International Journal of Business Management and Economic Review

Vol. 5, No. 03; 2022

ISSN: 2581-4664

SOCIAL INFLUENCE AND ITS EFFECTS ON ACCEPTANCE OF MOBILE PHONE BANKING SERVICES BY SMALLHOLDER FARMERS IN THE DODOMA REGION, TANZANIA

[1]Rwezaula Anicet, [2]Tonya Emmanuel and [3]Chachage Bukaza

[1]Institute of Rural Development Planning (IRDP)-Dodoma P. O. Box 138, Dodoma.

[2]Mbeya University of Science and Technology (MUST)

[3]The Open University of Tanzania

http://doi.org/10.35409/IJBMER.2022.3394

ABSTRACT

This study examines the effect of social influence on smallholder farmers' acceptance of mobile phone banking services in the Dodoma Region. 355 smallholders' farmers were selected randomly to form a sample. It was revealed that social influence measures have good predictive potential in explaining acceptance of mobile phone banking services. Income and education levels have statistically significant effects on acceptance of mobile phone banking services. The findings advise services providers to invest more in social interaction, experiences and advertisements and promotions to address the expectations of smallholder farmers. The study attracts policy reviews with focus on the socially related influences to attract more service users. These findings have implications to smallholder farmers who use mobile phone banking services.

Keyword: Social influence; Mobile Phone Banking Services; Smallholder farmers.

1. INTRODUCTION

Many countries have experienced significant improvement in financial inclusion using mobile money services (Lwoga & Lwoga, 2017). Mobile payments involve the application of mobile phones to conduct mobile banking services (Akhter et al., 2020). Low-income earners particularly smallholder farmers perceive mobile banking services as substitutes for traditional banking services (Kamotho, 2008). In Tanzania like in other developing countries, agriculture is the major economic sector dominated by smallholder farmers who cultivate and or own farmland of less than 2 acres (Liu & Basso, 2020). More than 80% of the total population is employed by the agricultural sector (Mtaturu, 2020). The agricultural sector contributes 29.1% of the GDP despite the level of employment (URT, 2017). The level of agricultural production is not enough to feed the increasing population of Tanzania which may lead to food imports. The low level of production is influenced by inadequate financial services and low use of technology (Kiberiti et al., 2016). The use of mobile phone banking is among the technologies that helped smallholder farmers in India to increase agricultural production (Krell et al., 2020). Mobile phone banking use significantly improved agricultural production among smallholder farmers in Ghana (Issahaku et al., 2018). Similarly, the use of mobile phone banking services for agriculture potentially assisted rural smallholder farmers in Uganda and Kenya as proclaimed by Baumüller (2018). Extant studies show that mobile phone banking services have a positive influence on household welfare gains through agricultural yields (see Kikulwe et al., 2014; Suri & Jack, 2016). Farmers using mobile phone banking services benefits through improvement in agricultural production (Baumüller,

Vol. 5, No. 03; 2022
ISSN: 2581-4664

2018). Unfortunately, there is low uptake of mobile phone applications to facilitate agricultural production (Kiberiti et al., 2016). Among the factors influencing acceptance of mobile phone banking services is social influence (Venkatesh et al., 2003). There have been limited studies to assess the effect of social influence on the mobile phone banking acceptance of smallholder farmers (Sarfaraz, 2017). Several studies concerning the use of mobile banking services among farmers concentrated on household income, money input intensity, market orientation, and farm productivity (Aggarwal et al., 2020; Batista et al., 2020; Gopane et al., 2020; Hartmann et al., 2021; Abdl-Rahaman et al., 2022). Furthermore studies done on mobile banking services among farmers focused on mobile savings, analyzing the farm household use of mobile banking (Baumüller, 2018) without looking at the effect of social influence on the acceptance of mobile phone banking services.

This study focuses on assessing the effect of social influence on the acceptance of mobile phone banking services by smallholder farmers in Tanzania specifically in the Dodoma region where smallholder farmers are engaged in grapes farming.

The reasons for undertaking this study are; First, farmers who grow grapes are more likely to use mobile phone banking services to pay for agricultural inputs and labor. Secondly, grapes farmers interact with buyers who normally use mobile phone banking services to effect payments (grapes being a commercial crop). Third, the findings of this study benefit society considering that it explains the factors that influence acceptance of mobile phone banking services in Tanzania. Fourth, the study helps mobile phone banking services providers to recognize the socio-economic barriers to the unbanked population's acceptance of mobile money services so that they can formulate strategies to address these obstacles. As a result, it would increase the use of mobile phone banking services and bridge the digital divide between the rich and the poor, the rural and urban population and toughen the socio-economic and developing agenda for growth. Finally, the knowledge generated in this study serves as a data source for policymakers during policy reviews to enhance the acceptance of mobile phone banking services by smallholder farmers.

This study differs from other studies in the following ways. First, most of the available literature on mobile phone banking resulted from studies conducted outside Tanzania and hence cannot reflect the characteristics of smallholder farmers in rural areas of Tanzania. Second, no study on the acceptance of mobile phone banking services has been conducted on smallholder farmers engaged in grapes farming in rural areas of Tanzania. Previous research has looked into how smallholder farmers can benefit from mobile phone banking services. In Ghana, smallholder farmers increased their agricultural production by using mobile phone banking (Issahaku et al., 2018; Abdul-Rahman & Abdulai, 2022). Furthermore, in Uganda and Kenya, using mobile phone banking for agriculture helped the rural smallholder farmers to practice modern agricultural methods (Baumüller, 2018). Generally, smallholder farmers use mobile phone banking services to access financial services that help to pay for agricultural inputs, resulting in increased agricultural production. The social from the use of mobile phone banking services can influence its use.

Our study results show that social influence affects the acceptance of mobile phone banking services by smallholder farmers. Experience from other users, advertisements and promotions, Family members' influence, Social status, and social interaction all have good predictive potential in explaining smallholder farmers' acceptance of mobile phone banking services.

Vol. 5, No. 03; 2022
ISSN: 2581-4664

In addition, income and education levels play a key role in influencing smallholder farmers' acceptance of mobile phone banking services. Our study is organized as follows. A literature review is presented in section 2, while section 3 describes the methodology and data, section 4 describes the results and section 5 concludes the study.

2. LITERATURE REVIEW

2.1 Conceptual Definition

Social influence is the level to which a person observes that essential others believe should use the technology (Venkatesh et al., 2003). Similarly, Ngugi and Bertsch, (2019) explained social influence as a degree an individual perceives that people important to them have believed they should use the new system.

2.2 Linking social influence and acceptance of mobile phone banking services

The level of acceptance and technology use has been demonstrated in different studies to be influenced by social influence. There must be influences for the users to accept technology use; otherwise, acceptance would be in question. Users' willingness to accept mobile phone banking is influenced by nearby relatives, friends, and family members (Sarfaraz, 2017). Although several factors are influencing the acceptance of mobile phone banking services, social relations have a role to play in enhancing technology use (Venkatesh et al., 2003). In the same way, social influence was identified to be the most relevant antecedent in the desire to use mobile phone banking services (Lwoga & Lwoga, 2017). The successful usage of mobile phone banking services largely depends on several influencing factors. The factors are associated with culture, relatives, and friends (Richard & Mandari, 2017).

Social influence is taken into account for technology users being influenced by household members to influence the head of the family on using mobile phone services (Malima et al., 2015). Other studies found smallholder farmers as technology users are influenced by the existing social relation including relatives and friends, family members, and social interactions (Singh & Srivastava, 2018; Asongu, 2018). The effect of social influence on the acceptance of mobile phone banking services among smallholder farmers has been revealed in different studies (see for example Batani et al., 2019; Victor et al., 2021). The gap in the literature review is that studies have not put social influence into consideration when studying the acceptance of mobile banking by smallholder farmers (See, for example, Asravor, et al., 2021). Furthermore, unlike previous studies, we combined other confounding factors (i.e. income, education, marital status, age) with social influence to check whether it might affect the findings on smallholder farmers' acceptance of mobile phone banking services.

3.0 Methodology

This study was carried out in the Dodoma Region Tanzania where smallholder farmers are engaged in grapes farming. The study used a cross-sectional survey design that involved a total of 355 grapes farmers obtained using a simple random sampling. The study area was chosen for the fact that farmers who grow grapes use mobile phone banking services more than smallholder farmers who grow other crops. Grape farmers are the users of mobile phone banking services to pay for labor, pay for agricultural inputs and receive payments for the produces.

3.1 Sampling Technique

Vol. 5, No. 03; 2022
ISSN: 2581-4664

The study was conducted in three (3) districts of the Dodoma Region that is Dodoma Urban, Chamwino, and Bahi which are found in the central part of Tanzania. The multi-stage sampling technique was employed to sample responding smallholder farmers. The first stage involved the use of a purposive sampling technique to select three (3) districts whose farmers are engaged in grapes farming in Dodoma Region. The second stage involved the usage of purposive sampling to select the six (6) wards with high grapes production in the selected districts. The third stage was to select six (6) villages with high grapes production in the selected wards. The last stage involved a simple random sampling technique to sample the responding communities where the 355 heads of households were administered with the survey questionnaires. Multi-stage sampling was employed because the population of the study was too vast and reaching every farm household was highly impossible. The use of multi-stage sampling makes time and cost-effective as helps reduce the population into smaller manageable groups. The sampling techniques were adopted and justified like other previous studies (See, Asravor, 2020; Asravor et al., 2021).

3.2 Data Collection

The study used a survey questionnaire to collect primary data. The survey questionnaire had two parts; the first part had questions enquiring about the characteristics of smallholder farmers while the second part had questions concerning the social influence of smallholder farmers. The second part of the questionnaire focused on research variables namely Experience from other users, advertisements and promotions, Family members' influence, Social status, and social interaction. Questions on research variables were structured in the Likert scale where respondents were required to indicate their level of agreement with the provided statements. The survey questionnaire was adapted from previous studies (Venkatesh, *et al.,* 2003; Batani *et al.,* 2019; Lwoga & Lwoga, 2017; Sing & Srivastava, 2018) and modified to suit this study.

The study population stands at 2167 smallholder farmers as provided by District agricultural extension officers. A total of 355 questionnaires had been administered to respondents and kept for analysis. The information collected was based on literature about experiences from other users, advertisements and promotions, Family members' influence, Social status, and social interaction as influences acceptance of mobile phone banking services with their socio-demographic characteristics.

3.3 Methods of Analysis

Descriptive statistics were used to profile the characteristics of respondents while multiple linear regressions were performed to analyze the link between social influence and acceptance of Mobile Phone Banking Services. The questionnaire included Likert scale statements in which respondents were asked to rate their level of agreement with the statements provided. The Likert scale is used to collect opinion data (See, for example, Saunders et al., 2012) and provides a convenient way to measure unobservable constructs (Jebb et al., 2021). It is also used to study social attitudes (Kothari, 2004; Lionello, et al., 2021) similar to our study on the acceptance of mobile phone banking services. Further, the Likert scale is an efficient and useful method to gather opinions or factual information and assess attitudes (Lam & Green, 2019).

Before analysis we first defined the categories for Likert scales: 1-Strongly agree, 2-Agree, 3-Neither agree nor disagree, 4-Disagree, and 5-Strongly disagree as described by Lipovetsky

Vol. 5, No. 03; 2022
ISSN: 2581-4664

(2021). The use of multiple linear regression for variables measured on a Likert scale stems from the fact that Likert-type data has consistently supported the use of variables as approximately continuous (See, for example, Boone & Boone, 2012; Harpe, 2015). This study followed the work of Lipovetsky, 2021; Willits et al., 2016; Sun et al., 2021; Tutz, 2021; Johnson and Creech, 1983; Norman, 2010; Sullivan and Artino, 2013; Zumbo and Zimmerman, 1993 which found that Likert or ordinal variables with five or more categories can often be used as continuous without causing problems with multiple linear regression analysis. In such cases, the variable is commonly referred to as an ordinal approximation of continuous variables.

Then collected data were analyzed using multiple linear regressions in the fact that it analyzes several independent variables with a single dependent variable (See, Khademi et al, 2017). Overall, the study used a multiple linear regression equation to express the existing relationship between smallholder farmers' acceptance of mobile phone banking services and social influence while controlling for other confounding factors such as income, education, age, and marital status. The social influence was measured by Experience from other users, advertisements and promotions, Family members' influence, Social status, and social interaction.

The multiple linear regression equation was given by

$$\mathbf{Y = \alpha + ß\ X_1 + \gamma\ Z' + \varepsilon_{i,} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)}$$

Where,

Y = smallholder farmers' acceptance of mobile phone banking services

X_1= Experience from other users

Z′= Vector of other explanatory variables such as advertisements and promotions, Family members' influence, Social status, and social interaction, and confounding factors such as income, education, age, and marital status

$\varepsilon_{i,}$= error term

α = constant value,

ß and γ are the coefficients of explanatory variables.

4. RESULTS

4.1 Demographic characteristics of respondents

Our study comprised 355 respondents, where 77.2% were males and 22.8% were females (Table 1) Out of 355 respondents, 27.0% reported themselves to be under 35 years by age, 62% as aged from 36 to 55 years, and 11.0% as 56 and over as Table 1 indicates. This means that the age of responding smallholder farmers was matured enough to decide on acceptance of mobile phone banking services. This group was likely to respond to the relevant issues related to the acceptance of mobile phone banking services objectively and hence helpful in providing relevant data for the study. The likeliness response could be caused to general technology acceptance tendencies where young people outdo the aged.

Smallholder farmers had sufficient experience in using mobile phone banking services as 65.9% had experience of 4 – 6 years. This experience is enough to explain the social influence affecting the use of mobile phone banking services. As revealed by Venkatesh, *et al*., (2003), experience in technology use plays an important part influences the decision of using a given technology. Regarding marital status it is learned that the majority of respondents (69.0%) were married, 7.0% were single, 16.1% were in relation, and 7.9% were separated.

Vol. 5, No. 03; 2022
ISSN: 2581-4664

Table 1: Demographic Characteristics of respondents (N= 355)

	Variable	Frequency	%
Gender	Male	274	77.2
	Female	81	22.8
Age (Years)	< 35	96	27.0
	36 – 55	220	62.0
	56+	39	11.0
Marital Status	Single	25	7.0
	In relationship	57	16.1
	Married	245	69.0
	Separated	28	7.9
Education	Not attended	9	2.5
	Primary Education	119	33.5
	Secondary Education	129	36.4
	College Education	98	27.6
Annual Income	Below Tsh 500,000	16	4.5
	Tshs 500,001 - 1,000,000	29	8.1
	Tshs 1,000,001 - 1,500,000	55	15.4
	Tshs 1,500,001 - 2,000,000	78	21.9
	Tshs 2,000,001 - 2,500,000	78	21.9
	Tshs 2,500,001 - 3,000,000	63	17.7
	Tshs 3,000,000 Above	24	6.7
	No Response	13	3.7
Experience in using the services (years)	< 3	59	16.6
	4 – 6	220	62.0
	7 – 10	76	21.4
Time spent walking to access the mobile phone banking service (min)	< 11	248	70.0
	11 – 20	39	11.0
	21 – 30	43	12.0
	31 +	25	7.0

Source: Authors' computation (2021)

In terms of income, 78 (21.9%) smallholder farmers earned between Tshs 2,000,001 - 2,500,000 and 78 (21.9%) earned Tshs 1,500,001 - 2,000,000, while 16 (4.5%) of respondents earned less than Tsh 500,000. This implies that the majority (43.8%) earned an income ranging between Tshs 1,500,001 to 2,500,000. As indicated in Table 1, mobile phone banking services is close to the household of smallholder farmers since the majority (70%) spend less than 11 minutes whereas only 7.0% spend more than 31 minutes to reach the service provider. This implies that distance is not blocking the accessibility of mobile phone banking services in the study area.

For robustness of data, the multicollinearity test was conducted to determine the correlation between the explanatory variables. Tolerance and Variance Inflation Factor (VIF) was used to indicate the level of multicollinearity (See Table 2). The results showed that the measurement items had the lowest tolerance value of 0.296 and the highest value of 0.774. The analysis also indicates the VIF of 3.374 for the highest and 1.292 for the lowest value which is below the cut-

Vol. 5, No. 03; 2022
ISSN: 2581-4664

off of 10 (Senaviratna & Cooray, 2021). The results indicate the absence of multicollinearity in the regression model hence calling for multiple linear regressions.

Table 2. Multicollinearity Test Results

No	Variable	Tolerance	VIF
1	Experience from other users	.376	2.659
2	Advertisements and promotions	.344	2.903
3	Family members influence	.296	3.374
4	Social status	.327	3.054
5	Social interaction	.774	1.292

Source : Authors computation, (2021)

4.2 Social influence on the acceptance of mobile phone banking services by smallholder farmers.

The multiple linear regression analysis was conducted to determine the level at which social influence explains the acceptance of mobile phone banking services by smallholder farmers. Social influence was explained by five (5) measurement items namely experience from other users, advertisements and promotions, Family members' influence, Social status, and social interaction without considering the effect of confounding variables (Table 3a). The study showed that the measurement items explain 74.5% of the variance to accept the use of mobile phone banking services. Also, the statistical test (F-test) was conducted to determine the level of the existing relationship between social influence and acceptance of mobile phone banking services. The analysis results revealed the model to reach a statistical significance value of 0.000.

The statistical test t (t-test) was conducted to determine the level of contribution of the measurement items to the prediction of the acceptance of mobile phone banking services. The analysis results (Table 3) indicate that the regression coefficients of measurement items were; Social status had the highest t – statistic value of 30.879 while the lowest t-statistic value for social interactions of 8.579.

Table 3a: The Multiple Linear Regression Results

Variable	Coefficient	Std. Error	t- statistics	p- value
(Constant)	0.016	0.087	0.180	0.858
Experience from other users	1.054	0.047	22.189	0.000
Advertisements and promotions	1.142	0.046	24.839	0.002
Family members influence	1.078	0.052	20.731	0.000
Social status	1.479	0.048	30.879	0.000
Social interaction	0.276	0.032	8.579	0.000

Note: Dependent Variable: Acceptance of Mobile Phone Banking Services

The more the value of t-statistic value among the measurement items the more it is significant.

Vol. 5, No. 03; 2022
ISSN: 2581-4664

Experience from other users, advertisements and promotions, family members' influence, social status, and social interaction all showed a positive and significant impact on the acceptance of mobile phone banking services.

Table 3b shows the results on the social influence on the acceptance of mobile phone banking services among the smallholder farmers with the confounding factors (age, education, income, gender, and education). The confounding factors were controlled for in the regression model together with the social influence on the acceptance of mobile phone banking services.

Table 3b: The social influence and confounding factors on acceptance of mobile phone banking service

	Coefficient	Std. Error	t-statistics	P- Value
(Constant)	1.656	0.052	33.044	0.000
Age	-0.072	-0.024	5.990	0.000
Level of Education	0.098	0.017	5.793	0.003
Annual Income	0.052	0.015	3.921	0.000
Marital status	0.024	0.014	1.015	0.510
Experience from other users	1.054	0.047	22.189	0.000
Advertisements and promotions	1.142	0.046	24.839	0.002
Family members influence	1.078	0.052	20.731	0.000
Social status	1.479	0.048	30.879	0.004
Social interaction	0.276	0.032	8.579	0.012

Note: Dependent Variable: Acceptance of Mobile Phone Banking Service

$R = 0.780$, $R^2 = 0.608$, Adjusted $R^2 = 0.600$, Standard error estimate = 1.98460, Durbin-Watson = 1.869, F-Statistics = 0.0000

Table 3b shows that income and education levels have positive and statistically significant effects on influencing acceptance of mobile phone banking services. However, the age of smallholder farmers is negatively and significantly influences the acceptance of mobile phone banking services. This implies that older people are less likely to accept mobile phone banking services. It should be noted that young people appear to be more up to date and open to new ideas than older people. Similarly, the positive influence of annual income and education levels implies that as income and education rise, will influence acceptance of mobile phone banking services among the smallholder farmers. Thus, this indicates that wealth and education are highly related to technology acceptance.

The study further revealed that experience from other users, advertisements and promotions, family members' influence, social status, and social interaction all showed a positive and statistically significant impact on smallholder farmers' acceptance of using mobile phone banking services.

A one-unit increase in social interaction results in a 0.276 unit increase in smallholder farmers'

Vol. 5, No. 03; 2022
ISSN: 2581-4664

acceptance of mobile phone banking services. Similarly, a one-unit increase in family members' influence results in a 1.078 unit increase in smallholder farmers' acceptance of mobile phone banking services. In turn, a unit increase in advertisements and promotions, social status, and experience from other users lead to a corresponding unit increase in smallholder farmers' acceptance of mobile phone banking services. This implies that an increase in fitting mobile phone banking services with day-to-day activities and being useful to smallholders increases the possibility of smallholder farmers accepting the use of mobile phone banking services. The findings show that smallholder farmers perceive the use of mobile phone banking services to improve their productivity. The findings show that smallholder farmers have trust that social status, social interaction, experience with other users, family members' influence, and advertisements and promotions have a role to play in the acceptance of mobile phone banking services by smallholder farmers.

.

5. DISCUSSION OF FINDINGS

The study intended to determine the existing relation between social influence (i.e. Experience from other users, advertisements and promotions, family members' influence, social status, and social interaction) and acceptance of mobile phone banking services. The regression analysis included the control variables such as age, level of education, annual income, and marital status to check the robustness of the results if can affect the social influence results (See, for example, Abayomi et al., 2019). The analysis showed that our results are not affected by confounding factors. The current study shows that social influence is significantly related to acceptance of mobile phone banking services as shown by multiple linear regression results. This describes the basis for acceptance of Information, Communication and Technology products as rooted in the types of characteristics that lay a foundation for acceptability (Shaharudin, 2012).

The acceptance of technology requires appropriate characteristics defining the technology needs of smallholder farmers' acceptance of mobile phone banking services. Our results findings showed a significant effect of social influence (Experience from other users, advertisements and promotions, family members' influence, social status, and social interaction) on the acceptance of mobile phone banking services by smallholder farmers of Tanzania. Our study findings broadly corroborate with other studies in linking social influence with the acceptance of mobile phone banking services. These results are consistent with the study by Batani et al., (2019) revealed social influence to be a significant predictor of acceptance of technology among smallholder farmers in Zimbabwe. Similarly, the findings are reliable to the findings by Malima et al., (2015) who concluded the consequence of social influence on acceptance and use of the mobile phone for agricultural marketing. Chang et al., (2019) claimed that technology acceptance behavior is influenced by interactions with people surrounding the prospective users.

Our findings are steady with study findings by Richard and Mandari, (2017) that, customers' acceptance of mobile phone banking is influenced by cultural variances, nearby relatives, and friends. Similarly, Asongu, (2018) revealed that individuals' decisions to accept mobile commerce services are motivated by relatives and members of the family. A study by Al-Saedi et al., (2020) on developing an extended UTAUT model for mobile payment adoption revealed social influence positively and significantly influences the acceptance of mobile banking. Social influence is the

Vol. 5, No. 03; 2022
ISSN: 2581-4664

chief predictor of intentions to accept the use of technology (Hassan & Wood, 2020). In India Singh and Srivastava, (2014) concluded that acceptance of mobile phone banking is inclined on the influence of relatives and friends (e.g. household head is influenced by the family members to use mobile phone banking services. Our study results are in line with the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al., (2003) that social influence has a key role in promising the acceptance of technology particularly (mobile phone banking services by smallholder farmers).

While this study demonstrates that social influence is the foundation for smallholder farmers' acceptance of mobile phone banking services, contrary results were revealed by Moorthy et al., (2020) on what pushes the adoption of mobile payment. Similarly, in a study by Leong et al., (2021) social influence was found to be insignificant to mobile money payment usage in Malaysia. Contrary results are also revealed by Belousova and Chichkanov, (2020); Addai & Arthur, (2020), and Agyei et al., (2020). Furthermore, Mijoska et al., (2020) concluded that social influence does not give a significant influence on mobile banking adoption in North Macedonia.

A point of parting from this study is that social influence significantly influences the acceptance of mobile phone banking services by smallholder farmers. This implies that experience from other users, advertisements and promotion, family members' influence, social status, and social interaction predicts the power of social influence on the acceptance of mobile phone banking services as discussed in the following subsection.

5.1 Experiences from other service users

Our findings showed that experience from other users has a positive and significant impact on the acceptance of mobile phone banking services by smallholder farmers. The findings of this study are comparable to the study by Agyei et al., (2020) who concluded experience from other users significantly influences the adoption of mobile banking. Consumers' experience was a significant predictor of mobile phone banking in different studies (see Mombeuil, (2020); Rehman & Shaikh, (2020); Dandena et al., (2020). It is therefore concluded that increasing the interaction of smallholder farmers with experienced service users will further increase the use of mobile phone banking services by smallholder farmers.

5.2 Advertisements and promotions

Our findings indicate that advertisements and promotions have a positive and significant effect on the acceptance of mobile phone banking services by smallholder farmers. These results mean that an increase in advertisements and promotions of mobile phone banking services will further increase their use by smallholder farmers. The current study results are similar to the findings by Alshannag et al., (2020) on consumer acceptance of the Islamic banking system. Further, Zhu et al., (2021) concluded advertisements and promotions significantly affect the adoption of mobile banking in rural China. Also, the findings from different studies indicate advertisements and promotions significantly influence the acceptance of mobile phone banking services (see Fall et al., 2020; Chandrasekar & Y, (2021). In other words, increased investing in advertisements and promotions will influence more use of mobile phone banking services by smallholder farmers.

Vol. 5, No. 03; 2022
ISSN: 2581-4664

5.3 Family members' influence

Our study findings show that family members have a positive and significant influence on the intention to accept the use of mobile phone banking services. The findings imply that if family members are influenced to use mobile phone banking services will boost acceptance of mobile phone banking services. The study findings corroborate the conclusion made by Singh and Srivastava, (2018) that mobile banking acceptance is influenced by relatives, friends, and household members. Family members using mobile phone banking services influence the acceptance of mobile banking (Nayanajith et al., 2020). Furthermore, other studies (Fall et al., 2020) revealed family network effects influence mobile banking. In other words, having many users of mobile phone banking services in the family influences service usage by smallholder farmers in that family.

5.4 Social status

Our study reveals social status with a positive and significant effect on the intention to accept the use of mobile phone banking services by smallholder farmers. The results of the study corroborate study findings by Krell et al., (2020) on factors influencing the acceptance of mobile banking by commercial banks in Kenya. A similar study by Sharma et al., (2020) on determining factors influencing the adoption of mobile wallets in India revealed social status to have a significant influence. These findings imply that smallholder farmers will use mobile phone banking services provided the users of mobile phone banking services users are perceived as being of high status.

5.5 Social interaction

The study reveals that social interaction influences the acceptance of mobile phone banking services by smallholder farmers. These results are similar to Hassan and Wood, (2020); and (Rajaobelina et al., 2021) on the cultural influence of consumers' perceptions of mobile banking where social interaction was significant to the acceptance of mobile banking. On examining the importance of social interaction, and perceived enjoyment among female youth online buyers in India. Prastiawan et al., (2021) revealed social interaction concluded to have a positive significant impact on buying behavior in e-commerce. It is therefore concluded that the more smallholder farmers are interacting with mobile phone banking service users, the more increase the intention to acceptance of mobile phone banking services. That is the more smallholder farmers are interacting with mobile phone banking service users, the more they increase their intention to acceptance of mobile phone banking services.

6. CONCLUSION

The study examined the effect of social influence on the acceptance of mobile phone banking services by smallholder farmers in the Dodoma Region using a cross-section survey design. The study findings showed that social influence being measured by experience from other users, advertisements and promotions, family members' influence, social status, and social interaction all have good predictive power to explain the acceptance of mobile phone banking services in Dodoma Tanzania. This study's results imply that acceptance of mobile phone banking services by smallholder farmers is motivated by Experience from other users, advertisements and promotions, family members' influence, social status, and social interaction. In addition, income and education levels have statistically significant effects in influencing smallholder farmers'

Vol. 5, No. 03; 2022
ISSN: 2581-4664

adoption of mobile phone banking services.

The study concludes that the increase in the interaction of smallholder farmers with experienced service users will increase the use of mobile phone banking services. Furthermore, the more service providers invest in advertisements and promotions, the more smallholder farmers will increase the use of mobile phones for banking services. Having many users of mobile phone banking services in the family will further influence service use by smallholder farmers in that family. In addition, the more smallholder farmers are interacting with mobile phone banking service users, the more increases the usage of mobile phone banking services. This study calls for service providers to increase their investment in aspects of social concern to increase service uptake by smallholder farmers in Tanzania. These study findings have major implications for smallholder farmers who use mobile phone banking services in other countries.

Data Availability Statement

The data and materials that support the results or analyses presented in this paper is freely available upon request.

REFERENCES

Abayomi, O. J., Olabode, A. C., Reyad, A. H., Teye, E. T. (2019). Effects of Demographic Factors on Customers' Mobile Banking Services Adoption in Nigeria.*International Journal of Business and Social Science,10(1), 63-77.* https://doi.org/10.30845/ijbss.vl0n1p1

Abdul-Rahaman, A., &Abdulai, A. (2022). Mobile money adoption, input use, and farm output among smallholder rice farmers in Ghana. *Agribusiness*, *38*(1), 236-255.https://doi.org/10.1002/agr.21721

Addai, B., & Arthur, B. (2020). Ghana's Road to Cashless Economy: The E-Zwich Experience. *Journal on Innovation and Sustainability RISUS*, *11*(1). https://doi.org/10.23925/2179-3565.2020v11i1p52-67

Aggarwal, S., Brailovskaya, V., & Robinson, J. (2020, May).Cashing in (and out): Experimental evidence on the effects of mobile money in Malawi. In *Aea papers and proceedings*. 110 (2) 599-604. https://doi.org/10.1257/pandp.20201087

Agyei, J., Sun, S., Abrokwah, E., Penney, E. K., & Ofori-Boafo, R. (2020). Mobile Banking Adoption: Examining the Role of Personality Traits. *SAGE Open*, *10*(2). https://doi.org/10.1177/2158244020932918

Akhter, A., Hossain, M. U., & Karim, M. M. (2020).Exploring customer intentions to adopt mobile banking services: evidence from a developing country. *Banks and Bank Systems*, *15*(2), 105. https://doi.org/10.21511/bbs.15(2).2020.10

Al-Saedi, K., Al-Emran, M., Ramayah, T., & Abusham, E. (2020). Developing a general extended UTAUT model for M-payment adoption. *Technology in Society*, *62*. https://doi.org/10.1016/j.techsoc.2020.101293

Alshannag, F. M., Eneizan, B., Odeh, M. H., Ngah, A. H., & Abutaber, A. (2020). Consumer Acceptance of Islamic Banking System: The Moderating Effects of Marketing Advertising. *International Journal of Advanced Science and Technology*, *29*(5).

Asongu, S. A. (2018). Conditional Determinants of Mobile Phones Penetration and Mobile Banking in Sub-Saharan Africa. *Journal of the Knowledge Economy*, *9*(1). https://doi.org/10.1007/s13132-015-0322-z

Vol. 5, No. 03; 2022

ISSN: 2581-4664

Asravor R. K. (2020). Effects of rainfall deviations on non-farm labor market participation and time allocation in northern Ghana. *Development in Practice,* 30(7) 890-904. https://doi.org/10.1080/09614524.2020.1745155

Asravor, R. K., Boakye, A.N., &Essuman, J. (2021).Adoption and intensity of use of mobile money among smallholder farmers in rural Ghana. *Information Development*, 1-14, https://doi.org/10.1177%2F0266666921999089

Batani, J., Musungwini, S., & Rebanowako, T. G. (2019). An Assessment of the Use of mobile phones as sources of Agricultural information by tobacco Smallholder farmers in Zimbabwe. *Journal of Systems Integration*, *10*(3), 1–21. https://doi.org/10.20470/jsi.v10i3.375

Batista, C., & Vicente, P. C. (2020). Improving access to savings through mobile money: Experimental evidence from African smallholder farmers. *World Development*, *129*, 104905. https://doi.org/10.1016/j.worlddev.2020.104905

Baumüller, H. (2018). The Little We Know: An Exploratory Literature Review on the Utility of Mobile Phone-Enabled Services for Smallholder Farmers. In *Journal of International Development* (Vol. 30, Issue 1). https://doi.org/10.1002/jid.3314

Belousova, V., & Chichkanov, N. (2020). Why do smartphone and tablet users adopt mobile banking? In *Handbook of Financial Econometrics, Mathematics, Statistics, and Machine Learning (In 4 Volumes)*. https://doi.org/10.1142/9789811202391_0071

Boone, H. N., & Boone, D. A. (2012). Analyzing likert data. *Journal of Extension*, *50*(2), 1-5.

Chandrasekar, M., & Y, A. F. (2021). *Customer Acceptance of mobile banking*. *2*(4), 2–5.

Chang, C. M., Liu, L. W., Huang, H. C., & Hsieh, H. H. (2019). Factors influencing Online Hotel Booking: Extending UTAUT2 with age, gender, and experience as moderators. *Information (Switzerland)*, *10*(9). https://doi.org/10.3390/info10090281

Dandena, S., Abera, T., & Mengesha, T. (2020). Factors affecting the adoption of mobile banking: The case of United Bank Addis Ababa city customers. *Journal of Process Management. New Technologies*, *8*(1). https://doi.org/10.5937/jouproman8-24520

Gopane, T. J. (2020). Mobile money system and market risk mitigation: an econometric case study of Kenya's farm business. *Agricultural Finance Review*. 81(3) 310-327 https://doi.org/10.1108/AFR-05-2020-0071

Hartmann, G., Nduru, G., & Dannenberg, P. (2021). Digital connectivity at the upstream end of value chains: A dynamic perspective on smartphone adoption amongst horticultural smallholders in Kenya. *Competition & Change*, *25*(2), 167-189. https://doi.org/10.1177/1024529420914483

Harpe, S. E. (2015). How to analyze Likert and other rating scale data. *Currents in pharmacy teaching and learning*, *7*(6), 836-850.https://doi.org/10.1016/j.cptl.2015.08.001

Hassan, H. E., & Wood, V. R. (2020). Does country culture influence consumers' perceptions toward mobile banking? A comparison between Egypt and the United States. *Telematics and Informatics*, *46*. https://doi.org/10.1016/j.tele.2019.101312

Issahaku, H., Abu, B. M., & Nkegbe, P. K. (2018). Does the Use of Mobile Phones by Smallholder Maize Farmers Affect Productivity in Ghana? *Journal of African Business*, *19*(3). https://doi.org/10.1080/15228916.2017.1416215

Jebb, A. T., Ng, V., & Tay, L. (2021). A Review of Key Likert Scale Development Advances: 1995–2019. In *Frontiers in Psychology* (Vol. 12). https://doi.org/10.3389/fpsyg.2021.637547

Johnson, D. R., & Creech, J. C. (1983). Ordinal measures in multiple indicator models: A

Vol. 5, No. 03; 2022

ISSN: 2581-4664

simulation study of categorization error. *American Sociological Review*, 48(3),398-407. https://doi.org/10.2307/2095231

Kamotho, A. D. (2008). Mobile phone banking: usage experiences in Kenya. *Management Decision*, *63*(9), 444-458.

Khademi, F., Akbari, M., Jamal, S. M., &Nikoo, M. (2017).Multiple linear regression, artificial neural network, and fuzzy logic prediction of 28 days compressive strength of concrete. Frontiers of Structural and Civil Engineering, 11(1), 90-99.

Kiberiti, B. S., Sanga, C. A., Mussa, M., Tumbo, S. D., Mlozi, M. R., & Haug, R. (2016). and Use of Mobile Phones for Improving the Coverage of Agricultural Extension Service: A Case of Kilosa District, Tanzania. *International Journal of ICT Research in Africa and the Middle East (IJICTRAME)*, *5*(1).

Kikulwe, E. M., Fischer, E., & Qaim, M. (2014). Mobile money, smallholder farmers, and household welfare in Kenya. *PLoS ONE*, *9*(10). https://doi.org/10.1371/journal.pone.0109804

Kothari, C. R. (2004). Research Methodology: Methods & Techniques. Second Revised Edition. In *New Age International (P) Ltd*.

Krell, N. T., Giroux, S. A., Guido, Z., Hannah, C., Lopus, S. E., Caylor, K. K., & Evans, T. P. (2020). Smallholder farmers' use of mobile phone services in central Kenya. *Climate and Development*, *0*(0), 1–13. https://doi.org/10.1080/17565529.2020.1748847

Lam, T., & Green, K. E. (2019). Likert scale: Misuse Of mid-point anchor. *International Journal of Exercise Science*.

Leong, T. K., Chiek, A. N., & Lim, C. W. (2021). A Modified UTAUT in the Context of M-Payment Usage Intention in Malaysia. *Journal of Applied Structural Equation Modeling*, *5*(1). https://doi.org/10.47263/jasem.5(1)05

Lionello, M., Aletta, F., Mitchell, A., & Kang, J. (2021). Introducing a Method for Intervals Correction on Multiple Likert Scales: A Case Study on an Urban Soundscape Data Collection Instrument. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.602831

Lipovetsky, S. (2021). Handbook of Item Response Theory, Volume 1, Models. *Technometrics*, *63*(3). https://doi.org/10.1080/00401706.2021.1945324

Liu, L., & Basso, B. (2020). Linking field survey with crop modeling to forecast maize yield in smallholder farmers' fields in Tanzania. *Food Security*, *12*(3). https://doi.org/10.1007/s12571-020-01020-3

Lwoga, E. T., & Lwoga, N. B. (2017). User acceptance of mobile payment: The effects of user-centric security, system characteristics and gender. *Electronic Journal of Information Systems in Developing Countries*, *81*(1), 1–24. https://doi.org/10.1002/j.1681-4835.2017.tb00595.x

Malima, G., Chachage, B., & Kamuzora, F. (2015). Farmers' Acceptance Behaviour in Using Mobile Phones for Agricultural Marketing in Iringa Region, Tanzania. *ANVESHAK-International Journal of Management*, *4*(1). https://doi.org/10.15410/aijm/2015/v4i1/59876

Mijoska Belsoska, M., Trenevska Blagoeva, K., & Trpkova-Nestorovska, M. (2020). Predicting Consumer Intention to Use Mobile Banking Services in North Macedonia. *International Journal of Multidisciplinarity in Business and Science*, *6*(10).

Mohd Rizaimy Shaharudin. (2012). Determinants of electronic commerce adoption in Malaysian SMEs' furniture industry. *African Journal of Business Management*, *6*(10). https://doi.org/10.5897/ajbm11.2477

Vol. 5, No. 03; 2022

ISSN: 2581-4664

Mombeuil, C. (2020). An exploratory investigation of factors affecting and best predicting the renewed adoption of mobile wallets. *Journal of Retailing and Consumer Services*, *55*. https://doi.org/10.1016/j.jretconser.2020.102127

Moorthy, K., Chun T'ing, L., Chea Yee, K., Wen Huey, A., Joe In, L., Chyi Feng, P., & Jia Yi, T. (2020). What drives the adoption of mobile payment? A Malaysian perspective. *International Journal of Finance and Economics*, *25*(3). https://doi.org/10.1002/ijfe.1756

Mtaturu, J. (2020). Agricultural Production and Economic Growth in Tanzania: Implication For Sub Sectoral Contribution. *Business Education Journal*, *2(1)*.

Nayanajith, G., Damunupola, K. A., Kay, C., & Pastor, L. (2020). Telebanking Adoption Intentions, Actions and Subjective Norms in the Context of Sri Lankan Private Commercial Banks. *Southeast Asian Journal of Science and Technology*, *5*(1).

Ngugi, D. G., & Bertsch, A. (2019). Modelling and Measuring Acceptance and Use of Internet Banking : The Systematic Development of an Instrument. *Review of Integtative Business and Economics Research*, *9*(2), 24–45.

Norman, G. (2010). Likert scales, levels of measurement, and the "laws" of statistics. *Advances in Health Sciences Education*, *15*(5), 625-632. https://doi.org/10.1007/s10459-010-9222-y

Prastiawan, D. I., Aisjah, S., & Rofiaty, R. (2021). The Effect of Perceived Usefulness, Perceived Ease of Use, and Social Influence on the Use of Mobile Banking through the Mediation of Attitude Toward Use. *Asia Pacific Management and Business Application*, *009*(03). https://doi.org/10.21776/ub.apmba.2021.009.03.4

Rajaobelina, L., Brun, I., Line, R., & Cloutier-Bilodeau, C. (2021). Not all elderly are the same: fostering trust through mobile banking service experience. *International Journal of Bank Marketing*, *39*(1). https://doi.org/10.1108/IJBM-05-2020-0288

Rehman, Z. U., & Shaikh, F. A. (2020). Critical Factors Influencing the Behavioral Intention of Consumers towards Mobile Banking in Malaysia. *Engineering, Technology & Applied Science Research*, *10*(1). https://doi.org/10.48084/etasr.3320

Richard, E., & Mandari, E. (2017). *Factors Influencing Usage f Mobile Banking Services: The Case of Ilala District In Tanzania* 42–54.

Sarfaraz, J. (2017). Journal of Internet Banking and Commerce Unified Theory of Acceptance and Use of Technology (UTAUT) Model-Mobile Banking. *Journal of Internet Banking and Commerce*, *22*(3).

Saunders, M., Lewis, P., & Thornhill, a. (2009). Research Methods for Business Students. In *Business* (Vol. 5th).

Senaviratna, N. A. M. R., & Cooray, T. M. J. A. (2021). Multicollinearity in Binary Logistic Regression Model. In *Theory and Practice of Mathematics and Computer Science Vol. 8*. https://doi.org/10.9734/bpi/tpmcs/v6/2417e

Shaharudin, M. R., Omar, M. W., Elias, S. J., Ismail, M., Ali, S. M. &Fadzil, M. I. (2012).Determinants of electronic industry.*African Journal of Business Management*, 6 (10), 3648-3661.

Sharma, R., Singh, G., & Sharma, S. (2020). Modelling internet banking adoption in Fiji: A developing country perspective. *International Journal of Information Management*, *53*. https://doi.org/10.1016/j.ijinfomgt.2020.102116

Singh, S., & Srivastava, R. K. (2014). Factors Influencing the Adoption of Mobile Banking in

Vol. 5, No. 03; 2022

ISSN: 2581-4664

India. *International Journal of E-Services and Mobile Applications*, *6*(4), 1–15. https://doi.org/10.4018/ijesma.2014100101

Singh, S., & Srivastava, R. K. (2018). Predicting the intention to use mobile banking in India. *International Journal of Bank Marketing*, *36*(2), 357–378. https://doi.org/10.1108/IJBM-12-2016-0186

Sullivan, G. M., &Artino Jr, A. R. (2013). Analyzing and interpreting data from Likert-type scales. *Journal of Graduate Medical Education*, *5*(4), 541-542. https://doi.org/10.4300/JGME-5-4-18

Sun, T., Zhang, B., Cao, M., & Drasgow, F. (2021). Faking Detection Improved: Adopting a Likert Item Response Process Tree Model. *Organizational Research Methods*. https://doi.org/10.1177/10944281211002904

Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science*, *354*(6317). https://doi.org/10.1126/science.aah5309

TCRA (2021). Quarterly communications statistics report on mobile phone subscription accessed on 3rd April 2021 from https://www.tcra.go.tz/images/documents/telecommunication/ TelCom_Statistics_April_2021.pdf.

Tutz, G. (2021). Hierarchical Models for the Analysis of Likert Scales in Regression and Item Response Analysis. *International Statistical Review*, *89*(1). https://doi.org/10.1111/insr.12396

URT (2017). Agricultural Sector Development Programme Phase (II). Ministry of Agricultural Development.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly: Management Information Systems*, *27*(3). https://doi.org/10.2307/30036540

Verma, P., & Sinha, N. (2018). Integrating perceived economic wellbeing to technology acceptance model: The case of mobile based agricultural extension service. *Technological Forecasting and Social Change*, *126*(July 2017), 207–216. https://doi.org/10.1016/j.techfore.2017.08.013

Victor, O., Nic, J. L., & Xiaomeng, L. (2021). Factors affecting the adoption of mobile applications by farmers: An empirical investigation. *African Journal of Agricultural Research*, *17*(1), 19–29. https://doi.org/10.5897/ajar2020.14909

Wang, H. Y., & Wang, S. H. (2010). User acceptance of mobile internet based on the unified theory of acceptance and use of technology: Investigating the determinants and gender differences. *Social Behavior and Personality*, *38*(3), 415–426. https://doi.org/10.2224/sbp.2010.38.3.415

Williams, M. D., Rana, N. P., Dwivedi, Y. K., & Lal, B. (2011). Is utaut really used or just cited for the sake of it? A systematic review of citations of utaut's originating article. *19th European Conference on Information Systems, ECIS 2011*.

Willits, F., Theodori, G., & Luloff, A. (2016). Another Look at Likert Scales. *Journal of Rural Social Sciences*, *31*(3).

Wu, H., & Leung, S. O. (2017). Can Likert Scales be Treated as Interval Scales?—A Simulation Study. *Journal of Social Service Research*, *43*(4). https://doi.org/10.1080/01488376.2017.1329775

Zhu, Q., Lyu, Z., Long, Y., & Wachenheim, C. J. (2021). Adoption of mobile banking in rural

Vol. 5, No. 03; 2022
ISSN: 2581-4664

China: Impact of information dissemination channel. *Socio-Economic Planning Sciences*. https://doi.org/10.1016/j.seps.2021.101011

Zumbo, B. D., & Zimmerman, D. W. (1993). Is the selection of statistical methods governed by level of measurements. *Canadian Psychology/PsychologieCanadienne*, *34*(4), 390-400. https://doi.org/10.1037/h0078865