the study. Quantitative data were collected using a semi-structured questionnaire which was administered through interview and qualitative data were collected using an in-depth interview guide. A binary logistic regression model was used to analyse quantitative data in which Statistical Package for the Social Sciences (SPSS) version 26 Computer program, was used in the process. The results show that sex, marital status, age, owning a smartphone, chicken farming experience and Kuku Uchumi is statistically significant in, accessing this market information from social media since the P-Values is less than significance levels. The study concludes that access the market information from social media is mainly influenced by demographic characteristics such as sex, a marital status, age, farming experience, being Kuku Uchumi beneficiary and owning a smartphone. Also, the study recommended that the government, through the Agricultural Extension Department, should train and encourage more small-scale chicken farmers to use social media for sourcing market information.

Key Word: Small-Scale Chicken Farmers, Kuku Uchumi, Social Media, Market Information, Demographic Characteristics

INTRODUCTION

Access to information is crucial for the socio-economic development of any society. In the context of chicken farming, small-scale farmers need accurate and timely information to enhance their production. According to Msoffe et al. (2018), poultry productivity significantly relies on access to information regarding modern farming techniques, profitable market opportunities, and value addition processes. They assert that access to information is essential for the success of poultry farmers.

Traditionally, small-scale chicken farmers have depended on extension workers to obtain information about modern farming practices, housing, disease control, and market trends. However, the limitations of extension services, such as a shortage of officers, coupled with advancements in information and communication technology, have prompted a shift. Nowadays, small-scale chicken farmers increasingly turn to social media platforms for information. Sivanthanu and Pillai (2014) highlight that social media is an effective tool for disseminating information to consumers, enabling farmers to improve their practices and contribute to the national economy (Msoffe et al., 2018).

Briandana and Dwityas (2019) define social media as an online medium facilitating user communication and interaction for information exchange and networking. Mauroner (2016) further describes it as a set of applications utilizing web technologies that allow users to create and participate in communities through communication, interaction, sharing, collaboration, and publication. Farmers leverage social media for innovative practices and information sharing. Balkrishna and Deshmukh (2017) identify Facebook, YouTube, WhatsApp, Twitter, and LinkedIn as the most popular social media platforms in agricultural marketing. Allan and Ali (2017) argue that social media's reach, even to the comfort of people's homes, enables small-scale chicken farmers to access valuable information for improving their farming practices.

To facilitate access to information on chicken farming and marketing, Kuku Uchumi, a non-governmental organization in Arusha City, provides extension services, including training farmers to use social media for sourcing market information. This initiative aims to help small-scale chicken farmers access market information and improve their livelihoods.

Previous studies have explored the use of social media for agricultural activities. For instance, Kimani (2019) assessed social media use among smallholder farmers in Kiambu County, Kenya; Charles and Nyoni (2019) examined the contribution of social media as information sources for newspapers in Tanzania; Adejo and Opeyemi (2019) focused on the awareness and usage of social media for agricultural information among youth farmers in Kogi State, Nigeria; and Okello et al. (2020) investigated the impact of ICT tools on accessing technical, market, and financial information among young dairy entrepreneurs in Tanzania. Despite these studies, there is a lack of documented information on how demographic characteristics influence the sourcing of market information from social media among small-scale chicken farmers. This paper aims to fill this knowledge gap by examining the influence of demographic characteristics on sourcing market information from social media among small-scale chicken farmers in Arusha City, Tanzania. Understanding this influence will help develop strategies for the effective use of social media, ultimately improving chicken farming and enhancing the wellbeing of small-scale chicken farmers.

METHODOLOGY

The study on which paper is based was conducted in Arusha City, Tanzania. Arusha City with 25 wards (in which 9 wards namely Elerai, Lemara, Moshono, Murriet, Olasiti, Sokoni I, Sombetini, Themis and Unga Limited were randomly selected) was chosen because of the presence of Kuku Uchumi, a non-governmental organization offering extension services to small-scale chicken farmers. Among its key functions, Kuku Uchumi mobilizes small-scale chicken farmers to use social media to access market information. Small-scale chicken farmers (both Kuku Uchumi beneficiaries and non-beneficiaries) in Arusha City formed the population of the study. A cross-sectional research design was used because it is suitable for gathering data from a selected sample at a single point in time to acquire information on a group of people's preferences, attitudes, behaviours, and interests towards a specific problem (Bechhofer & Paterson, 2012).

A unit of analysis for this study was an individual small-scale chicken farmer. Purposive sampling and stratified simple random sampling techniques were used to select small-scale chicken farmers (beneficiaries and non-beneficiaries of Kuku Uchumi) respectively. Prior to the sampling exercise, the livestock and ward executive officers assisted in identifying small-scale chicken farmers in their areas of jurisdiction. In this exercise, a total of 279 non-Kuku Uchumi beneficiaries who keep between 100 and 1000 chickens were identified in 9 wards, namely Elerai, Sombetini, Unga Limited, Lemara, Moshono, Murriet, Olasiti, Sokoni I and Themis. Using stratified sampling where a proportionate formula was used and later a simple random sampling, 130 small-scale chicken farmers (who are non-Kuku Uchumi beneficiaries) were sampled as shown in Table 1. Another 130 small-scale farmers who are Kuku Uchumi beneficiaries were purposively selected to make a total of 260 small-scale chicken farmers as a sample size for this study.

Table 1: Proportionate of small-scale chicken farmers in 9 wards (non-Kuku Uchumi beneficiaries)

Ward Name	Small-scale chicken farmers identified	Selected
Elerai	30	14

Lemara	50	23
Moshono	60	28
Murriet	65	30
Olasit	35	16
Sombetini	7	3
Sokoni I	20	9
Unga Limited	6	3
Themis	6	3
Total	279	130

Both quantitative and qualitative data were collected during the study. Quantitative data were collected using a semi-structured questionnaire which was administered through interview and qualitative data were collected using an in-depth interview guide. A binary logistic regression model was used to analyse quantitative data in which Statistical Package for the Social Sciences (SPSS) version 26 Computer program, was used in the process. Thereafter, results were presented in tabular form and narratives for quantitative and qualitative data respectively.

The Binary Logistic Regression model look like:

$$Z = \text{Log} \left[\frac{p}{1-q} \right] = \text{Log} \quad \text{and}$$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + e$$

Where:

Y = Probability of sourcing market information from social media. 1 if source market information type or 0 otherwise.

β_{1-n} = Regression Coefficient of Y by each independent variable

X_1, X_2, \dots, X_n are respective independent variables

e = The precision errors

In this case, independent variables which included small-scale chicken farmers' demographic characteristics were:

$X_1 = \text{Age (20 – 40 vs 41 – 72 years)}$

$X_2 = \text{Sex (Male vs Female)}$

$X_3 = \text{Education level (Educated Vs Not educated)}$

$X_4 = \text{Marital status (Married Vs Not married)}$

$X_5 = \text{Farming experience (1 – 5 Vs 6 – 25 years)}$

$X_6 = \text{Kuku Uchumi beneficiary (Beneficiary Vs None – Beneficiary)}$

$X_7 = \text{Smartphone (Own Vs Not own)}$

Note that age and farming experience categories were established using a mean score in which the minimum value and mean formed the first category. The second category includes the first value from the mean and the maximum value.

RESULTS AND DISCUSSION

Small-scale chicken farmers’ demographic characteristics

The study findings (Table 2) indicate that 69% of non-beneficiaries were female, compared to 62% of beneficiaries. Males outnumbered females among Kuku Uchumi and non-Kuku Uchumi beneficiaries. The statistics revealed that 38% of beneficiaries and 33% of non-beneficiaries were aged 30 to 39 suggesting the dominance of youth in small-scale chicken farming. In this study, "youth" was defined as young men and women aged 15 to 40. In terms of marital status, 91% of beneficiaries were married, compared to 78% of non-beneficiaries.

Further, the findings (Table 2) show that 44% of Kuku Uchumi beneficiaries had completed secondary school, compared to 39% of non-beneficiaries. Furthermore, the majority of respondents 94% of beneficiaries and 87% of non-beneficiaries—had one to ten years of experience. In the same table, 91% of beneficiaries own smartphones, whereas 85% of non-beneficiaries do not.

Table 1: Frequency distribution of respondents according to their demographic characteristics

Kuku Uchumi Beneficiaries			Non-Kuku Uchumi Beneficiaries	
Variables (n = 130)	Frequency	Percent	Frequency	Percent
Sex				
Male	49	37.7	41	31.5
Female	81	62.3	89	68.5
Age				
20 – 29	11	8.5	16	12.3
30 – 39	49	37.7	43	33.1
40 – 49	35	26.9	40	30.8
50 – 59	21	16.2	24	16.9
60 – 69	13	10.0	9	6.9
70 and above	1	0.8	0	0.0
Marital Status				
Single	9	6.9	15	11.5
Married	118	90.8	101	77.7
Divorced	3	2.3	8	6.2
Separated	0	0.0	6	4.6
Education level				
No formal education	0	0.0	4	3.1
Primary education	39	30.0	48	36.9

Secondary education	57	43.8	50	38.5
Tertiary	34	26.2	28	21.5
Chicken farming experience (years)				
1-10	122	93.8	113	86.9
11-20	8	6.2	14	10.8
21-30	0	0.0	3	2.3
Ownership of ICT Device				
Smartphone	118	90.8	111	85.4
iPad	4	3.1	3	2.3
Laptop	1	0.8	3	2.3
Desktop	0	0.0	0	0.0
Not using any of the ICT devices)	7	5.3	13	10.0

Types of market information sourced from social media

In order to understand the type of market information sourced from social media by small-scale chicken farmers in the study area and to achieve this objective, respondents were asked to enlist the type of market information they source from social media. Table 3 shows the frequency distribution of types of market information sourced from social media.

The findings in Table 3 indicate that 134 (51.5%) of the respondents prefer to post chickens for marketing purposes on social media. This is the most common market information shared among the small-scale chicken farmers in the study area. The least amount of market information sourced in the study areas as per respondents is egg trays needed in the market, with 64(24.6%) responses. Apart from posting chickens for marketing purposes and egg trays needed in the market, other types of market information sourced from social media include posting eggs for marketing purposes, chicken price, egg price, chicken needed in the market, and chicken market status. This implies that small-scale chicken farmers source different market information depending on their needs. For the small-scale chicken farmers keeping chickens for meat, always source post chicken, and those who keep chickens for both meat and eggs, source information related to chicken as well as eggs.

These findings are in line with that of Chande (2018), who confirms that chicken market price, purchasing day-old-chicks, selling chicken eggs, and bargaining chicken market price are the most needed market information by small-scale chicken farmers.

Table 3: Frequency distribution of types of market information sourced from social media (N=260)

Market information type	Response	Frequency	Percent
Chicken price	No	156	60.0
	Yes	104	40.0
Egg price	No	169	65.0
	Yes	91	35.0
Chicken needed in the market	No	191	73.5

	Yes	69	26.5
Egg trays needed in the market	No	196	75.4
	Yes	64	24.6
Chicken market status	No	174	66.9
	Yes	86	33.1

The influence of small-scale chicken farmers’ demographic characteristics on the use of social media to access market information

Table 4. presents a binary logistic regression analysis results on the influence of small-scale chicken farmers’ demographic characteristics on sourcing market information. A binary logistic regression model was used in this analysis where Sex (male vs female), Age category (20 – 40 vs 41 – 72), Marital status (Married vs Not married), Education level (Educated vs Not educated), Chicken farming experience (1 – 5 vs 6 – 25 years), Kuku Uchumi beneficiary (Beneficiary vs Non-beneficiary), and Smartphone ownership (Own smartphone vs Not own smartphone) were treated as independent variables. On the other hand, types of market information sourced (chicken price, egg price, chicken needed in the market, egg trays needed in the market, and chicken market status) was treated as a dependent variable.

The Omnibus (model fit information) and Hosmer and Leme show (goodness of fit test) tests were carried out to test the goodness of fit of the model. They all revealed that the model fit for further analysis, as shown in Table 4. Other important information determined were model classification and Model Summary (Cox & Hell R- square Nagelkerke R-square). Mode classification provides us with an indication of how well the model is able to predict the correct category for each case, whereas model summary provides an indication of the amount of variation in the dependent variable explained by the model (from a minimum value of 0 to a maximum of approximately 1) (Pallant, 2005).

Further, the results in Table 4 indicate that sex is statistically significant in sourcing market information related to egg prices at a P-value of 0.044* and the number of egg trays needed in the market at 0.037*. This implies that males use social media to source market information more than females. The findings correspond to those of Taha *et al.*(2021) who confirm that there are statistically significant differences in the use of social media between men and women in sourcing market information. Also, marital status is statistically significant in sourcing market information related to chicken market status at P-value 0.043*. These findings inform us that sometimes a husband and a wife cooperate in chicken farming, and so they work together to find market information for their chickens and chicken products. They choose a social media platform where they post or receive market information. This happen when the family consider chicken farming as one of their incomes generating activity. Samuel and Asana (2021) confirm that smallholder chicken farming households within their study area were matured people who were married or had been married before hence, had a responsibility of taking care of their homes and thus, use of social media to source market information is important.

Additionally, age category is statistically significant in sourcing market information related to number of egg trays needed in the market at P-value 0.035*. This implies that young, small-scale chicken farmers take advantage of social media to advertise their chicken business. These results support that of Falola *et al.*(2021) who state that the wide use of social media by the farmers could be a result of their level of education and young age which enhanced their technology adoption decision. Meaning that small-scale chicken farmers are in position to make quick decision toward the use of social media to source market information for their chicken and related products. This enhances the performance of the sector in terms of increasing small-scale chicken farmers revenue, henceforth improve their livelihood. The findings are also corresponding to that of Kimani (2019) who contend that young farmer respondents recorded a high level of social media familiarity compared to older ones. This imply that young people source various information from social media including market information.

Similarly, chicken farming experience is statistically significant for souring market information related to posting

chickens for marketing purposes at P-value 0.007*, posting egg trays at P-value 0.014*, and the number of chickens needed in the market at P-value 0.048*. This inform that small-scale farmers start chicken farming activities while they know what is existing in the industry. They are aware that there is a problem associated with sourcing market information. In this case, they tend to use available technology such as social media to overcome the challenge. Further, time spent by small-scale chicken farmers on chicken farming means they have acquired the required chicken farming skills (Falola *et al.*, 2021).

Kuku Uchumi as an independent variable is statistically significant at sourcing market information related to posting chicken for marketing purposes at P-value 0.016* and chicken market status at P-value 0.032*. Kuku Uchumi beneficiaries were trained on the use of social media to access market information. In this case, they are expected to apply knowledge and skills to source market information. This is supported by the key informant, who said:

.... We guide and train small-scale chicken farmers on chicken farming activities in which they apply the knowledge and skills to improve farming. We also advise and show them the importance of using social media in sourcing market information. They use WhatsApp, Facebook, Instagram, and YouTube to advertise their chicken and chicken products. Use of social media saves time and helps in reaching many customers within a very short time (KII: Murriet Ward, 06/06/2022).

On the other hand, owning a smartphone is statistically significant for sourcing market information related to posting chicken for marketing purposes at P-value 0.003*, posting egg for marketing purposes at P-value 0.000*, the number of chickens needed in the market at P-value 0.025*, and chicken market status at P-value 0.027*. This implies that a smartphone is a key ICT device that influences small-scale chicken farmers to source market information from social media. Small-scale chicken farmers through smartphones are linked into WhatsApp groups and Facebook groups in which market information is shared. They can post and receive market information such as chicken prices, number of chickens needed in the market, the number of egg trays needed in the market, as well as chicken market status. Findings from key informant interviews revealed that;

After we trained small-scale chicken farmers, we took advantage of technology growth, specifically social media, to conquer chicken market problems. Small-scale chicken farmers with smartphones are linked into WhatsApp and Facebook groups in which we monitor their progress and keep on advising them on chicken farming. Through these groups, we understand what they are doing out there and the challenges they are facing. They use these groups to post chickens, chicks, and eggs for marketing purposes (KII: Murriet Ward, 06/06/2022).

Table 4: Binary logistic regression analysis result of the influence of small-scale chicken farmers’ demographic characteristics on the use of social media to access different types of market information

Demographic characteristics	Chicken price		Egg Price		Chicken needed		Egg needed trays		Chicken Market	
	B	P-value	B	P-value	B	P-value	B	P-value	B	P-value
Sex (Male vs Female)	0.213	0.461	0.582	0.044*	0.104	0.74	-0.627	0.037*	0.027	0.927
Marital status (Married vs Not married)	-0.702	0.068	-0.304	0.411	0.436	0.328	0.021	0.96	0.973	0.043*
Education level (Educated vs Not educated)	-0.287	0.325	0.217	0.454	-0.173	0.585	0.288	0.384	-0.567	0.058

Age category (20-40 vs 41-72)	0.012	0.967	0.076	0.786	-0.035	0.909	0.664	0.035*	-0.18	0.539
Farming experience (1-5 vs 6-25 years)	0.164	0.592	0.207	0.486	-0.695	0.048*	-0.134	0.684	0.557	0.069
Beneficiary of Kuku Uchumi (Beneficiaries vs non beneficiaries)	-0.464	0.089	-0.115	0.671	0.407	0.172	0.01	0.974	0.61	0.032*
Smart phone (Own vs not Own)	2.782	0.000*	0.253	0.573	1.723	0.025*	0.025	0.957	1.197	0.027*
Constant	-2.168	0.008	-1.175	0.035	-2.941	0.001	-1.282	0.03	-2.712	0
Note:	Chi-square	P-value	Chi-square	P-value	Chi-square	P-value	Chi-square	P-value	Chi-square	P-value
Model fit information	29.901	0.000*	6.748	0.456	17.403	0.015*	9.314	0.231	23.029	0.002*
Goodness of fit test	5.807	0.562	3.444	0.904	9.61	0.293	4.201	0.839	6.203	0.625
Model classification	66.20%		65.40%		73.50%		75.40%		67.70%	
Model Summary (Cox & Hell R-Nagelkerke R-square)	10.9 - 14.70%		2.6 - 3.50%		6.5 - 9.40%		3.5 - 5.20%		8.5 - 11.80%	

Significance Codes * = 5%

CONCLUSION AND RECOMMENDATION

Conclusion

The study concludes that the chicken and egg price, the number of chicken and egg trays needed in the market, and the chicken market status are the main types of market information accessed from social media in the study area. Also, accessing this market information from social media is mainly influenced by demographic characteristics such as sex at P-value 0.044* (egg price) and 0.037*(egg trays needed in the market), marital status at P-value 0.043* (chicken market status), age category at P-value 0.035*(egg trays needed in the market), farming experience at P-value 0.007*, being Kuku Uchumi beneficiary at P-value 0.016* and P-value at 0.032* (chicken market status) and owning a smartphone at P-value 0.000*, P-value 0.025*(number of chickens needed in the market) and P-value 0.027*(chicken market status).

Recommendation

The government, through the Agricultural Extension Department, should train and encourage more small-scale chicken farmers to use social media for sourcing market information. This initiative will enable farmers to access real-time market information and identify optimal locations for selling their chicken and chicken products.

Extension agents, present in nearly every ward across the country, should leverage the growth of technology, particularly social media platforms, to effectively reach and support small-scale chicken farmers. By doing so, the successful initiatives established by Kuku Uchumi can be expanded beyond Arusha to other regions in the country. These efforts will help small-scale chicken farmers overcome market-related challenges, allowing them to sell their chickens and chicken products at fair prices directly to consumers. This not only improves their profitability but also enhances their overall economic wellbeing.

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