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Socio-economic Factors Influencing Women's Use of Mobile Phones in the Improved Chicken Farming Business Information in Misungwi District, Tanzania

Iddi Hadija, Siwel Nyamba, and Innocent Busindeli

ABSTRACT

Recently, improved chicken farming business is regarded as an important women's economic activity in the lake zone of Tanzania. The use of mobile phones by women represents an opportunity for the development of the improved chicken farming business. However, the use of mobile phones by women is influenced by their socio-economic status. This study aimed to determine socio-economic factors influencing women in using mobile phones in the development of improved chicken farming business information in Misungwi District in the Lake zone of Tanzania. The study adopted cross-sectional design whereby data were collected mainly through a questionnaire with women involved in improved chicken farming. A binary logistic regression model was employed to determine socio-economic factors influencing women's use of mobile phones in the improved chicken farming business information. The study found that socio-economic factors such as age, education level and occupation showed positively significant results. Based on these findings the study concludes that socio-economic factors such as age, education level and occupation significantly influence the use of mobile phones in the improved chicken farming business information. The study recommends to Misungwi District authority through District Agriculture Livestock and Fisheries Office (DALFO) to mobilize and register all women improved chicken farmers and form communication groups by using their mobile phone numbers so as to be able to give them new information on improved chicken farming business through SMS.

Keywords: improved chicken farming business, mobile phones, women.

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I. Introduction

Women have been involved in many pro-poor socio-economic activities globally. Such activities have in some areas resulted in improving their livelihoods [1]. Studies have indicated that improved chicken farming business has been identified to be one of the many ways of reaching that success [2]. However, the whole process of realizing significantly improved livelihood needs to employ new ways towards its success. The use of new technologies like mobile phones is one of the many technologies which can be applied to enhance successfully improved chicken farming business.

Improved chicken farming has been a common business which women participate [3], [4]. In Sub-Sahara Africa, improved chicken is farmed extensively in countries such as South Africa, Malawi, Nigeria, Ethiopia, Kenya, and Tanzania. In Tanzania, improved chicken is kept in regions such as Iringa, Dar es Salaam, Morogoro, Tanga, Mwanza, Singida and Dodoma for home consumption and income generation. The major improved chicken breeds farmed in Tanzania are Sasso and Kuroiler. About 80% of the chickens are owned by women and have control over decisions on the sales and consumption of the chicken meat and eggs [5]–[7]. The reason is that managing a chicken enterprise is relatively easy. It only requires a small capital investment with a promising income generation within a short time. Hence this attracts more women and youth [8], [9]. However, it is common that most women are disadvantaged in access to technology and technical knowledge, and in particular information communication technology [10], [11].

Information and Communication Technologies (ICTs) refer to the collection of technologies used to deal with information to facilitate communication [12]. ICTs involve the use of hard-wares, soft-wares, email, internet computers, radio, television, and mobile phones. ICTs are potential in meeting the information needs of improved chicken farmers if used effectively and efficiently [13], [14]. Mobile phones are useful ICTs tools due to their speedy, timely dissemination of information, potentiality in storage, retrieval, and feedback of the information to the source. Users of mobile phones, including chicken farmers, can thus participate in the process and benefit from its usage. Mobile phones can play a significant role in the development of the improved chicken farming business when used in an appropriate manner. It can provide new information services to its users [14]. By using mobile phones, improved chicken farmers can easily search where the market is, seek and sort information about the price of their produce and extension services. However, women chicken farmers do not meet their felt needs by keeping improved chickens. For example,

as a businesswomen improved chicken farmers do not realize profit by selling their chicken. Hence, they are not able to buy modern materials for building modern houses, transport facilities like motorcycles to solve the incurred transportation problems, pay their children's school needs like uniforms, exercise books and bills for the health of the members of the family [15]. Therefore, this study determined socio-economic factors influencing women in using mobile phones in the development of improved chicken farming business in Misungwi District in the Lake zone of Tanzania.

A. The Use of Mobile Phones in the Development of Improved Chicken Farming Business

Mobile phones as one of the ICTs instruments play a useful role in promoting the exchange of knowledge and information between individuals, groups or organizations particularly in the development of improved chicken farming business [16]. Improved chicken farming business is a type of farming practice which involves keeping improved chicken commercially for both meat, eggs, manure, and feather production [17]. Some studies, for instance, [18], [19] have revealed that socio-economic characteristics may contribute positively to the use of mobile phones in the poultry farming business. Hence the influence of farmers' characteristics on the adoption and use of mobile phone technology in farming is crucial for knowing why adoption and use may differ to different farmers. Furthermore, studies by [20]–[22] found that age, sex and education level had positive contributions to adoption of new technology in agricultural production.

B. Theoretical and Conceptual Framework

1) Theoretical framework

This study was guided by the diffusion of innovation theory (DOI) developed in 1962 and reviewed in 2003 by Everret M. Rogers and used by different scholars such as [23]–[26]. The theory explains how over time technology gains and spreads through individuals and groups. The theory has four major elements that influence the spread of new ideas which are: the characteristics of technological innovation, communication channels, time, and social systems. In addition, individuals in accepting or rejecting a new idea undergo different stages which are knowledge, persuasion, decision, and confirmation. Furthermore, there are factors that influence individual's resistance or acceptance of new technologies these include individual characteristics, technological characteristics, degree of risk perceived by the individual in adopting new technology and decision-making environment of individuals. In this case, mobile phones innovation and communication channels may have a role to play in bringing development among women engaged in improved chicken farming business at Misungwi District.

2) Conceptual framework

In this paper, the term 'use' is operationally used to mean sending, receiving, and searching for improved chicken information through mobile phones by women. The conceptual framework of this study is derived from the diffusion of innovation theory (DOI), Tanzanian socio-economic context, and the independent variables that will result from the dependent variable (See in Fig. 1). The independent variables studied are farmers' characteristics (age, education level, income, marital status, occupation, and number of improved chickens kept). The assumption is that these independent variables will play a role as socio-economic factors influencing women's use of mobile phones for improved chicken farming business.

Conceptual framework of the socio-economic factors influencing women's use of mobile phones for improved chicken farming business information.

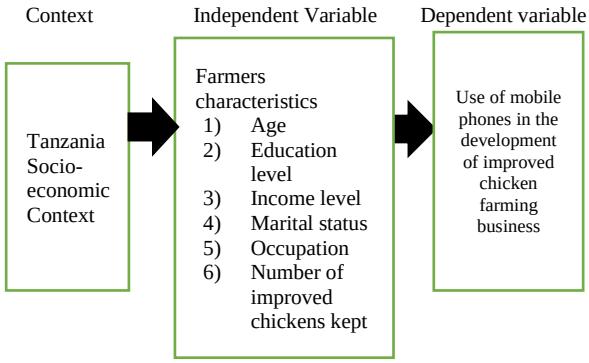

Fig. 1. The conceptual framework of the study.

II. METHODOLOGY

A. Study Area, Research Design and Sampling Procedure

The study was conducted in Misungwi District in Mwanza Region. Administratively, the district is divided into four divisions namely: Misungwi, Mbarika, Inonelwa and Usagara (See in Fig. 2). The district has a total area of 2 553 sq.km of which 2 378 sq km is land and 175 sq.km is covered by water of Lake Victoria [27]. The district had a total population of 351 607 (male 173 997and female 177 610) comprising of 50 697 households [28]. The main economic activities of the district include agricultural (crop farming), livestock keeping and fishing. The justification of Misungwi District to be selected for this study is that although the district is covered by a well network of tarmac roads and nearby Mwanza City where improved chicken consumers are many, yet women improved chicken farmers in the study area accrue little benefit from such opportunities due to scanty use of mobile phone in their business.

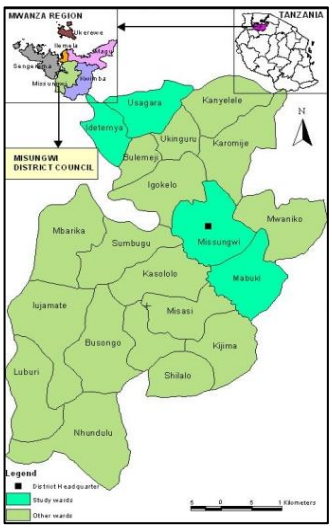

Fig 2. Map of Misungwi District Council showing the location of the study area.

The study employed cross-sectional research design, and the design allows data collection at one point in time [29], [30]. The study included all women farming improved chicken who have mobile phones. Purposive sampling, random sampling and snowball sampling were the methods employed to obtain respondents. Purposive sampling was used due to its freedom which allows the researcher to choose respondents who suit the need of a research, while random sampling was employed since it allows an equal chance for an individual to be selected. Also, snowball sampling was employed due to its strength in identifying respondents by referring to another one till the number of respondents needed reached [29]. In this case of a study, identification of women engaged in improved chicken farming business was done after being introduced to one of them by the extension officer. Two divisions were purposively selected. On the contrary, two wards were randomly selected. From each ward, four villages were selected randomly, and 15 women improved chicken farmers were selected by using the snowball method. Identification of women engaged in improved chicken farming business was done with the assistance of the extension officer. Based on the suggestion of [31], [32] that a sample size of 120 respondents to be significant when conducting socio-economic study. Thus, the sample size of this study was 120 respondents.

1) Data collection

Data were collected by using a questionnaire which was distributed to 120 respondents.

2) Data processing and analysis

Quantitative data were coded, entered the computer, cleaned and analyzed by using Statistical Package for Social Science (SPSS) version 20 Software and running a binary logistic regression model.

III. Results and Discussion

A. Demographic Characteristics of Improved Chicken Farmers

The results (in Table I) show that the majority (95.8%) of women farmers involved in this study were aged between 18 to 61 years and were in the economically active age group. The rest were (4.2%) in the dependent age group. The majority of respondents in terms of age in Idetemiya, Mabuki, Misungwi and Usagara were 66.7%, 70.0%, 70.0% and 83.3% respectively, and were between 29 to 50 years. Such results indicate a proper sampling of respondent's selection from the four wards involved in the study. The result implies that the majority (95.8%) of respondents were in the active age group which can perform tasks and intensive labor demanded for farming improved chicken. The age group is appropriate to perform the duty. The findings are in line with [33] who found that such an active age group can well perform the required labor to meet their responsibilities and goals.

With regards to the marital status of the respondents, the results (Table I) reveal that the majority of respondents 85 (70.8%) were married, divorced 13 (10.8%), single 12 (10%), 2 (1.7%) separate, and widows were 8 (6.7%). The results further show that 60.0% in Idetemiya, 76.7% in Mabuki, 63.3% in Misungwi and 83.3% in Usagara were married. Married women have many family responsibilities which demand them to spend more time at home. The responsibilities include taking care of their economic project. In this case, improved chicken farmers can most likely meet the demand of their family responsibilities while working together with their husbands. This implies that socially farming of improved chicken is likely to be successful when women farmers are in a marriage because it was realized that those women not in marriage relationship only few were involved in the business. The finding is in line with [34] who found that stable marriages usually result in good business performance compared to unstable ones.

Based on education level, 62 (51.7%) had primary education, 45 (37.5%) had secondary education, 10 (8.3%) had college/tertiary education and 3 (2,5%) had non-formal education (Table I). With the exception of Usagara Ward where the same proportion 46.7% of the respondents had primary and secondary education, 56.7% of respondents in Mabuki and 53.3% in Misungwi Wards had primary education. The situation is different in Idetemiya Ward where 50% of the respondents had primary education and the rest 50% with other levels of education. The assumption is that farmers with formal education are literate in reading, writing, and counting skills/ knowledge which may help them to use mobile phones. This implies that respondents with a higher level of formal education are more likely to learn, acquire and use new knowledge and technology compared to those who had no formal education. According to [35] education is vital in quick learning and adopting new technology, building the desire to do something as well as in running a business successfully. On the contrary, [36] established that a lack of knowledge and skills, a negative attitude, a lack of awareness of the ICT policy and low motivation emerged as key barriers in ICT application and hence in mobile phone use.

B. Socio- Economic Characteristics of Women Improved Chicken Farmers

In this study, socio-economic characteristics included occupation, sources of income and numbers of improved chickens kept by farmers were studied. The results in Table II show that the majority (84.2%) of respondents depend on livestock keeping as their main occupation.

The results in Table II show that 80.0% of the respondents from Idetemiya, 90.0% from Mabuki, 80.0% from Misungwi and 90.0% from Usagara Wards depend on livestock production as their main source of income. This implies that even before the introduction of improved chicken farming business, the respondents were involved in livestock keeping including poultry keeping. Thus, they had the experience of performing livestock keeping duties. Experience in conducting a certain business for a long time is needed in performing the business. In this case, success in farming improved chicken in a business manner depends on the experience of the farmer. These findings are in line with [22] who found that the higher the farming experience the more knowledge is gained and technological ideas to solve production challenges. Therefore, all these lead to higher production and income.

TABLE I: DEMOGRAPHIC CHARACTERISTICS OF WOMEN IMPROVED CHICKEN FARMERS

Characteristics	Idetemiya		Mabuki		Misungwi		Usagara		Overall	
	n	%	n	%	n	%	n	%		
				1. Age						
18–28	5	16.7	3	10.0	3	10.0	4	13.3	15	12.5
29–39	14	46.7	9	30.0	7	23.3	12	40.0	42	35.0
40–50	6	20.0	12	40.0	11	36.7	13	43.3	42	35.0
51–61	5	16.7	5	16.7	5	16.7	1	3.3	16	13.3
>61	0	0.0	1	3.3	4	13.3	0	0.0	5	4.2
Total	30	100.0	30	100.0	30	100.0	30	100.0	120	100.0
				2. Marital status						
Single	6	20.0	1	3.3	3	10.0	2	6.7	12	10.0
Married	18	60.0	23	76.7	19	63.3	25	83.3	85	70.8
Separated	0	0.0	1	3.3	0	0.0	1	3.3	2	1.7
Divorced	2	6.7	4	13.3	7	23.3	0	0.0	13	10.8
Widows	4	13.3	1	3.3	1	3.3	2	6.7	8	6.7
Total	30	100.0	30	100.0	30	100.0	30	100.0	120	100.0
				3. Level of Education						
Informal	1	3.3	2	6.7	0	0.0	0	0.0	3	2.5
Primary	15	50.0	17	56.7	16	53.3	14	46.7	62	51.7
Secondary	10	33.3	8	26.7	13	43.3	14	46.7	45	37.5
Collage/Tertiary	4	13.3	3	10.0	1	3.3	2	6.7	10	8.3
Total	30	100.0	30	100.0	30	100.0	30	100.0	120	100.0

TABLE II: SOCIO-ECONOMIC CHARACTERISTICS OF WOMEN IMPROVED CHICKEN FARMERS

Characteristics	Idetemiya		Mabuki		Misungwi		Usagara		Overall	
	n	%	n	%	N	%	n	%		
		1. Respondents' occupation								
Crops production	5	16.7	0	0.0	2	6.7	2	6.7	9	7.5
Livestock production	24	80.0	27	90.0	23	76.7	27	90.0	101	84.2
Employed	1	3.3	3	10.0	2	6.7	0	0.0	6	5.0
Petty Business	0	0.0	0	0.0	3	10.0	1	3.3	4	3.3
Total	30	100	30	100	30	100	30	100	120	100
		2. Sources of income								
Salary	0	0.0	3	10.0	2	6.7	0	0.0	5	4.2
Crop production	5	16.7	0	0.0	2	6.7	2	6.7	9	7.5
Livestock production	24	80.0	27	90.0	24	80.0	27	90.0	102	85.0
Petty Business	1	3.3	0	0.0	2	6.7	1	3.3	4	3.3
Total	30	100	30	100	30	100	30	100	120	100
		3. Number of improved chickens kept								
50 – 100	3	10.0	2	6.7	1	3.3	0	0.0	6	5.0
101 – 151	3	10.0	4	13.3	7	23.3	1	3.3	15	12.5
152 – 202	11	36.7	14	46.7	7	23.3	10	33.3	42	35.0
203 – 253	9	30.0	6	20.0	10	33.3	14	46.7	39	32.5
> 253	4	13.3	4	13.3	5	16.7	5	16.7	18	15.0
Total	30	100	30	100	30	100	30	100	120	100

TABLE III: BINARY LOGISTIC REGRESSION RESULTS ON SOCIO-ECONOMIC FACTORS INFLUENCING WOMEN USE OF THE MOBILE PHONES IN IMPROVED CHICKEN FARMING BUSINESS INFORMATION(N=120)

Use of Mobile phone	B	S.E.	Wald	D.f	Sig.	Odds ratio	95% C.I. for EXP(B)	
							Lower	Upper
Age groups	0.722	0.277	6.815	1	0.009	2.059	1.197	3.540
Marital status	-0.302	0.294	1.053	1	0.305	0.739	0.415	1.316
Education level	0.977	0.419	5.455	1	0.020	2.658	1.170	6.036
Occupation	1.494	0.520	8.241	1	0.004	4.453	1.606	12.346
source of income	-0.947	0.502	3.564	1	0.059	0.388	0.145	1.037
Number of chickens kept	-0.504	0.275	3.355	1	0.067	0.604	0.352	1.036
Constant	-3.758	2.323	2.617	1	0.106	0.023		

C. Socio-Economic Factors Influencing Women Use of Mobile Phones in Improved Chicken Farming Business Information

Binary logistic regression analysis was used to determine socio-economic factors influencing women use of mobile phone in improving chicken farming business information. The dependent variable was "the use of mobile phone" and the independent variables were the socio-economic factors (age, education level, marital status, level of income, occupation and number of improved chickens kept). The model was fitted at 95% significant level. The p-value of the model fit was found to be prob>chi2=0.000 is less than 0.05 which showed that the independent variables have influence on seeking information. The study results (Table III) show that age, education level and occupation significantly influence the use of mobile phones in the improved chicken farming business.

1) Age of the respondents

The study results (Table III) show that as one grows in terms of age that is moving from one age group to another (18–28, 29–39…. up to 61+) there is a significant increase in the use of a mobile phone. The model coefficient with a positive value (0.722), the odds ratio is above 1(6.815) and 0.722 unit increase show that as a respondent advances in age, the use of mobile phone by women in the improved chicken farming business information increases.

Therefore, as age is increased by one year, it increases the use of mobile phone in the improved chicken farming business information. This means that young women improved chicken farmers are most likely to use mobile phones in improving chicken farming business. [16] conducted a study on socio-economic characteristics enhancing farmers' use of mobile phone to access agricultural information in Tanzania and found that age has positive influence on ability to use mobile phone to communicate agricultural information.

2) Education level

The study results (Table III) indicate that education level of women improved chicken farmers had an influence in their use of mobile phones in the improved chicken farming business information. The model coefficient (0.977), and the odds ratio is above 1(5.455); this shows that 0.977, as the level of education increases most likely the use of mobile phone by women chicken farmers increases. The result implies that more educated improved chicken farmers women are more likely to use mobile phones to access information compared to holders of non-formal and primary education. This may be due to an increase in education, which resulted in an increase of knowledge and skills in using mobile phones. These findings are in agreement with those reported by [38] in Kenya that farmers with higher level of education have ability for technology use or mobile phones use. They can make appropriate decisions and solve challenges related to the use of the new technology. Furthermore, these findings are similar to those found by [37] in Kilosa and Kilombero districts that education level of respondents influenced the use mobile phone in the study area.

3) Occupation

The study findings (Table III) indicate that respondent's occupation had an influence on the use of mobile phone in improving chicken farming business information. The model coefficient was 1.494, and the odds ratio was above 1(8.241). This means that a one unit increase in the occupation increased the use of mobile phones in the improved chicken farming business. This implies that respondents with an occupation other than farming improved chicken had a high chance of using mobile phone technology in the improved chicken farming business information. In this case they had the probability to use mobile phones in order to search for information related to their improved chicken farming business. These findings are similar with those reported by [38] that farmers with other occupations than farming had higher chances of using mobile phones in accessing agricultural information.

IV. Conclusion and Recommendations

The study concludes that socio-economic factors such as age, education level and occupation significantly influence the use of mobile phones in the improved chicken farming business information.

Based on the conclusion, it is therefore recommended that the Misungwi District authority through DALFO's office to mobilize and register all women improved chicken farmers and form communication groups by using their mobile phone's numbers and give them new information on improved chicken farming business through SMS.

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