DOI: 10.21917/ijms.2018.0103

MEDIATING EFFECT OF PRICE VALUE ON EFFORT EXPECTANCY AND BEHAVIOURAL INTENTIONS TO USE MOBILE COMMUNICATION TECHNOLOGIES BY COMMERCIAL FARMERS IN UGANDA

Musa B. Moya, Benard Engotoit and Geoffrey Kituyi Mayoka
Department of Management and Business Administration, Makerere University Business School, Uganda

Abstract

This study examines the mediating role of Price Value on Effort Expectancy and Behavioural Intentions to Use mobile communication technologies by commercial farmers in Uganda. A cross sectional design and quantitative field survey method were adopted with 302 commercial farmers' selected using snowball and purposive sampling techniques for the survey. Statistical mediation analysis was carried out using bootstrap mediation tool in Analysis of Moments Structures (AMOS) and Statistical Package for Social Sciences (SPSS) to test for mediation between the three variables of Price value, Effort Expectancy and Behavioural Intentions to Use. Price Value was found to mediate Effort Expectancy on Behavioural Intentions to use. From the findings, there is need for knowledge creation and market research so as to understand the unique needs of price value perceived by commercial farmers on mobile communication technologies, effort expectancy and behavioural intention on demand side. The study thus provides critical literature and evidence on the mediating role of Price value on relationship between Effort Expectancy and behavioural intention of mobile communication technologies by commercial farmers in resource constrained countries like Uganda. The study further proves that there exists a direct relationship between Price Value and Effort Expectancy; Effort Expectancy and Behavioural intentions to use of Mobile communication technologies. Policy makers need to design mobile phone policies and adopt strategies geared through Price Value, Effort Expectancy and Behavioral Intentions to use. It is also imperative that Policy frameworks support the establishment of robust, cost effective and easy to use Mobile communication technologies in ministry of agriculture to enhance service delivery.

Keywords:

Mobile Communication Technologies (MCTs), Price Value (PV), Effort Expectancy (EE), UTAUT2, Behavioural Intentions to Use (BIU)

1. INTRODUCTION

In many developing countries, agriculture is playing a major role in transforming lives of people from living in poverty to earning stable incomes [12] [24]. In Uganda, Agriculture is transforming rural lives by providing employment opportunities (formal and informal) to over 73% of the population; it is also boosting the country's economy by contributing up to 20% to the gross domestic product [12]. In order to boost the economy further, efforts are being put in place to transform the agricultural sector from domestic to commercial by providing incentives especially to the rural farmers to practice commercial farming as a main economic activity [29] [30]. Other efforts include infrastructural development such as upgrading rural roads, building telecommunication lines to improve communication, providing farmers with storage warehouses for the agricultural produce, among others. However, despite these efforts by government, farmers are still faced with a major challenge of access to and dissemination of agricultural information, yet access to up-to-date and accurate agricultural information is key to improving productivity and marketing efforts of farmers [30]. ICT tools are seen as major drivers of economic growth and development in many developed and developing countries. They offer great importance in the area of information access and dissemination. Some of these tools include mobile phones, web applications, and other old generation tools like radio and television [25]. Thus ICT tools can offer great potential to improve on information access and dissemination among agricultural actors thereby increasing transparency of agricultural exchange in many developing countries like Uganda [25]. Tools such as mobile technologies have shown great potential to strengthen this cause and therefore, farmers are beginning to embrace the use of mobile technologies in their efforts to access agricultural market information. Several factors have been examined to study why farmers are adopting the use of mobile technologies for agricultural information access. Some of the factors are extracted from the Unified theory of acceptance and use of Technology (UTAUT) by Venkatesh et al. [52], a theory that has been tested and accepted to study adoption and use of technologies by users. These include performance expectancy, effort expectancy, social influence, facilitating conditions, and behavioural intentions to use. Other studies also provide evidence of other factors such as Price value [53], income [3] [38]. The purpose of this study therefore is to examine the mediating role of Price Value on relationship between Effort Expectancy and Behavioral Intention of mobile technologies by the commercial farmers in Uganda basing on the research question;

- Does Price Value mediate between Effort Expectancy and Behavioural Intentions to Use Mobile Communication Technologies by Commercial Farmers in Uganda?

a) To answer the research question stated above and to achieve the purpose of this study, it is important that the relationships between the independent variables, mediating variable and the dependent variable are examined and these are clearly stated below.

b) To examine the relationship between Price Value and Behavioural Intentions to Use Mobile Communication Technologies by Ugandan Commercial Farmers.

c) To examine the relationship between Effort Expectancy and Behavioural Intentions to Use Mobile Communication Technologies by Ugandan Commercial Farmers.

d) To examine the relationship between Price Value and Effort Expectancy.

e) To examine the mediating role of Price Value on relationship between Effort Expectancy and Behavioural

Intentions to Use of Mobile Communication Technologies by Ugandan Commercial Farmers.

1.1 AGRICULTURAL MARKET INFORMATION NEEDS OF COMMERCIAL FARMERS AND THE POWER OF ICTS

According to Dick [10], information is an important factor in the struggle to maintain the livelihood of farmers and gain a competitive edge in a rapidly changing economic and production environment. It is also asserted that when timely disseminated and availed to commercial farmers in time, information and knowledge can play a key role in ensuring food security and sustainable development [22] [35]. Having access to information increases the level of transparency and trust among transaction partners which in turn improves the level of economic transactions [25]. This therefore means that commercial farmers can be in position to make transactions with their trading partners without doubts of being cheated. Agricultural market information is defined to include pricing information for agricultural products, information on weather, crop advisory, fertilizer availability and updates on government schemes, information on new technology, information on better farming practices and better management [10] [22] [40]. Thus Agricultural market information plays a vital role in enabling farmers make vital and timely decisions regarding the best farming practices to adopt, where to sell their produce and what prices to charge on their produce [13]. Vadivelu and Kiran [55] argues that availability of Market information leads to increased efficiency of marketing systems and promotes improved price formation. With reliable market information, farmers can make informed decisions about what to grow, when to harvest, to which market produce should be sent and whether or not to store it. Elly et al. [14] however, noted that there is limited agricultural market information that is accessible to farmers especially in rural areas in developing countries and this has created concerns as to whether the existing mechanisms used for information dissemination are effective enough, or the disseminated information tallies with the information needs of the farmers. To counter these issues, ICTs have shown the potential to increase the information flow among agricultural actors hence increasing the transparency of agricultural exchange in many resource constrained economies [31] [25]. ICTs such as mobile phone technologies are therefore being widely used in many developed and developing countries and thus offer a means for various users to perform their work activities, make transactions faster, communicate to one another, among others.

1.2 THEORETICAL REVIEW OF THE STUDY VARIABLES AND THE MEDIATING VARIABLE

The variables in this study were adopted from the UTAUT2 model [53] which was a modification of the original UTAUT model by Venkatesh et al. [52]. The UTAUT2 model has gained ground in studies especially those studying adoption and use of technology products in a consumer context. It incorporates not only the four main relationships from UTAUT, but also new constructs and relationships that extend the applicability of UTAUT to the consumer context [53]. The additional constructs include hedonic motivation, price value, and habit. The extended UTAUT is preferred because it explains 74% and 52% of variance in both behavioural intentions and technology use respectively which is regarded to be substantial compared to the original UTAUT (56% and 40% respectively) whose focus was on studies predicting technology acceptance in organizational context [53] [54]. Four variables from the UTAUT2 model informed our study as explained in our conceptual framework in Fig.1. These include Price Value (PV), Effort Expectancy (EE) and Behavioural Intentions to Use (BIU) which are said to positively influence Adoption of MCTs. The study was carried out because it was necessary to study the adoption of MCTs by commercial farmers in a developing country like Uganda given that agriculture is one of the biggest sectors in the country employing over 80% of the population [13]. Venkatesh et al. [53] also advised that future research could apply the UTAUT model to study technology adoption in different country contexts and in this case the adoption and use of technologies varies from country to country. Further analysis of literature was performed to understand users Behavioural Intentions to use. Literature on Behavioural economics was critically reviewed to understand how it affects user's intentions to adopt technology products. Behavioural Economics is looked at as the study of cognitive, social and emotional influences on people's observable economic behaviour while putting into use psychological experimentation to develop theories about human decision making [46]. This discipline has brought together, psychologists, brain scientists, economists so as to understand better the human behavior [9]. Behavioral economics has therefore changed the way we think, why people chose as they do and what really motivates them to make those decisions and actions. Accordingly, Behavioral economics has been applied in coming up with innovative solutions to persistent development problems such as the uptake, adoption and utilization of products [9]. It has therefore helped in solving persistent problems in economic development such as the adoption of technology in agriculture and other sectors of the economy [12] [18] therefore, behavioral economics helps to understand why users chose to do something and what influences them to doing something.

1.3 RELATIONSHIP BETWEEN PRICE VALUE AND BEHAVIOURAL INTENTIONS TO USE

Price value is looked at as the cost of acquiring and using a technology product compared to the benefit that comes from using the product [27]. Price value is also defined as a consumer's cognitive trade-off between the perceived benefits of the applications and the monetary cost of using them [53]. Price is believed to affect an individual user's intention to adopt and use a technology product unlike in an organizational context where price value does not affect an employee given he does not incur any cost in using the organization's technology products. Therefore, price value can be positive if the benefits that accrue from using a technology product are perceived to be greater than the monetary cost [53]. Thus price value positively impacts and predicts Behavioral intention to use a technology. However, Toh et al. [51] assert that in their study, perceived cost was identified to negatively influence the intention to use m-commerce among Malaysian users hence contradicting from earlier studies by Manaf and Ariyanti [28], Listyo and Lisandy [27], Chong [8], Venkatesh et al. [53]. The study hypothyses that there is a significant positive relationship between Price Value and

Behavioural Intentions to Use Mobile Communication Technologies by Ugandan Commercial Farmers (H_1).

1.4 RELATIONSHIP BETWEEN EFFORT EXPECTANCY AND BEHAVIOURAL INTENTION TO USE

Venkatesh et al. [53] and Jambulingam [24] defined Effort Expectancy as the degree to which an individual consumer believes that a given technology is easy to use and requires less effort to learn using a particular technology. Effort Expectancy has also been compared to other similar constructs from other theories and models as analysed by Ghalandari [16] and these include perceived ease of use under the Technology Acceptance Model, Complexity under the PC utilization model and the Innovation Diffusion theory. Effort Expectancy is therefore an important factor in studying the adoption of mobile technologies. While studying the factors that affect students' acceptance and use of technology, Akbar [1] in her discussions found effort expectancy to positively influence behavioural intention to adopt and use technology for learning. This is confirmed by Venkatesh et al. [52] and Venkatesh et al. [53] whose empirically tested studies showed effort expectancy to significantly impact behavioural intention to adopt and use a particular technology and in this case Mobile communication technologies. Therefore, Effort Expectancy is also looked at as a strong determinant of behavioural intention to use a technology product. Other studies such as that of Manaf and Ariyanti [28] however, have found Effort Expectancy to positively influence intentions to use but not significantly. In other studies, it has been found not to have a positive relationship with Behavioural Intentions to use [56] [57]. The study hypothesis is that there is a significant positive relationship between Effort Expectancy and Behavioural Intentions to Use Mobile Communication Technologies by Ugandan Commercial Farmers (H_2).

1.5 RELATIONSHIP BETWEEN PRICE VALUE AND EFFORT EXPECTANCY

Price value was introduced as a new construct into the extended UTAUT model by Venkatesh et al. [53] were they argue that cost and pricing structure can possibly have an impact on consumer's technology adoption and use. The authors also argue that the degree of ease associated with consumers' use of technology can easily influence their adoption and use of technology products. We therefore note that these two constructs are both independent variables and can influence adoption and use. However, it is also important to note that these two independent variables can influence each other were effort expectancy is hypothesised to influence price value in our study. According to Huang and Kao [20], Price value is looked at in two perspectives: monetary costs and non-monetary costs. Monetary costs look at the value derived in relation to the price whereas non-monetary costs look at the other value gotten in return for the cost incurred such as time and the efforts expected to use the technology product [20] [53]. This relationship will help us to draw conclusions on whether there is a partial or full mediation between effort expectancy, price value as mediator and behavioural intentions to use. The study hypotheses are; there is a significant positive relationship between Effort Expectancy and Price Value (H_3) and Price Value partially mediates the relationship between Effort Expectancy and Behavioural Intentions to Use (H_4).

1.6 CONCEPTUAL FRAMEWORK

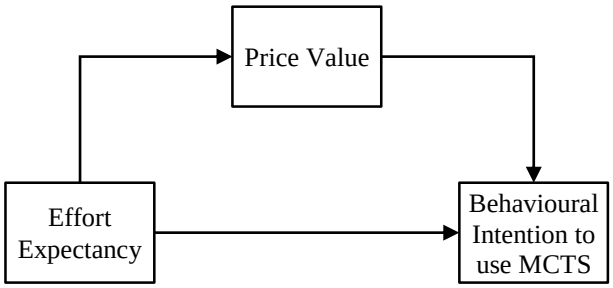

Fig.1. Conceptual framework of the study [13] [34] [39] [47] [52] [53]

The conceptual framework as shown in Fig.1 is comprised of study variables adopted from Venkatesh et al. [53] UTAUT2 model. As explained earlier, the UTAUT2 model is used because it is regarded as an adequate model for studying technology adoption in a consumer context than the baseline UTAUT model and any other technology adoption model due to its ability to explain 74% of variance in usage behavioural intentions [27] [53] [54]. The UTAUT2 model concludes that performance expectancy, effort expectancy, social influence, habit, hedonic motivation and price value play a significant role in influencing the behavioural intentions of users of which behavioural intentions to use later influences adoption of a technology product. The conceptual framework of this study therefore indicates that Effort Expectancy as an independent variable (IV) influence Price Value as a mediating variable (MV) and in turn Price Value influences behavioural intentions as the dependent variable (DV). Effort Expectancy is hypothesised to directly influence Price Value and it is also assumed to indirectly influence Behavioural Intentions to use through Price Value as the mediator. Price Value and Effort Expectancy are also hypothesized to directly influence Behavioural Intentions to use MCTs by commercial farmers in Uganda respectively.

2. METHODOLOGY

2.1 RESEARCH DESIGN

The study follows a deductive research strategy which begins with the general and ends with the specific [48]. This approach is based on the doctrine of positivism which clearly states that the purpose of a theory should be to generate hypotheses that are in position to be tested and can allow explanations of laws to be assessed [11] [50]. Following this strategy, a quantitative research methodology was adopted and it looks at the empirical investigation of observable research items using statistical, mathematical or computational techniques [17]. This methodology thus involves generating data in a quantitative form using scientific methods of inquiry such as experiments, surveys, which often leads to rigorous quantitative analysis in a formal and rigid fashion [26]. Quantitative research methodology was preferred because it enabled the researcher to get a quantitative answer or to quantify opinions, attitudes and behaviours and find out how the whole population feels about a certain issue [49]. A

cross sectional field survey research design was used following the quantitative research method given that emphasis is put on collecting and analysis of numerical data while concentrating on measuring the scale, range, frequency of phenomena [36]. Cross sectional field survey research design was preferred because it enabled the researchers to gather data on beliefs, practices or situations from a random sample of subjects in the field using survey questionnaires which is most frequently used. And therefore, with this kind of research design, independent and dependent variables are measured at the same point in time using a single questionnaire [4]. The survey was conducted in June, 2016 for a period of 2 months and the target respondents were commercial farmers. These formed the basis of the survey because the likelihood of commercial farmers to adopt mobile technology tools for agricultural purposes is high [13] [15]. Data was gathered from the respondents on their beliefs and practices of using MCTs and later the dependent and independent variables were measured at the same point using a single structured questionnaire. Field surveys are popularly used because they enable researchers to measure study variables and test their effects using statistical methods [4]. A quantitative survey method was used to collect data from five districts representing the Central region of Uganda. This is because the survey method enables researchers to collect data from a larger population more easily [23]. The survey method involved administering questions to the selected respondents using self-administered structured questionnaires. Self-administered questionnaires were used because they encourage consistency in asking questions and it is easy to analyse the yielded data [4]. These questionnaires were distributed to commercial farmers and agribusiness traders in the five districts of Masaka, Mityana, Luwero, Kampala and Wakiso.

2.2 POPULATION AND SAMPLE SIZE

Due to lack of satisfactory statistics on the number of commercial farmers in Uganda especially Central Uganda, a sample size of 384 respondents based on Cochran [6] formula for unknown populations was chosen. The study used snowball and purposive sampling, with the questionnaires distributed to respondents who owned mobile phones and were knowledgeable with the use of mobile communication technologies. The 302 questionnaires were returned giving a response rate of 78.6% which proved to be adequate [45].

2.3 DATA COLLECTION METHODS

Questionnaire was used as the main data collection tool for this study. Self-administered questionnaires were used because they encourage consistency in asking questions and it is easy to analyse the yielded data [4]. The questionnaire comprised of structured questions adapted from the UTAUT2 variables of Price Value, Effort Expectancy, Behavioural Intentions to Use and Adoption. These questionnaires were distributed to commercial farmers in the districts of Masaka, Mityana, Luwero, Kampala and Wakiso.

2.4 MEASUREMENT OF VARIABLES

The variables used in this study were measured using factors adapted from Venkatesh et al [53]. The study variables included Price Value, Effort Expectancy, which predict Behavioural Intentions to Use (dependent variable) as shown in Table.1. Price Value was adopted as a mediating variable between Effort Expectancy and Behavioural intentions to use.

Table.1. Measurement of Variables

Variable	Measurement of variables	Source
Price Value	• It is less costly to use MCTs to access agricultural market information	UTAUT2 [53]
Effort Expectancy	• It is easy to use MCTs to access agricultural market information • It is easy for me to become skillful when using MCTs • Using MCTs is clear and understandable	UTAUT2 [53]
Behavioural Intentions to Use	• I predict to use MCTs • I recommend others to use MCTs • I Will Continue to use MCTs in future	UTAUT [53]

2.5 RELIABILITY AND VALIDITY OF RESEARCH INSTRUMENT

Prior to the survey, a pilot study was conducted to test for validity and reliability of the research instrument. The questionnaire was structured with 4 variables extracted from Venkatesh et al. [53] and these were Price Value (PV), Effort Expectancy (EE), Behavioural Intentions to Use (BIU). The validity questions where presented on a five point likert scale of (1 = Not relevant, 2 = Somewhat relevant, 3 = Quite relevant, 4 = Relevant and 5 = Very relevant). Content Validity Index (CVI) was used to test for validity [41] whereas testing for reliability of the questionnaire was done using Cronbach Alpha Coefficients (CAC) [7]. Results are presented in Table.2.

Table.2. Reliability and validity

Variable tested	No. of items	Cronbach alpha coefficient	CVI
Price Value	1	-	-
Effort Expectancy	3	0.73	0.85
Behavioural Intentions to Use	3	0.70	1.00

Results in Table.2 show that all variables tested had a CAC score above 0.7 which according to Nunnaly [37], Cronbach [7] are satisfactory and considered valid. On the other hand, the results in Table.2 show that all variables scored a CVI > 0.6, which according to Polit et al. [41] meets the minimum acceptable standards.

2.6 DATA ANALYSIS METHODS

Analysis of primary data was done using SPSS software tool and the data presented in tables. Descriptive statistics using frequencies and percentages was used in analysis of background characteristics of the commercial farmers, whereas diagnostic tests were also conducted to determine the normality and linearity of the study variables. Confirmatory Factor Analysis and Structural Equation Modelling (SEM) analysis techniques were

used to test and confirm the relationship between the study variables. These techniques further helped in determining the Average Variance Extracted (AVE) and the path coefficients. In order to assess the direct and indirect mediation effects of behavioural intentions, bootstrap procedure provided by Preacher and Hayes [42] and Preacher et al. [43] was used. This helped to test significance of the mediation of Price Value on Effort Expectancy and Behavioural Intentions to Use MCTs by commercial farmers in Uganda. According to Zaremohzzabieh et al. [33], SEM is a preferred statistical analysis strategy because it is able to reduce measurement error, it is able to test the unobserved and manifest variables in independent relationships and it is also able to assess simultaneous overall tests of model fit. SEM also helped in coming up with a structural equation model for the conceptual framework.

3. FINDINGS

This study sought to examine the mediating role of Price Value on Effort Expectancy and Behavioural Intentions to Use (BIU) MCTs for agricultural market information dissemination by commercial farmers in Uganda. The findings are discussed below.

3.1 BACKGROUND CHARACTERISTICS

Background characteristics were analysed using frequencies and percentages and the results are presented in Table.3.

Table.3. Background characteristics

Demographic characteristic	**Frequency**	**Percentage**
Gender		
Male	177	58.6
Female	125	41.4
Total	**302**	**100**
Farmer's income earnings per annum		
Less than 1,000,000/-	29	9.6
1,000,000-5,000,000/-	172	57.0
5,000,001-50,000,000/-	99	32.7
More than 50,000,000/-	2	.7
Total	**302**	**100**

From the results above, it can be seen that more than half of the respondents were male (58.6%) and the rest were female (41.4%), an indication that the male group are more actively engaged in commercial farming than the female counterparts. The results further show that most of the respondents earned between 1,000,001 to 5,000,000 UGX (57%). This was followed by respondents with earnings between 5,000,001 to 50,000,000 UGX (32.7%). A total of 29 respondents constituting 9.6% earned less than 1,000,000 UGX and only 2 respondents (0.7%) earned more than 50,000,000 UGX. This therefore indicated that majority of commercial farmers are in position to afford using MCTs for commercial farming purposes such as agricultural market information access and dissemination. It also shows that income has a positive influence on adoption of MCTs as has been seen by prior studies [21] [44].

3.2 DIAGNOSTIC TESTS

Normality tests indicated that Effort Expectancy, Price Value, behavioral intentions were fairly and normally distributed according to PP, QQ and Histograms, Skewness and kurtosis were in the limits of -1 to +1 and -3 to + 3 respectively indicating normal distribution of the variables [5]. Linearity tests using baseline regression indicated F-statistic > 3 and Sig < 0.05. There was no multi-collinearity as there was more than one independent variable and there was homogeneity of variance as Levene test Sig > 0.05. Therefore, parametric tools of analysis were used to test the hypotheses.

3.3 CONFIRMATORY FACTOR ANALYSIS (CFA) AND STRUCTURAL EQUATION MODEL (SEM) ANALYSIS

Using SPSS and AMOS software, CFA and SEM were developed as shown in proceeding sections. Validity of SEM was done using convergent validity and discriminant validity. SEM was used to test for the hypothesised relationships. Convergent validity (assessment of the degree to which the construct measures are associated) was used. This was determined using the average variance explained (AVE) in CFA. The results indicate that the average variance extracted (AVE) of each variable was above 0.5 as presented in Table.4, which therefore indicates convergent validity [19]. Discriminant validity was determined in CFA, a comparison of average variance extracted (AVE) and square of correlation or factor loading between constructs and variables was used to determine discriminant validity. The results for discriminant validity indicated that the average of variance extracted (AVE) for all variables are above 0.5. In addition, the AVE for each manifest variable was greater than the square of the correlation coefficients with other variables.

The results confirm construct validity and composite reliability of Effort Expectancy, Behavioural Intentions to Use and their items respectively. Therefore, there is no significant difference between the hypothesised and observed model regarding Behavioural Intentions to use. A summary of the validity results is shown in Table.4.

Table.4. AVE validity results

Construct	**AVE**
Effort Expectancy	0.6341
Behavioural Intentions	0.5742

3.4 HYPOTHESIS TESTING USING SEM

There was a significant positive relationship between Effort Expectancy and Behavioural Intentions to Use (*Beta* = 0.211, $p < 0.001$), this implied that commercial farmers perceive MCTs to be easy to use when accessing and disseminating agricultural market information. There was a significant positive relationship between Price Value and Behavioural Intentions to Use (*Beta* = 0.279, $p < 0.001$). This therefore implied that commercial farmers perceive the cost of using MCTs for agricultural market purposes to be low, hence influencing their intentions to use. There was a very significant positive relationship between Effort Expectancy and Price Value (*Beta* = 0.558, $P < 0.001$). This significance

implied that if the non-monetary costs such as less effort (ease of use) in using MCTs exist, then commercial farmers can significantly be influence by the price of MCTs. The analysis of these results shows that Behavioural Intentions to Use significantly predicts Adoption than the rest of the variables as shown in Table.5-Table.8 and Fig.2-Fig.3. The results uphold the hypotheses H_1. There is a significant positive relationship between Price Value and Behavioural Intentions to Use Mobile Communication Technologies by Ugandan Commercial Farmers. H_2. There is a significant positive relationship between Effort Expectancy and Behavioural Intentions to Use Mobile Communication Technologies by Ugandan Commercial Farmers. H_3. There is a significant positive relationship between Effort Expectancy and Price Value.

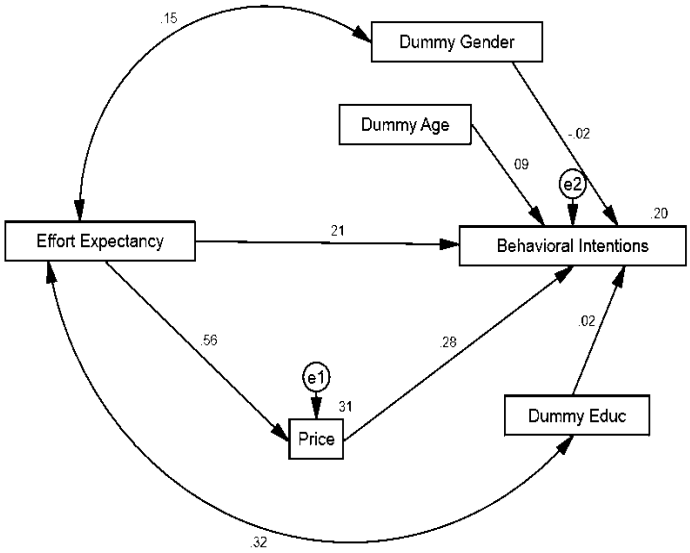

Fig.2. Initial Structural Equation Model

Table.5. Model Fit Summary

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	14	11.561	7	0.116	1.652
Model	**RMR**	**GFI**	**AGFI**	**PGFI**	
Default model	0.012	0.988	0.964	0.329	
Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
Default model	0.951	0.895	0.98	0.956	0.979
Model	**RMSEA**	**LO 90**	**HI 90**	**PCLOSE**	
Default model	0.047	0	0.093	0.489	

Table.6. Regression Weights: Maximum Likelihood Estimates

	Estimate	S.E.	C.R.	Estimate	P
PRICE → Effort	0.652	0.056	11.657	0.556	***
BUINT → PRICE	0.196	0.044	4.473	0.278	***
BUINT → EFFORT	0.173	0.054	3.217	0.209	0.001
BUINT → Dummy 40 below age	0.085	0.049	1.714	0.09	0.087
BUINT → Dummy gender	-0.021	0.045	-0.459	-0.024	0.646
BUINT → Educ dummy	0.015	0.046	0.316	0.017	0.752

(BUINT=Behavioural Intentions to Use, EFFPRT =Effort Expectancy and price =Price Value)

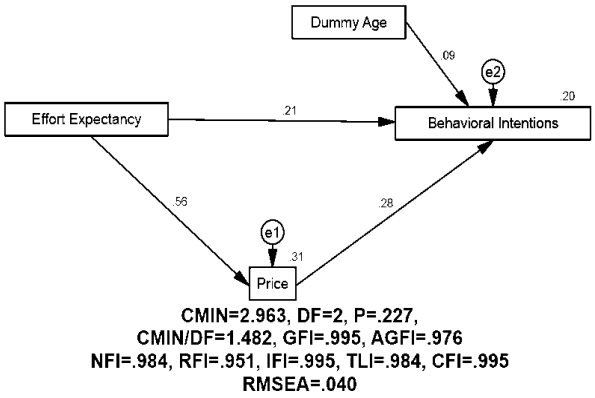

Fig.3. Structural Equation Model with Mediation

Table.7. Model Fit Summary

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	8	2.963	2	0.227	1.482
Model	**RMR**	**GFI**	**AGFI**	**PGFI**	
Default model	0.01	0.955	0.976	0.199	
Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
Default model	0.984	0.951	0.995	0.984	0.995
Model	**RMSEA**	**LO 90**	**HI 90**	**PCLOSE**	
Default model	0.04	0	0.128	0.454	

Table.8. Maximum Likelihood Estimates - Regression Weights

	Estimate	S.E.	C.R.	Estimate	P
PRICE → EFFORT	0.652	0.056	11.657	0.558	***
BUINT → PRICE	0.196	0.044	4.476	0.279	***
BUINT → EFFORT	0.173	0.051	3.379	0.211	***
BUINT → Dummy 40 below age	0.088	0.049	1.785	0.093	0.047

(BUINT=Behavioural Intentions to Use, EFFORT = Effort Expectancy and PRICE = Price Value)

3.5 MEDIATION RESULTS

Using Bootstrap test, results indicate significant mediation effect of price value on relationship between effort expectancy and behavioural intention to use MCTs. Hence upholding hypothesis H_4: that Price Value partially mediates the relationship between Effort Expectancy and Behavioural Intentions to Use.

Table.9. Bootstrap test mediation results

Standardized Total Effects		
	Effort Expectancy	**PRICE**
Price value	.652**	0
Behavioural intentions to use	.301**	.196**
Standardized Direct Effects		
	EFFORT	**PRICE**
Price value	.558**	0
Behavioural intentions to use	.211**	.279**
Standardized Indirect Effects		
Price value	0	0
Behavioural intentions to use	.155**	0

4. DISCUSSION OF FINDINGS

There was a significant positive relationship between Price Value and Behavioural Intentions to use MCTs by commercial farmers in Uganda. This implies that if commercial farmers find it less costly to use MCTs to access and disseminate agricultural market information, then their intentions to use MCTs can as well be influenced. This is in line with studies by Manaf and Ariyanti [28], Venkatesh et al. [53], Chong [8]. There was a significant positive relationship between Effort Expectancy and Behavioural Intentions to Use MCTs by commercial farmers in Uganda. Implying that if commercial farmers find it easy to use MCTs for agricultural marketing purposes with less efforts to learn and use, their intention to use MCTs is likely to be influenced. This is in line with studies by Engotoit et al. [13], Malima et al. [32], Alotaibi et al. [2] and Venkatesh et al. [52] [53] who agree that Effort Expectancy is found to uniquely, significantly and positively influence one's Behavioural intension to adopt and use a technology product. Effort Expectancy was also found to significantly and positively influence Price Value of MCTs. This therefore implied that having MCTs that are easy to use and easy to learn can lead commercial farmers to perceive the prices of MCTs to be low and affordable. This however contradicts Venkatesh et al. [53] study which showed Effort Expectancy not to have a significant relationship with Price Value. Price Value was found to partially mediate Effort Expectancy to Behavioural Intentions to use. This was as a result of the direct and indirect relationship between Effort Expectancy and Behavioural Intentions to use. This implies that commercial farmers will continue to use MCTs now and even in the future and also recommend others to use MCTs only if they are easy to use and are also cost friendly in terms of acquisition and use, MCTs provide easy and effortless Access to agricultural prices, hence influencing behavioural intentions. This finding is in line with studies by Manaf and Ariyanti [28], Venkatesh et al. [52], Venkatesh et al. [53] who argue that Effort Expectancy could indirectly predict behavioural intention to use through the mediation role of price value.

5. CONCLUSION

In this study, a relatively new perspective is provided of empirical methods and theoretical approaches that fill the usage of mobile communication technologies gap from a demand perspective while, focusing on the importance/significance of Price Value, Effort expectancy and Behavioural Intentions to use MCTs in commercial farming. The paper thus examines the mediating role of Price Value on Effort Expectancy as an independent variables and Behavioural Intentions as the dependent variable. However, to achieve proper results of mediation role and the significant effect of mediation, the relationships between the independent variables, mediating variable and the dependent variable needed to be examined. The relationship between Price Value and Behavioural Intentions to use; the relationship between Price Value and Effort Expectancy; Effort Expectancy and Behavioural intentions to use were examined so as to pave way for statistical mediation analysis of the mediating variable (Price Value), Independent variable (Effort Expectancy) and dependent variable (Behavioural Intention). From the findings, it can therefore be concluded that Price Value and Effort Expectancy positively influence Behavioural Intentions to Use, and Effort Expectancy are also confirmed to directly influence Price Value of MCTs which is one of the contributions of the study, therefore Price Value Mediates Effort Expectancy to Behavioural Intentions to use MCTs, another contribution of the study. If MCTs are perceived to be less costly in terms of acquisition, use and provide value for money, provide Access to agricultural market information with less effort, are easy to learn and to use, then their behavioural intentions to use can be positively influenced given that they will be willing to use MCTs now and also in the future, and they will also be willing to recommend others to use MCTs. The Government of Uganda and telecommunication companies can put effort in ensuring that commercial farmers can continue to use MCTs now and in the future. This can be done by providing reliable and affordable broadband internet connections, training commercial farmers on how to effectively use social media platforms and other internet based mobile applications for agricultural information access and dissemination purposes, subsidizing the prices acquisition and use of MCTs and active involvement of commercial farmers and other stakeholders in the implementation of many of these MCTs.

6. CONTRIBUTION OF THE STUDY

Several studies conducted by many researchers on Price Value, Effort expectancy, Behavioural Intentions have been in developing countries and mainly on employees and students. Limited research however, has been conducted on perceived Price Value and Effort expectancy of commercial farmers in a developing country like Uganda. Venkatesh et al. [52] and Venkatesh et al. [53] recommends further studies to test the UTAUT Model in different countries, age groups, technology and professions. It's on this basis that the study was conducted to examine the mediating role of Price Value on Effort Expectancy and behavioural intentions to use MCTs in a developing country like Uganda. This study confirms Price Value as a mediator of effort expectancy and behavioural intentions to use, advanced modelling tools such as SEM and Bootstrap in AMOS were used to test for the relationships and mediation of the study variables. Furthermore, this research is of considerable contribution to the information technology discourse towards the usage and adoption theory discourse, Services providers and also further policy efforts in Uganda, and other developing economies, as they

continue to build developmental transformative models and strategies towards achieving complete usage for better service delivery. The study provides extant information to advance need for mobile usage services, data and research to guide managerial interventions.

7. RECOMMENDATIONS

Knowledge creation and market research is needed so as to understand the unique needs on the demand side of commercial farmers in terms of Price Value they expect to gain from MCTs, Effort Expectancy of MCTs and Behavioural Intention in developing countries. To this effect, it is imperative that policy makers design mobile phone policies and adopt strategies geared through Price Value attached to MCTs by commercial farmers, Effort expectancy and Behavioural Intention. Additionally, designing programs that stimulate individual farmers for their effectiveness is crucial in advancing mobile phone usage. Policy frameworks are also needed to support the establishment of robust, cost effective easy to use mobile phones in ministry of agriculture Uganda to enhance service delivery. Price Value was found to be a stronger predictor of Behavioural intention to use MCTs by commercial farmers in Uganda. Therefore, policy makers need to provide a planning policy framework that recognizes farmers' Price Value, Effort expectancy and behavioural concerns when it comes to MCTs. It is important to ensure awareness of the behavioural challenges that propel voluntary use of mobile phones when proposing initiatives towards promoting more inclusive mobile communication technologies. Policy makers also need to openly engage behavioural experts when designing policies and programs that will enable commercial farmers to adopt MCTs for agricultural marketing purposes.

8. LIMITATIONS OF THE STUDY

This study is only limited to studying the mediating role of Price value on the relationship between Behavioural Intentions to use and Effort Expectancy. Future studies can consider including other variables such as social influence, performance expectancy, Hedonic motivation, among others to be mediated by Behavioural Intentions to use on Adoption of Technology products. The study was conducted in Uganda with relatively low levels of commercial agriculture being conducted given domestic small holder agriculture is predominant. Therefore, to achieve better results, the study can be conducted in a more developed country with high levels of commercial farming.

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