



ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 8.4
IJAR 2021; 7(2): 01-06
www.allresearchjournal.com
Received: 01-12-2020
Accepted: 03-01-2021

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Constraints faced by farmers in availing agricultural and banking services through mobile phone

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Abstract

Nowadays use of ICT tools especially mobile phones are gaining importance among farmers. The emergence of various developments in mobile applications has allowed the farmers to work in a more efficient manner. Even though the very basic purpose of mobile phones is to communicate with family and friends, nowadays it is also used by farmers for availing agriculture and banking services. It enables farmers to access information from a host of information providers such as scientists, input dealers, government, agriculture extension officers, market commission agents/ traders, banks and so on. The present paper attempts to examine the constraints faced by farmers in availing agricultural and banking services through mobile phone in four selected panchayats namely Adat, Tholur, Kaiparambu and Avanoor of Puzhakkal block of Thrissur district. The study is entirely based on primary data collected through pre-structured interview schedule. Simple percentages and Kendall's Coefficient of Concordance are used for data analysis. Constraints faced by farmers in availing agricultural and banking services is analysed separately. The study found that in case of availing agriculture related services, lack of training in using various apps related to agriculture through mobile phone is the major constraint faced by majority of the farmers and in case of banking services fear of security issues while using mobile banking services is stated as the major constraint. Government and other stakeholders need to work together to build awareness regarding various agricultural and banking services available through mobile phone and also provide them with practical trainings on how to use mobile phone for availing these services. In addition to this, for enhancing trust in mobile banking services, stakeholders need to make sure that farmers are aware of and protected as much as possible against cyber security vulnerabilities and threats.

Keywords: ICT, mobile phone, farmers, agricultural and banking services, constraints

1. Introduction

Agriculture continues to be the most important sector of the Indian economy which provides the main source of food, income and employment to the rural and poor urban population. As per 2011 Census 54.6 per cent of the population is engaged in agricultural and allied activities and contributes 16 per cent to the country's gross value added for the year 2018-19 (GOI, 2018-19). At present farmers need technology, investment, better quality inputs, real time information and most of all the latest know-how for sustaining commercial and cost effective sustainable agriculture. A major shift in the methodology of delivering knowledge to the farm has taken place. Various ICT tools like radio, television, mobile phone, newspaper etc have the advantage of reaching a wide audience at a very low cost.

Nowadays soft resources like knowledge and skills are as important as hard resources like inputs in the field of agriculture. Information asymmetry is considered as one of the major limitation in the growth of agricultural productivity in India. Recent introduction of mobile-enabled information services and rapid growth of mobile telephony as compared to fixed line telephony provide a means to overcome existing information asymmetry. At least partially, it also helps to bridge gap between the availability and delivery of agricultural inputs and agricultural infrastructure. Recent advances in Information and Communication Technologies have changed the way knowledge is produced, processed, stored, retrieved and transferred to different stakeholders in agriculture. Telecommunications, especially mobile phones, have the potential to provide solutions to the existing information asymmetry in various sectors especially agriculture.

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The gradual and regulated expansion of telecommunication infrastructure, especially mobile telephony, has greatly enhanced its access and reach.

With the rising use of mobile phone in the country, mobile banking (also known as M-Banking) has also got a great potential for enabling financial services to the unbanked and under banked, particularly in rural areas. Mobile banking is an obvious extension of online banking which enables customers to initiate and/or perform banking tasks on their mobile phones. It also provides customers with the support needed to be able to bank anywhere, anytime using a mobile handheld device and service such as Short Message Service (SMS).

2. Literature Review

Rao (2017) in his study explored the demand and adoption of e-banking services of Bihar. The study was conducted among 324 respondents. Every third bank customer who visited commercial banks to deal with any transactions was selected for the survey. One way analysis of variance (ANNOVA) and reliability analysis was carried out to check the success of factors generated through factor analysis. Results indicated that privacy and security are the major point of dissatisfaction of customers which have significantly impacted users. Customers were satisfied with the network availability and access to account. Rural areas are in much concern than the urban areas in terms of trust issues, lack of information and also the service availability. Lack of literacy rate is also the major reason for dissatisfaction in the adoption of e-banking services in rural areas.

A study by Folitse *et al.* (2018) [2] was undertaken with the main objective of examining the dynamics of the use of mobile phone among poultry farmers in the Greater Accra region of Ghana. One hundred and fifty poultry farmers were selected from the Great Accra region and the required data was collected using structured questionnaire. The study showed a high penetration of among poultry farmers. Statistical tool like regression analysis was used and it indicated that demographic variables such as age, sex, educational level, experience and size of holdings influenced the use of mobile phone. Network failure was cited as the major constraint of using mobile phone and for that study suggested that there is a strong need for the required investment to build a more robust infrastructural base for the use of mobile phones as it remains a critical tool to support agricultural extension delivery among Ghanaian farmers.

Khan *et al.*, (2019) [4] conducted a study on farmers' usage of mobile phone for accessing agricultural information in Pakistan among the farmers of district Muzaffargarh, Punjab, Pakistan. Multistage sampling technique was used to collect data from the two tehsils (cities/sub-districts) of Muzaffargarh formulating a total sample of 180 farmers. SPSS computer-based Software was used for analyzing the data. Results revealed that 91.2% of the farmers indicated mobile phone ownership. Findings reported that farmers' limited aptitude of mobile phone usage and lack of awareness of information sources as major constraints in farm-related use of the Mobile phone.

3. Research problem

It all started in 1995 when India's first-ever mobile call was between Kolkata and New Delhi. At present, 25 years later

India is the world's second largest smart phone market. Among the various ICT tools, mobile phone has immensely penetrated into every field of our life like education, business, commerce and agriculture. In the recent past, communication through mobile phone has rapidly grown and also it is considered as the major communication tool among all other ICT tools of current age. For most of the farmers the sources of information required for their farming purposes is through other farmers, newspapers, radio and television. Generally, these media does not cover all the needed agricultural news and information. The main defect is that the availability of information may not be time specific and also the required information differs from one farmer to the other. Due to the unreliable market information farmers often depend on middlemen who take the advantage of their illiteracy or unawareness of market information which automatically leads to lower income. In the past adoption of mobile phone was primarily limited to rich people residing in urban areas. But nowadays mobile phones are extensively used by both urban and rural population. Mobile phones significantly reduce communication cost and also it can help farmers to be updated with latest information regarding farm practices, marketing of their produce, weather, credit, banking etc. This technology provides new opportunities to obtain knowledge and information about various agriculture and banking related issues and its usage for overall development farm community. Hence the present study is in this direction to examine various constraints faced by farmers for acquiring agriculture and banking services through mobile phone.

4. Objective of the study

To examine the constraints faced by farmers in availing agricultural and banking services through mobile phone

5. Research Methodology

Out of 16 blocks in Thrissur district, Puzhakkal block was purposively selected as it is an important agricultural region in Thrissur district with cultivation of main crops such as paddy, coconut and banana. Puzhakkal block lies in the central region of Thrissur district. In the second stage out of the six panchayats in the block four panchayats namely Adat, Tholur, Kaiparambu and Avatur was selected on the basis of highest agricultural production. A sample of twenty five farmers using mobile phone for agriculture and banking purposes from each of the four panchayats was selected constituting to a total of 100 farmers. The data collected was analyzed using simple percentages and Kendall's Coefficient of Concordance.

6. Results and Discussions

Size of landholding of farmer is an important indicator of socio – economic characteristics of farmers. Since analysis of socio – economic characteristics has been done on the basis of the landholding size of the farmers, the classification of farmers has been given separately before the Table depicting socio – economic characteristics, in order to enable meaningful presentation. The farmer respondents have been classified into three categories, viz. Marginal, Small and Other farmers. As per NABARD classification marginal farmers are those having less than 1 hectare (2.5 acres), small farmers with landholding of 1 hectare to 2 hectares (upto 5 acres) and other farmers with

more than 2 hectares (more than 5 acres). Based on this, from the collected data farmers have been classified into

three categorised and summarised in Table 1.

Table 1: Classification of farmer respondents: Landholding size-wise

Sl. No.	Farmer Classification	No. of farmers	Percentage Share
1	Marginal	58	58
2	Small	22	22
3	Others	20	20
	Total	100	100

Source: Compiled from primary data

Table 1 makes it clear that more than 50 per cent of the respondent farmers are marginal based on NABARD classification. The sample is a representative of the block which indicates that Puzhakkal block is dominated by marginal farmers. Hence the major users of mobile phone for various agricultural and banking purposes are marginal farmers.

Indicators like age, gender, religion, marital status, educational qualification, economic status and occupational category have been taken for analysis of socio – economic characteristics of the farmers. Results drawn from the analysis is clearly depicted in Table 2

Table 2: Socio – economic profile of the respondents

Sl. No.	Characteristics	Marginal Farmers	Small Farmers	Others	Total
1	Age (in years)				
	Less than 35	10(17)	4(18)	0	14(14)
	35-45	10(17)	0	4(20)	14(14)
	45-55	22(38)	18(82)	8(40)	48(48)
	55-65	16(28)	0	4(20)	20(20)
	More than 65	0	0	4(20)	4(4)
2	Gender				
	Male	38(66)	16(73)	16(80)	70(70)
	Female	20(34)	6(27)	4(20)	30(30)
3	Religion				
	Hindu	42(72)	20(91)	18(90)	80(80)
	Christian	16(28)	2(9)	2(10)	20(20)
4	Marital Status				
	Married	57(98)	22(100)	19(95)	98(98)
	Widowed	1(2)	0	1(5)	2(2)
5	Educational Qualification				
	8 th Std	6(10)	4(18)	4(20)	14(14)
	SSLC	30(52)	4(18)	6(30)	40(40)
	Plus Two	14(24)	10(46)	4(20)	28(28)
	Technical	2(4)	4(18)	2(10)	8(8)
	Graduation and above	6(10)	0	4(20)	10(10)
6	Economic Status				
	BPL	10(17)	2(9)	6(30)	18(18)
	APL	48(83)	20(91)	14(70)	82(82)
7	Occupational Category				
	Pensioners	0	0	2(10)	2(2)
	Private Sector	6(10)	2(9)	0	8(8)
	Self Employed –Agriculture	44(76)	20(91)	12(60)	76(76)
	Daily wage workers	8(14)	0	6(30)	14(14)

Source: Compiled from primary data

Note: Figures in the parenthesis represents percentage share of each to total in each category

Age is considered as one of the important variable which determines a person's ability to accept information from relevant sources and using it appropriately. The most prominent age group is 45-55 years. This indicates that mainly middle aged respondents are into the field of agriculture and they make use of mobile phone for accessing agricultural and banking services. Gender-wise breakup of the respondents revealed that a large majority of them are male (70 per cent) and the rest of the respondents are female. Almost majority of the respondents i.e. 80 per cent belongs to Hindu Community and the remaining are Christians. All the respondents except two are married. Even

though usage of mobile phone does not require any basic qualification educational level of the respondents can influence their perceptions and also their level of knowledge. Formal education is an important determinant of individuals understanding ability. From the study it is seen that highest educational status was among marginal farmers i.e. six of them have graduation and above. Majority of the respondents (40 per cent) has completed their tenth standard. This shows that all the respondents have a minimum qualification level and they have the ability to read and write. Level of education attainment is sufficient to support adoption of technology as reported by Aphunu and

Atoma (2011). It is evident that farmers lead a better standard of living as 82 per cent of them belong to APL category and the rest 18 per cent belongs to BPL category. Agricultural is the primary occupation for 76 per cent of the respondents followed by 14 per cent of the respondents are daily wage earners.

6.1 Pattern of usage of mobile phone

Other than the socio – economic characteristics, the pattern of usage of mobile phone by farmers that is their duration of holding mobile phone, frequency of usage, familiarities of various functionalities, recharging amount, whether post-paid or prepaid are analysed.

Table 3: Pattern of usage of mobile phone

Sl. No.	Particulars	Marginal Farmers	Small Farmers	Others	Total
1	Duration of holding mobile phone				
	Less than 2 years	8(14)	2(9)	1(5)	11(11)
	2-4 years	18(31)	4(18)	7(35)	29(29)
	4-6 years	32(55)	16(73)	6(30)	54(54)
	More than 6 years	0	0	6(30)	6(6)
2	Frequency of usage				
	Daily	58(58)	22(22)	20(20)	100(100)
3	Familiarity of various functionalities*				
	Call	58(100)	22(100)	20(100)	100(100)
	SMS	48(83)	18(82)	14(70)	80(80)
	Internet	58(100)	22(100)	20(100)	100(100)
	Wi-Fi	26(45)	16(73)	4(20)	46(46)
	Apps	48(83)	20(91)	14(70)	82(82)
	Social Apps	58(100)	22(100)	20(100)	100(100)
	Player	46(79)	14(64)	12(60)	72(72)
	Radio	34(59)	14(64)	14(70)	62(62)
	Camera	58(100)	22(100)	20(100)	100(100)
4	Recharging Amount				
	Less than Rs. 500	32(55)	16(73)	10(50)	58(58)
	More than Rs. 500	26(45)	6(27)	10(50)	42(42)
5	Postpaid/ Prepaid				
	Prepaid	58(58)	22(22)	20(20)	100(100)

Source: Compiled from primary data

Note: Figures in the parenthesis represents percentage share of each to total in each category

*Multiple responses

Mobile phones have become a major form of communication in the world. All the respondents under the study are having their own mobile phone and 54 per cent of them are using it for the past 4-6 years. The frequency of usage of mobile phone is same among all the farmers. All the farmers use it daily. Mobile operators in India cater different services for their clients. Grossly these services include voice call, text message, internet service, Wi-Fi, various social and other applications, music player, radio and camera. However the farmers' use of these services varies abruptly. According to Table 3 all the farmers make use of voice call service, internet, social apps and camera. Farmers are also aware about various applications in the mobile phone and SMS services. More than half of the respondents make use of mobile phone for listening music and radio. Very few farmers have awareness about the Wi-Fi facility in their mobile phone. With the rising competition there are a number of variety data plans offered by different mobile operators in India suitable for poor to rich. Most of the data plans offer customers with three months of free voice call service along with free SMS service for 100 days and internet package for 3 months. More than half of the

respondents (58 per cent) spend less than 500 for 3 month and rest spend more than 500 for 3 months. Different data plans ranging from Rs. 143 to Rs 699 were common among the respondents and all preferred prepaid recharge.

6.2 Constraints faced by farmers in availing agricultural and banking related services through mobile phone

The various constraints faced by farmers for availing agricultural and banking services is analysed so as to enable policy makers to design strategies for effective and efficient use of mobile phones. The constraints faced by farmers are shown separately as constraints faced in availing agricultural services and constraints faced in availing banking related services through mobile phone. To examine the constraints faced by farmers in availing agricultural and banking services through mobile phone, Kendall's Co-efficient of Concordance is used to rank the constraints. Kendall's Co-efficient of Concordance is a measure of extent of agreement and disagreement among farmers. Table 4 indicates various constraints faced by farmers in availing in agricultural services through mobile phone

Table 4: Constraints faced by farmers in availing agricultural services through mobile phone

Sl. No.	Particulars	Mean Rank	Rank
1	Lack of skills and inability to use	9.28	X
2	Illiteracy	5.78	IV
3	Lack of awareness	6.24	V
4	Network failures	10.08	XII
5	Lack of interest	6.86	VII
6	High internet cost	10.90	XIII
7	Fear of security issues	9.34	XI
8	Time constraints	4.54	III
9	Lack of training	2.26	I
10	Inadequate extension services	8.02	VIII
11	Lack of confidence	8.04	IX
12	Lack of locally relevant information	6.32	VI
13	Impediments like age, knowledge, language, motivation	3.34	II
Chi-Square : 610.543		Sig: 000*	
Kendall's W : .509			

Source: Compiled from primary data

*** Significant at 1% level

Farmers encountered numerous constraints in using mobile phone for availing agricultural services. Among the confronted constraints, lack of training is ranked first. Most of the farmers stated that they lack skills in operating mobile phone hence if they are given enough training on using of various applications of agriculture that is available in mobile phone can encourage their usage. Based on the mean rank the other constraints identified include impediments like

age, knowledge, language etc followed by time constraints and illiteracy. P value significance at 1 % level indicated that the all the respondents rated their constraints differently. Kendall's coefficient value of 0.509 implies that about 51% of the respondent farmers agreed to the order of ranking.

Table 5 indicates various constraints faced by farmers in availing banking services through mobile phone

Table 5: Constraints faced by farmers in availing banking related services through mobile phone

Sl. No.	Particulars	Mean Rank	Rank
1	Mobile banking would make feel frustrated	9.30	IX
2	Network failures	11.32	XIV
3	Limited scope for personal advice on banking transactions	10.24	XIII
4	Lack of knowledge	7.60	VII
5	Not easy to use –Lack of training	3.60	II
6	Non availability of all banking services	9.92	XII
7	Fear of security issues	2.46	I
8	Encourage impulsive purchases	9.76	XI
9	Mobile phone could be stolen	9.74	X
10	Fraudulent apps	5.16	IV
11	Low confidence in usage	7.00	VI
12	Delay in services	9.10	VIII
13	Difficulty in understanding technical terms related to banking	4.04	III
14	Language barrier	5.76	V
Chi-Square: 660.980		Sig:000***	
Kendall's W : .508			

Source: Compiled from primary data

*** Significant at 1% level

Among the various constraints faced by farmers in availing banking services through mobile phone, fear of security issues is having the first rank which means all the respondents are reluctant to use mobile phone for banking services because of security issues. As most of the respondents are middle aged they don't have much positive attitude like youth towards online banking. They think that providing account details while using any applications related to banking would lead to security problems. Respondents also lack skills in using various banking related apps; they face difficulty in understanding the technical terms of banking while using the apps. Respondents stated that they don't find any network failure issues while using internet in their mobile phone. P value significance at 1% level indicated that the all the respondents rated their constraints differently. Kendall's coefficient value of 0.508

implies that about 51% of the respondent farmers agreed to the order of ranking.

7. Suggestions and Conclusions

The major reason stated by the farmers for their less usage in case agricultural purposes was lack of training that is they are not expertise in using various apps related to agriculture. They don't know how to download various apps in their mobile phone and the agencies which provides the source of information. Farmers who are actively using various agricultural apps pointed that information provided in some of the apps are not updated for a long time that is accurate and relevant information are not included in some agriculture related applications. In case of usage of mobile phone by farmers for availing banking services, it is observed that most of them are reluctant to use various

banking or payment apps because of fear of unsecure transactions such as fraud. Farmers opined that even though they are aware of various banking apps, they have little knowledge of how to use phones for mobile banking. Policy makers need to strive to create an enabling, competitive environment for mobile enabled agricultural and banking services among all key stakeholders. Competition among players such as telecom operators, internet providers, agricultural department, banks and non-governmental organisation can be expected to encourage adoption of technologies and platform that provide accessible, affordable, open, authentic and safe agricultural and banking services to the farmers. Government and other stakeholders need to work together to build awareness regarding various agricultural and banking services provide them with practical trainings on how to use mobile phone for availing these services. In addition in order to enhance trust in mobile banking services, stakeholders need to make sure that farmers are aware of and protected as much as possible against cyber security vulnerabilities and threats.

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