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An Exploratory Study On Determinants Of Adoption Of Mobile Phone For Fruit Marketing In Bangalore Rural District

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Abstract

One of the most important ways to enhance farmers' livelihood is to increase their access to information and market opportunities. Among the most useful tools for this purpose are information and communication technologies (ICTs). To help farmers embrace ICTs for agricultural product marketing, it's important to know what factors influence their acceptance. On the other hand, there is a dearth of research that looks at what factors influence Bangalore farmers to use ICTs for marketing purposes. This study investigates the factors that affect the marketing of fruits through the use of mobile phones as an information and communication technology (ICT) tool in the rural region of Bangalore in Karnataka. Descriptive and inferential statistics as well as a binary logistic regression were employed for data analysis. Researchers observed those farmers with higher levels of education, more disposable income, and who participated in training programmes were more likely to promote their produce using mobile phones as an information and communication technology tool. Considering the demographic, socioeconomic, situational, and institutional qualities of small-scale farmers in developing nations is vital when picking marketing information approaches to deliver and when encouraging farmers to adopt ICT technology for agricultural product marketing.

Key Words: Fruit Marketing, Information and Communication Technologies, Farmer.

Introduction

A major part of emerging nations' social and economic progress has come from agriculture, even if industrialization has been on the rise during the past 30 years. The agricultural industries of developing nations are dominated by smallholder farming. Smallholder farming is the main source of income for most small-scale farmers in developing regions like India. But small holders in developing nations like India are having a hard time getting their hands on the information they need to keep or improve their livelihoods, including marketing data, financial resources, agricultural technology, and knowledge. Consequently, a widely recognised and important strategy for agricultural sector development and small-scale farmers' livelihood improvement in developing nations is to increase their access to information, training, and technology while also educating them about market opportunities. Indian society and economy owe a great deal to agriculture. The Indian government has prioritised agricultural development as a means to alleviate poverty and boost social and economic progress. Many small-scale farmers in rural India rely on fruit production and marketing as a source of living.

About 18% of India's GDP comes from the agricultural sector, which employs about 58% of the country's workers. In addition to being an essential source of raw materials for numerous industries, the industry also plays a crucial role in guaranteeing the nation's food security and contributing substantially to India's export profits. The agricultural industry in India witnessed remarkable increases in output after the Green Revolution of the 1960s. But by the 1980s, the industry had lost its vigour, and productivity had even off across most regions and crops. Indian agricultural development has been hindered by several problems, such as a diminishing natural resource base, falling public investment, fragmented land, a lack of policy support, insufficient infrastructure, inaccurate information, and inefficient supply chains. The Planning Commission has stated that post-harvest facilities, cold storage, marketing, credit, and extension services, as well as infrastructure, input distribution, and credit, all need improvement and reinforcement. International trade agreements and changes in domestic consumption and demand patterns have further complicated agricultural production and marketing in India. Producing more fruits and vegetables than any other country, India ranks second globally. From an area of 3.72 million hectares, the country currently produces 44.04 million tonnes of fruits. Vegetable production accounts for 14.4% of global production, with 87.53 million tonnes produced from 5.86 million hectares. Because there aren't many chances for temporal and spatial arbitrage in the Indian market, selling produce there is particularly difficult. Growers of fruits and vegetables frequently have to settle with less-than-ideal prices for their wares because of factors such as limited supply, far-flung markets, inadequate transportation, nonexistent institutions, and inadequate knowledge. As a result, the country's horticulture crop marketing efforts are focusing on establishing an Agricultural Market Information System (AMIS) based on information and communication technologies.

The term "information and communication technologies" (ICTs) describes a wide range of devices and networks that allow users to receive, process, transmit, or display data in a variety of formats, including but not limited to text, images, audio, and video. With the use of ICTs, farmers and ranchers may connect with one another and build useful networks, learn about agricultural produce prices and other market data, and gain access to a wealth of other information. Marketing agricultural products with the use of ICTs helps cut out middlemen, lowers transaction costs, and uncovers new consumers. The availability of ICTs and proof of their user-friendliness and benefits are prerequisites for their use in agricultural produce marketing.

Commercialization of agriculture is replacing traditional self-sufficiency as the primary objective in many developing nations, including India. An effective marketing system is crucial to the sector's future success in this shifting context. Market changes can have a devastating effect on horticultural crops. The crop's perishability, together with inadequate storage, infrastructure, and transportation, makes matters worse. A surplus of goods on the market and sales at low-priced stores are common results of this. Information and communication technologies (ICTs) have the potential to greatly benefit poor nations by lowering information asymmetries and increasing arbitrage.

To aid in the country's growth, the Indian government has been pushing for the use of ICTs for the better part of a decade. Having said that, there has been a significant slowdown in the use of ICTs by farmers in India to sell their crops. The research can help farmers embrace ICTs for marketing agricultural products if study can identify the elements that are most important to them. If researcher can do this, the study can encourage farmers to do the same, which will have a positive impact on farmers in India. It is likely that the producer's use of ICTs for marketing agricultural produce is associated with one or more of the following factors such as demographic variables, age, gender, socio-economic elements and producers' participation in training programs. Nonetheless, only a small number of studies have looked at how all these factors influence farmers' use of ICTs to sell their agricultural products. Furthermore, no studies have investigated what factors influence farmers to use ICTs for fruit marketing. This study aims to fill that knowledge gap by investigating the motivations of fruit vendors in rural Karnataka, India's Bangalore, to make use of ICTs.

Literature Review

(Doub & Levin, 2015) The present study does contain some limitations, and those limitations are recognised. Important insights into the factors that motivate small-scale fruit growers to use ICTs (mobile phones) for marketing purposes have been uncovered by the study. But do note that this study solely looked at citrus fruits. The Study can't generalise these findings without further research. It would be fascinating to see this research expanded to include data from different kinds of fruit and not just those in the Huong Son district. There was also a cross-sectional approach to the research found in this study. At most, it captured farmers' opinions at a single instant in time. Obviously, as farmers gain experience, their

perceptions changes. This shift has consequences for models that attempt to forecast the rate of information and communication technology adoption by small-scale farmers. Further work is needed to assess the reliability of these results. Presently, fruit is the subject of the research. It would be interesting to see more studies that compare the factors that influence farmers' use of ICT with dairy, fisheries, and other types of agricultural products. Comprehensive insights regarding farmers' use of ICT for marketing could be captured in many contexts.

(Munasinghe & Kanchanamala, 2018) The study's weaknesses have been recognised. The study sheds light on the factors that influence small-scale fruit growers' decision to use ICTs (mobile phones) in their marketing strategies. However, only citrus fruits were considered in this study. To draw broader conclusions, additional research is required. It would be fascinating to see this research expanded to include different kinds of fruit and not just those in the Huong Son district. Also, this study used a cross-sectional research approach. It was a one-time only survey of farmers' opinions. Obviously, as farmers gain experience, their perceptions shift. This move has ramifications for those who want to forecast the adoption of ICT by small-scale farmers in the future. Therefore, further work is needed to assess the reliability of these results. Here, fruit is the centre of attention. It would be interesting to see further studies that compare the factors that influence farmers' use of ICT with different types of agricultural products, such as fish and livestock. The complete picture of farmers' use of ICT for marketing purposes should be better captured in other settings.

(Lim & Xie, 2018) The writers investigate how customers react when existing online and offline channels are supplemented with a mobile shopping channel. They look at how the new mobile channel is eating into the sales of older channels and how households' buying habits have changed since they started using the mobile channel. According to their findings, the offline channel is barely affected by the introduction of the mobile channel, but the online channel is cannibalised. Spending goes up by 16.5% per week as more families utilise the mobile channel. This is mostly because people shop more often rather than buying bigger baskets each time. The effects of mobile adoption are also shown to be very variable. Moderate increases in expenditure were observed among online-only, hybrid-online, and hybrid-offline shoppers, although there was little to no change in their channel-usage habits. But those who used to just shop offline now use many channels, and they spend 43.1% more every week as a result. For homes with lower chain usage, they also found a stronger effect of adoption. They also show that mobile apps can help businesses gain a larger portion of the market.

(Wei, Wang, Xue, & Chen, 2018) To boost e-commerce and people's standard of living, more and more fruit-buying platforms have cropped up online in recent years. It is unfortunate that many online fruit vendors have gone bankrupt for various complex reasons, including ineffective logistics, low adoption of online systems, as well as monetary dangers. The Study feel compelled to look into the most influential aspects influencing the intention to buy fruits online since one of the underlying causes of this

unexpected event is associated with purchasing intentions. For fruit e-commerce businesses looking to grow their online marketing strategies, the findings could be game-changing.

Using the TAM and PRT as building blocks, this study developed an integrated theoretical model to examine what aspects impact consumers' desire to purchase fruits online. Our theoretical model relies on an online survey of 344 consumers less than 30 years old to verify its assumptions. Using survey data, a structural equation model is developed to determine the strength of the correlation between the variables of interest and the likelihood that a consumer would make a purchase. Consumers' propensity to buy fruit is most affected by two factors, according to the findings: fruit quality and price. To our surprise, the study discovered that perceived risk, information quality, and e-commerce platforms are not as important. The article concludes with some targeted recommendations for fruit e-commerce businesses looking to improve their marketing approach.

(Mary & Jacob, 2023) This research has greatly improved our knowledge of the factors that influence the use of information and communication technologies (ICTs) by small-scale fruit growers. This study did, however, limit its data set to citrus fruits only. More research is required before these results may be used broadly. Beyond the Huong Son district, it would be fascinating to see this study expanded to include different kinds of fruit. And this study was using a cross-sectional design for its investigation. Perceptions among farmers were only assessed once. Farmers' perspectives obviously evolve as they gain hands-on experience. Implications for forecasting the long-term adoption of ICT by small-scale farmers are raised by this trend. Thus, further work is needed to assess the reliability of these results. This research looks specifically at fruits. The factors that influence farmers' use of information and communication technologies (ICTs) for raising livestock and fishing could be the subject of future studies. Various settings could provide more complete insights on how farmers are using ICT for marketing purposes.

Objective of the Study

1. To understand the role of ICT for marketing of fruits.
2. To identify the key factors that impact use of ICT by farmers for fruit Marketing

Hypothesis of the Study

H0: There is no significant Impact of age, education level, total annual income, participation in credit programmes, and training programme on Use of ICT by farmers.

H1: There is a significant Impact of age, education level, total annual income, participation in credit programmes, and training programme on Use of ICT by farmers.

Research Methodology

The researchers in this study relied on survey data for their analysis. A Convenience sampling strategy was used to select the requisite sample of responders. This sampling technique defines the characteristics of a purposive sample as they pertain to the current subject. Researchers used purposive sampling, a non-probability selection approach, to recruit respondents who met the study's inclusion and exclusion criteria. This helped to guarantee that the samples were representative. The Study used a 5-point Likert scale, where 1 means strongly disagree and 5 means strongly agree, to rate the variables. The association between the categorical dependent variable of information and communication technology use and the following variables: age, education level, total annual income, participation in credit programmes, and training programme participation was determined using logistic regression.

Data Analysis and Interpretation: An analysis of the data was conducted using SPSS version 20. The Researcher employed inferential statistics such as a Chi-square test for ICT-based dummy variables and a T-test for continuous variables to determine the potential interrelationships of the various parameters pertaining to the utilisation of ICT in fruit marketing. A multi co linearity test was performed on the variables. The analysis used a binary logistic regression model to extract the relationships between the independent and dependent variables. If your independent variables can be either continuous or discrete, or a mix of the two, then binary regression analysis is the way to go for making predictions about your dichotomous dependent variable. The independent variables include farmers' ages, levels of education, total yearly income, participation in credit programmes, and training programme participation; the dependent variable is a dummy variable that takes the value 1 for ICT users and 0 otherwise.

Table 1: List of Variables for Logit Model Analysis

Variables	Description
IPR	**Explained Variable**
	=1 if ICTs is used for fruit marketing
	=0 if ICTs is not used for fruit marketing
Explanatory Variable	
Education	
Income	
Participation in credit programs	
Participation in training programs	

As a dependent variable, the utilisation of ICT in fruit marketing is being examined. The study is conducted using a logistic regression model. The use of information and communication technologies (ICT) is a binary categorical variable that is reliant on several explanatory variables. Using information and communication technology (ICT) as a dummy variable in binary logistic regression, the study can determine whether farmers are utilising ICT for fruit marketing.

A continuous variable's linearity The Box-Tidwell approach is used to evaluate participation in credit programmes and training programmes. A test for linearity is performed on all factors, including the

intercept term, using the Bonferroni correction. The logit of the dependent variable has a linear relationship with all the continuous independent variables. The study did not find any outliers that were statistically significant.

A model's overall significance is determined by the omnibus tests of its coefficients. Because p<.005, the logistic regression model is considered statistically significant.

Table 2: Model Fit

Omnibus Tests of Model Coefficients				
		Chi-square	**df**	**Sig.**
Step 1	Step	110.416	4	0.000
	Block	110.416	4	0.000
	Model	110.416	4	0.000

Source: Author's calculations by using SPSS.

Hosmer-Lemeshow goodness of fit tests ensures that the model is adequate. There is no evidence of a poor fit between the model and the data from Hosmer and Lemeshow's test (p =.420 >.005).

Table 3: Test of Adequacy

Hosmer and Lemeshow Test			
Step	**Chi-square**	**df**	**Sig.**
1	8.138	8	0.420

Source: Author's calculations by using SPSS.

The model explained 36.1% (Nagelkerke R Square) of the variance in farmers using ICT for fruit marketing and correctly classified 76% of cases.

Table 4: Model Summary

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	330.448[a]	0.241	0.361

Source: Author's calculations by using SPSS.

Of the Four predictor variables, four Variables, Education of farmer, Income of farmer, Participation in credit programs and Participation in training programs are statistically significant on farmers using ICT for fruit marketing.

Table 5: Estimates of the Logit Model Analysis

	B	S.E.	Wald	df	Sig.	Exp(B)
Educated	1.253	0.533	5.518	1	0.0019	3.500
Income	0.740	0.213	12.008	1	0.001	0.477
Participation in Credit Programs	1.566	0.272	33.286	1	0.000	0.209
Participation in Training Programs	0.613	0.233	6.898	1	0.009	0.542
Constant	2.917	0.812	12.914	1	0.000	18.486

Information and communication technology (ICT) tools utilised for fruit marketing distribution is shown in the table. In this study, farmers mostly relied on mobile phones as their primary information and communication technology tool to access a variety of sources regarding fruit markets. According to the chi-square test results provided in Table 3, there was a significant difference between individuals who use ICT and those who do not, specifically between those with and without cell phones. Table 5 shows that the T-test results for Education, Income, Credit Programme Participation, and Training Programme Participation were all significantly different from zero at the 1% level (p less than 0.01).

Findings of the Study

The objective of this research is to find out what factors influence small-scale fruit producers in India to use ICTs for marketing their product. It did not have a major statistical impact. Any development activities or initiatives in India aimed at helping small-scale fruit growers become more proficient in the use of ICT for marketing their goods should prioritise educating these farmers. The use of mobile phones for fruit marketing was found to be positively and significantly connected with farmers' income in this study.

This study's findings suggest that rural farmers in Bangalore who were better off financially and educationally were more likely to take advantage of information and communication technology (ICT) marketing through mobile phones. This suggests that these farmers had an advantage over their less well-off counterparts who did not take part in training programmes. Information and communication technologies (ICTs), especially mobile phones, can be useful for marketing, and research suggests that farmers with more disposable income and more training programme involvement are better at using these tools. When choosing marketing information approaches to offer rural fruit farmers in Bangalore, it is important to consider their level of education, income, and involvement in training courses, as well as their usage of information and communication technology (ICT) tools for fruit marketing.

Conclusion

Access to information about marketing, financing, technology for agriculture, and other resources is a major challenge for small-scale farmers in developing nations like India. Using ICTs, small-scale farmers in developing nations can gain access to accurate and up-to-date information about agricultural markets, in order to arrive at practical choices. To better understand how to encourage farmers to use ICTs (mobile phones) for fruit marketing, this article has looked at a variety of potential influences. According to the findings of a binary logistic regression model, educated and high-income farmers are more likely to have access to ICTs (mobile phones) than uneducated and farmers with lower incomes. Compared to farmers who did not take part in training programmes, those who did are better consumers of information and communication technologies. In contrast to farmers who were a part of this programme, those who were not involved in the loan programmes were more likely to employ ICT.

The high price of phones and the lack of training on how to utilise mobile apps are two of the main barriers that prevent farmers from using ICTs (mobile phones) for fruit marketing. Various methods, including training courses and financial aid, can be used to encourage fruit growers to adopt ICTs (cell phones) for marketing objectives.

Further research in different parts of India could help us understand what elements are affecting small-scale farmers' usage of ICTs to sell agricultural produce. This information can be used to help design a national plan for implementing development projects, such as increasing farmers' access to markets in rural India. It would be beneficial to share the results of this study with local communication officers and extension educators so they can figure out how to best assist fruit growers with marketing information. It is important to consider a variety of demographic, socioeconomic, situational, and institutional factors when deciding which marketing information strategies to offer to small-scale farmers in developing countries and how to encourage farmers to use ICT tools for the marketing of agricultural produce.

References

1. Abebe, A, & Mammo Cherinet, Y. (2019). Factors affecting the use of information and communication technologies for cereal marketing in Ethiopia. Journal of Agricultural & Food Information, 20(1), 59-70.

   Aker, J.C. (2011). Dial ‘A’ for Agriculture: Using Information and Communication Technologies for Agricultural Extension in Developing Countries. Washington D.C.: Center for Global Development.

   Babu, S. C., Glendenning, C., Okyere, K., & Govindarajan, S. (2011). Farmers’ information needs and search behaviour: Case Study in Tamil Nadu India. International Food Policy Research Institute, 59.

   Balogun, A. L., Adebisi, N., Abubakar, I. R., Dano, U. L., & Tella, A. (2022). Digitalization for

transformative urbanization, climate change adaptation, and sustainable farming in Africa: Trend, opportunities, and challenges. Journal of Integrative Environmental Sciences, 19(1), 17–37

2. Doub, A., & Levin, A. (2015). Mobile app-etite: Consumer attitudes towards and use of mobile technology in the context of eating behaviour. Journal of Direct, Data and Digital Marketing Practice, 114–129.
3. Kiiza, B., & Pederson, G., 2012. ICT-based market information and adoption of agricultural seed technologies: Insights from Uganda. Telecommunications Policy, 36(4), 253–259.
4. Kirui,O.K., Okello, Julius J., & Nyikal, R.A. (2010). "Awareness and use of m-banking services in agriculture: The case of smallholder farmers in Kenya." 2010 AAAE Third Conference/AEASA 48th Conference. African Association of Agricultural Economists, Cape Town, South Africa, September 19-23
5. Lim, B., & Xie, Y. (2018). The impact of mobile-app adoption on grocery-purchase behavior. Working Ppaper, 1-56.
6. Mary, L., & Jacob, W. (2023). Factors Influencing the Use of Mobile Phone-Enabled Services in Accessing Agricultural Information by Smallholder Farmers in Bungoma County, Kenya. African Journal of Empirical Research, 1105-1118.
7. Munasinghe, & Kanchanamala. (2018). Factors affecting for the usage of mobile applications among farmers in Bulathsinhala area in Sri Lanka. Proceedings of the 4th Jaffna University International Research Conference , 1-4.
8. Wei, Wang, Xue, & Chen. (2018). Online Purchase Intention of Fruits: Antecedents in an Integrated Model Based on Technology Acceptance Model and Perceived Risk Theory. Front. Psychol, 1-30.