Adoption of Mobile Banking Technology in Pastoral Community: a Perception Based Study in Afar Regional State, Ethiopia

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Abstract: The main purpose of this study was to determine factors affecting users' intention to use mobile banking service in a scarcely distributed infrastructure, pastoral dominated demographic setting. Prior studies on this topic using different methods reported mixed results; suggesting the need for particular studies which should consider particularities of such cultural settings. A perception-based survey was conducted on 315 bank customers who have been using the service during the survey in Afar regional state, Ethiopia. So as to collect data, Likert's-scale was adopted form prior acceptance studies. Ease-of-use, Usefulness, Trust, Social-influence, Attitude and Government-support were the constructs regressed to estimate users' intention-to-use mobile bank. Out of the six factors, social influence, trust and government support found positive predictors of users' intention to use mobile bank. In contrast, usefulness, ease of use and attitude did not support hypothesis. Ease of use and attitude specially, have emerged with unexpected negative regression weight. Generally, whether customers perceived mobile banking service is useful or not, they tend to use it: 1) if they perceived influential persons around them are supporting the service; 2) if government rules and regulations are assumed safe and facilities are sufficient; 3) lastly, if they trust security and confidentiality of transactions therein. The study was conducted in a new demographic and cultural settings. Hence, the combination of three trust related constructs emerged significant factors therein could be used in designing a new model of predicting users' intention to use mobile banking in such type of regions.

Keywords: Technology acceptance, Mobile banking, mobile banking adoption, Afar regional state

I.INTRODUCTION

Financial services are believed to be the major players in driving development of countries. Because, access to banking service can help people in escaping from poverty by facilitating investments in their health, education, and businesses (Demirgüç-Kunt et al., 2018). Nevertheless, larger portion of the people around the world lack access to financial services. Supporting this, Demirgüç-Kunt et al., (2018), World bank group staff, in their external contribution stated that 1.7 billion people in the year 2017 had not access either to formal services of conventional financial institutions nor they have access to mobile money providers.

In the last decade however, several measures have been taken throughout the world to solve these issues through advancing the banking services. Through new paradigm of an emerging information technology, introduction of mobile and internet services and wireless technologies, the banking sector is getting access even to very remote places (Luo, Zhang, & Shim, 2010; Zhang, Zhu, & Liu, 2012; Imran, Quimno, & Hussain, 2016).

Considering the benefits that mobile banking can provide, several researchers have made studies on adoption of the on-line banking, internet banking, internet commerce, mobile commerce and mobile banking areas of study. However, some researchers such as (Downs & Mohr,1976; Devis 1989) suggested that innovation adoption studies need consideration of cultural and organizational differences. Supporting this, Shaikh, & Karjaluoto, (2015); Alkhunaizan, & Love, (2012) argues, ethnographic and cultural considerations have noticeable impact on understanding of mobile banking adoption researches. Similarly, Zhang, Zhu, & Liu, (2012) in their meta-analysis, found that having western or eastern culture has a specific moderating effects on mobile commerce adoption.

Regarding Ethiopia, few studies have still been conducted around users' intention to use internet banking/internet commerce in the technology acceptance research stream. Using Technology-Organization-Environment model, (Bultum, 2014) tried to investigate the major barriers which Ethiopian banking industry have encountered. The main focus of the study was assessing financial facilities and infrastructural issues encountered the country to drive its internet banking services forward. Shaikh, (2014) have published a study on Ethiopian electronic banking perception. However, the perception-based study in *Adama* city was measured from the bankers' perspective. Bambore, & Singla, (2017) have also tried to study customers' in-tension to adopt electronic banking.

Since Ethiopia has joined mobile banking service lately (according to VOA news 2012), it is apparent that the literature made in the country will be fewer than its neighbouring east African countries who started far before Ethiopia. Generally, even though Ethiopia is country of diversified cultures, religion and environment identical to it, the study of mobile banking adoption in the country is at its initial stage and needs further study.

By and large, studies in Ethiopia regarding technology acceptance, did not address mobile banking service in the

context of current and potential customers. Specially in the study area (Afar regional state), no study has tried to see how mobile banking or any other technology adoption trend would look like; despite its particularities (e.g. above 90% pastoral community).

Hence, taking in to consideration adoption literature is at early stage in Ethiopia, specifically in the study area Afar regional state, there needs to study behaviour of users so that service providers and interested parties could further their understanding about their customers; ultimately enable them to devise copping mechanism to the need of their customers.

The main purpose of this study is therefore, to determine factors affecting intention of bank customers towards adopting mobile banking technology. perception-based study was thus conducted integrating constructs from the widely applied Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT) and mixing some other deemed predictors from the technology acceptance literature.

In general, this study tried to investigate the effect of constructs: Attitude, Trust, Usefulness, Ease-of-use, Social-influence and Government-support on users' intention to use mobile banking through examining perception of bank users.

From this study researchers and other stake holders will be able to get in to some insight through the mobile banking adoption study in such a pastoral community.

Theoretical Background and Hypothesis Development

Mobile banking is among the latest innovative technologies helping people to access the banking services via a channel whereby customers interact with banks via their mobile device (Yang, & Sattayatham, 2016; Zhang, Zhu, & Liu, 2012; Shaikh, & Karjaluoto, 2015). Considering its benefits, large number of information technology adoption studies tried to measure factors influencing users' intention to adopt a system. In their meta-analysis Venkatesh, et al., (2003) revealed that, predicting acceptance of new technologies, like information technology has been determined in many forms of competing models. At the end they come to identify eight "prominent" models mostly reported in the literature of technology adoption.

Venkatesh, et, al (2003) brought together wide array of theories like: Diffusion of Innovation Theory (Rogers, 2010); Technology acceptance model (Davis, 1989); Decomposed theory of planned behaviour (Taylor & Todd, 1995); Extended technology acceptance model (Venkatesh & Davis, 2000); Diffusion theory of user acceptance of technology (Venkatesh et al., 2003).

Even after Venkatesh et al., (2003) developed the "Unified Theory of Acceptance and Use of Technology (UTAUT)" their effort of creating a single "robust" models did not went far-long. Almost immediately After they proposed the new UTAUT model, studies continued using adoption theories either with their original set-up or with some extensions. For the example, the UTAUT was extended by (Venkatesh et al., 2012). Several researchers like (Gupta & Arora, 2017; Agrebi & Jallais, 2015, Venkatesh & Bala, 2008) have also tried to estimate behaviouralintention of customers using TAM with some extensions. As a result, they extend the adoption literature (mobile commerce, on-line purchase,

mobile banking and internet banking) to some new combination TAMs new predictors.

II.CONCEPTUAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

In this section, discussion of one dependent and six independent variables is made supported with hypothesis development for each the independent variables.

Dependent variable: Intention to use Mobile Banking

A person having an intention on something is assumed to use the thing s/he intends to (Ajzen, 1991). for that reason, several (Davis, Bagozzi, & Warshaw, 1989; Venkatesh, et al., 2003; Venkatesh & Bala, 2008; Yee-Loong Chong, Ooi, Lin, & Tan, 2010; Im, Hong, & Kang, 2011; Venkatesh, et al., 2012) information system investigators have suggested intention as an immediate antecedent of actual use of a new system. Hence, behavioural intention (worded as intention to use) in this study was used to estimate actual use of mobile banking. Behavioural intention on the other hand, has been determined in different models, by different substituting factors. For instance, Venkatesh et al., (2003) have tried to identify substitute constructs from eight different acceptance models.

Independent variables

The independent variables discussed in this section are taken from the prior technology acceptance models.

Attitudes

Attitude "The Psychological Tendency That is Expressed by Evaluating A particular Entity With Some Degree of Favour or Disfavour" Eagly and Chaiken, (1993) cited in (Gupta, & Arora 2017). According to Ajzen, (1985) there is a strong relationship between favourable attitude of a person towards a particular behaviour and the tendency of the person to develop that behaviour. In harmony with Ajzen's claims, recent acceptance studies Shaikh, & Karjaluoto, (2015); Gupta & Arora, (2017); Groß, (2018) confirmed the positive relationship between attitude and intention to adopt a technology. Hence, attitude with four Likert-scale items was take in this study as predicting variable of the intention use. The hypothesis based on the extant literature was thus, stated as: **H1**: Individuals' positive attitude towards mobile banking will influence their intention to use service.

Social Influence

Social influence as a direct determinant of behavioural intention is represented in different type of models as image, subjective norm, and social factors. In whichever the terminology is, most of adoption models, such as TAM2, TPB, and UTAUT have integrated social influence in to their models to predict intention to use technology Venkatesh, et al., (2003). Social-influence is defined as The degree to which an individual perceives that important others believe he or she should use the new system (Venkatesh, et al., 2003; Im, et al., 2011).

H2: Social-influence of important people around individuals will have affect users' intention to adopt mobile banking.

Usefulness

Empirical results contended that the construct usefulness is one of the most important predictors of the intention to use technology. Perceived usefulness was defined as "the degree to which a person believes that using a particular system would enhance his/her job performance" (Davis, 1989). Researchers such as (Agrebi & Jallais, 2015) have found usefulness major significant predictor of users intention to adopt mobile banking. Hence the hypothesis stated as follow: **H3**: people perceiving mobile banking as useful system are also presumed to have an intention to adopt service.

Perceived ease of use

Perceived ease of use according to (Davis, 1989) is "The Degree to Which a Person Believes That Using a System Would be Free of Effort". Studies integrated ease of use in their acceptance models demonstrate that the variable has significant positive effect on intention of customers' to adopt a particular system (Brown, et al., 2012; Natarajan, Balasubramanian, & Kasilingam, 2017). Hence, possible effect of perceived ease of use measured with five items from the literature was, hypothesized as: **H4**: Individuals perceiving mobile banking as easy system to use will have intention to adopt mobile banking.

Government support

The construct, "Government support" has been used as predicting factor of intention to use a technology; and was found significant predictor of intention to use (Yee-Loong et al 2010). Because, governments are presumed as providers of suitable and fair technological infrastructure, as well as assurers of systems security (Jaruwachirathanakul, & Fink, 2005). The essence is that users having belief on their government support to internet/mobile banking will have confidence to make their transaction on through it. Hence the hypothesis would be stated as: **H5:** Individuals perceiving mobile banking is supported by their government tends to use the service.

Trust

Illia, Ngniatedema, & Huang, (2015) described trust as "The Main Catalyst of Most Business Transactions". According to Pavlou, (2003) and Luo, Zhang, & Shim, (2010) the current open and global nature of the electronic transaction posed uncertainty around technology users. This uncertainty makes trust as the most crucial elements of electronic technology acceptance studies. Considering individual's concern about trust, several researchers like (Koenig-Lewis, Palmer & Moll, 2010; Gu & Suh, 2009 Yee-Loong et al 2010; Alafeef, et al., 2011; Zhang, et al 2012 Illia, et al 2015) have integrated 'Trust/Risk' in to their models. Thus trust is hypothesized as follow: **H6.** People having trust on the security of Mobile banking will have an intention to adopt it.

Having all the discussions about the above factors, a model of mobile banking adoption study was adopted from different studies as depicted in figure one below.
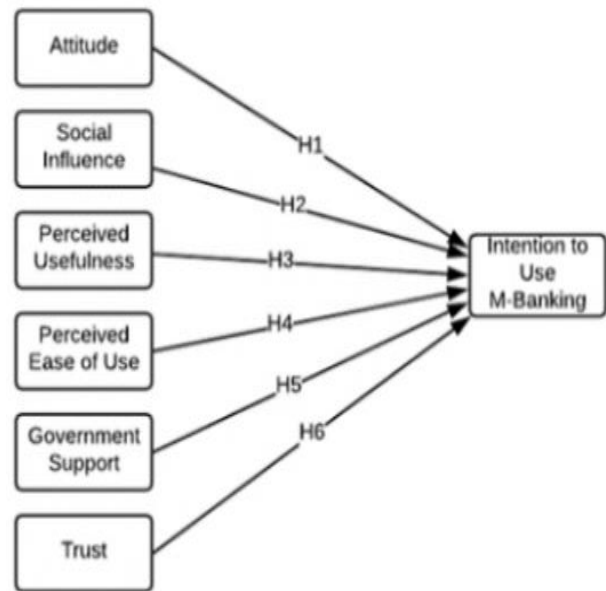
Fig. 1 Research Model

Source: *adopted from researches*

III. RESEARCH PARADIGM, APPROACH AND METHODS

The main purpose of this study was to test how the extant behavioural constructs regarding adoption of technology are perceived among the target people in Afar region; and thereby estimate users' intention to use mobile banking. For such kind of studies, Mackenzie & Knipe, (2006) suggested positivist knowledge inquiry paradigm. positivist research paradigm uses quantitative research design. Hence, to measure and uncover what determines intention of people to adopt a mobile banking in the region, the study applied quantitative research methods with survey design as was suggested by researchers like (Swanson & Holton, 2005).

Sampling and data collection

The target population for this study were bank customers who were found using the bank services during the survey period in Afar regional state, Samara-Logia city, Ethiopia. Due to privacy nature of financial information in banks, and luck of getting ready made unit of analysis in such areas, researchers such as Yee-Loong et al., (2010) and Ramayah, (2002) have used such kind of units of analysis to study internet banking adoption.

Thus, based on unknown population sampling size determination technique, 384 bank customers from 10 bank branches operating in Semera-Logia city during the study period (2018) were selected using convenient sampling. The survey was distributed to every third person getting into the bank until all the survey questions were distributed. Out of the total distributed questionnaires, 339 were collected. Twenty-three (23) questionnaires due to incomplete response and four (4) due to non-engagement response were removed before data entered in to SPSS software for analysis. As a result, 315 valid number of questionnaires i.e. 82 percent response rate was achieved and used for analysis.

Data analysis

As recommended by Ajzen, (1985) and Devis, (1989), data gathered through survey was analysed using multiple regression analysis supporting with structural equation modelling. The factors included as predictors in the regression were: attitude, social influence, usefulness, ease of use, government support and trust. Structural Equation Modelling (SEM) was mainly used for analysis because of its ability to estimate multiple interrelated dependent relationships Hair et al., (1995) cited in (Natarajan, et al., 2017). Statistical Soft wares, SPSS 23 and AMOS 24 were used to carry out different tests and analysis.

IV.RESULTS OF THE STUDY

In this section, results of the study are presented starting from reliability and validity tests. Different forms of tests are discussed before making regression analysis. Regression results have also discussed followed by discussion and conclusion.

Validity and Reliability of the Instrument

Reliability and validity tests were made using different metrics of the test. Regarding reliability of the measurement scales, Cronbach's coefficient alpha and composite reliability (CR) were estimated. The resulting alpha values for the hypothesized factors, as depicted in Table 3, is ranged from 0.84 to 0.92. As per Cronbach, (1951) and Nunnally, & Bernstein, (1994), the results achieved greater than the lower threshold (0.70), which in turn witness reliability of the scale used in the study. Reliability measured with CR in this study has also ranged from 0.84 to 0.93, which is far greater than the desirable value .60 (Bagozzi & Yi, 1988).

Responses were also tested using different methods for different forms of validity. To maintain content validity, the scale was developed from existing acceptance literature with little modification. This suggests according to Cooper & Schindler, (2003), no concern over content breach of content validity. However, so as to verify important factors had not been omitted, to assert desired phenomena have met, to

estimate the time required to fill the survey and to identify unclear wording Aboelmaged, & Gebba, (2013) the instrument was tested in 20 students of the University. Thereby some items which have been found difficult to understand were reworded and some instructions were re-written to maintain clarity.

As part of convergent and discriminant validity, 29 reflective items were evaluated using Exploratory Factor Analysis (EFA) and confirmatory factor analysis (CFA) as suggested by (Campbell & Fiske 1959). During EFA in SPSS, maximum likelihood extraction with Prom rotation methods and Kaiser Normalization were used (Costello, & Osborne, 2005).

Sample adequacy test for EFA, User-friendliness (KMO) shows 0.80; which is greater than the lower threshold 0.50 (Field, 2009). Along with this, the large value of Bartlett's test of sphericity χ^2 5716.38 with df 325 =, $p < .001$, suggests that correlations between items are sufficiently large enough to undertake factor analysis (Bentler, & Bonett, 1980). The EFA using eigenvalues over 1 (Kaiser's criterion), extracted seven factors which explains 69.32 percent of variance, what all the items would have explained otherwise.

In line with prior studies, all except (UseE1, EasA5, and BIac1) items were loaded together around their proposed constructs. Before conducting CFA, those items showing lower and or cross loading were removed. All items in the EFA (see Table 3) have loading of greater than 0.55 on their respective constructs; and relatively low loading (less than 0.20) on other constructs.

Based on suggestion of Byrne, (2016) and Hu, & Bentler, (1999) item validity test was conducted further using the CFA in AMOS software. Except in the case of goodness fit index, in all the CFA model fit indices, portray excellent fit values (see table 2) the fit statistics (χ^2/df =2.06; comparative fit index (CFI) = .947; goodness fit index (GFI) = .88; adjusted goodness of fit index (AGFI) = .848; normed fit index (NFI) = .903; Non-normed fit index (NNFI) = .948; and root mean square error of approximation (RMSEA)= .058). Generally, these positive fit indices permit to interpret and use the validity test of CFA (Hu, & Bentler, 1999; Iacobucci, 2010).

Table. 2 The recommended and actual values of fit indices for CFA

Fit indices	χ^2/df	CFI	GFI	AGFI	NFI	NNFI	RMSEA
Recommended value	<3	>.90	>.90	>.80	>.90	>.90	<.08
Actual value	2.06	.947	.880	.848	.903	.948	.058

Source: *Own result of confirmatory analysis in AMOS 23*

Applying Harman's single factor score method, the Likert-scale was tested for common method bias (CMB). As a result, the total variance explained by a single factor was not

greater than 21.4% which is much lower than the upper limit 50% for existence CMB problem (Natarajan, et al., 2017).

Table. 3 Validation of final measurement model, reliability and convergent validity

Factors 1-7	Item	Factor 1-7							CFA	AL	AVE	CR	CA
		1	2	3	4	5	6	7					
	AttiGd3	**.94**	-.06	.00	-.01	.01	.02	.01	.95	.87	.77	.93	.92
	AttiIn2	**.92**	.00	.00	-.04	.00	.04	.02	.94				
	AttiOv4	**.90**	-.04	-.04	.02	.02	.01	-.01	.90				
Attitude 1	**AttiDe1**	**.72**	.11	.07	.06	-.06	-.09	-.02	.68				
	EasL2	.02	**.96**	-.06	-.03	.05	.04	-.02	.93	.83	.69	.90	.89
	EasR4	.04	**.93**	-.02	.00	.05	-.02	.05	.93				
	EasI3	.02	**.83**	.06	.04	-.03	.01	.03	.87				
Ease of Use 2	**EasU1**	-.11	**.55**	.08	.06	-.13	-.04	-.05	.58				
	GovD3	.03	.01	**.89**	-.04	.08	-.03	-.04	.90	.81	.67	.89	.88
	GovR4	-.01	.05	**.89**	-.02	-.06	.06	.05	.89				
	GovI2	.00	-.02	**.87**	-.04	.04	.05	-.02	.87				
	GovE1	.01	-.02	**.60**	.09	-.05	-.11	-.01	.58				
	UseP3	-.04	-.07	.08	**.92**	-.02	.00	.03	.90	.78	.60	.85	.86
	UseC4	.01	-.03	.03	**.91**	.01	.01	.06	.90				
Government	**UseEf2**	.05	.08	-.10	**.66**	-.04	-.02	-.07	.67				
Support 3	**UseO5**	.01	.19	-.05	**.56**	.09	.03	-.05	.66				
	BIfu3	-.03	-.04	-.01	-.02	**.94**	-.02	-.02	.92	.88	.79	.92	.84
	BIco2	-.02	.05	-.02	.05	**.88**	-.01	-.01	.87				
Intention 5	**BIco4**	.02	-.03	.04	-.01	**.85**	-.02	.00	.85				
	SocSo3	-.03	.02	-.01	.01	.00	**.86**	-.01	.85	.75	.57	.84	.83
	SocImp2	.04	-.01	.04	.00	.02	**.82**	-.02	.83				
Social	**SocInf1**	-.01	.02	-.05	-.01	-.16	**.69**	-.05	.70				
Influence 6	**SocSo4**	-.01	-.03	-.01	.02	.14	**.64**	.10	.60				
	TrusPa2	-.03	.01	-.07	-.04	.02	-.02	**.93**	.89	.75	.69	.87	.86
	TrusP3	.00	.03	.02	.00	.00	-.01	**.82**	.83				
Trust 7	**TrusSe1**	.03	-.03	.04	.04	-.05	.01	**.74**	.74				
Eigenvalue		5.1	3.5	3.0	2.0	1.7	1.1	1.6					
Variance Explained		19.7	13.6	11.6	7.6	6.6	4.3	6.2					

Source**:** Exploratory factor analysis SPSS, CFA in AMOS, and Excel calculation of AL, AVE, CR, CA.
Note: CFA is Standardized item loading of Confirmatory Factor analysis, AL is Average Loading, AVE is Average Variance Extracted, CR is Composite Reliability, and CR is Cronbach's Alpha.

Results of the CFA indicates that all items are loaded significantly (p<.001) to their hypothesized factors. As an evidence of convergent validity, Table 3, column CFA, shows standardized loading (0.58) which is greater than the minimum threshold (0.50) required to satisfy convergent validity (Hu, & Bentler, 1999; Peterson 2000 quoting Hair, Anderson, Tatham and Black, 1998). Besides, the average loading (AL) per factor depicts values greater than 0.70, supporting convergent validity (Hair et al., 1995). Average variance explained (AVE) for all factors have also resulted above the minimum (0.50) suggested by (Fornell & Larcker, 1981) to assume convergent validity.

Correlation analysis has been conducted in order to further assure validity of the constructs as follow.

Correlation analysis

Relationship among the constructs was examined using Pearson correlation analysis (see Table 4). Since the correlations coefficients are ranged from 0.01 to 0.58, no sever multicollinearity concern was found exceeding the value of 0.60 (Hair *et al*., 1998). Besides, no Variance Inflation Factor (VIF) above the concern level of (2.5) was recorded in the study (Ho, 2006) exposing to multicollinearity (see Table 4).

As an evidence of discriminant validity, no pairs that have correlation coefficient greater than .70 is seen in the factor correlation matrix (Anderson & Gerbing, 1988). Indicating a sufficient discriminant validity, the square root of AVE displayed diagonally in the correlation matrix (see Table 4) portrays larger value than the correlation coefficient among other factors (Campbell, Donald &Fiske 1959; Fornell &Larcker, 1981; Zhou, 2012).

Table. 4 A square root of AVE diagonal, factor correlation coefficient stated left of the diagonal

Construct	Skew	VIF	1	2	3	4	5	6	7
Attitude (1)	-.53	1.14	**.88**						
Ease of Use (2)	.50	1.17	.04	**.83**					
Government Support (3)	-.45	1.59	.06	.29**	**.82**				
Usefulness (4)	.47	1.11	.04	.60**	.27	**.78**			
Intention to Use (5)	-1.30	NA	.05	.01	.25**	.10	**.89**		
Social Influence (6)	-1.26	1.61	.33**	.12	.20**	.17*	.34**	**.76**	
Trust (7)	.25	1.16	.21**	.10	.19**	.12	.25**	.19**	**.83**

Source: Calculated in Master Validity Tool, AMOS Plug-in (Gaskin 2016)
Note: the notations *, ** and *** denote correlation is significant at 10%, at 5% and 1% level (two-tailed) respectively and all result rounded to 2 digits after zero.

Normality test using skewness indicates that distribution of the factors are approximately symmetric except in the case intention-to-use and social-influence (Ho, 2006; Harman, 1976 cited in Natarajan, et al., 2017). No curvilinear was observed in the scatter plot showing test for linearity. This, according to (Ho, 2006) permits using of linear regression analysis for the study.

V. REGRESSION RESULT

After satisfying major assumptions, examining the relationship between six mobile banking adoption factors and individual's intention to use the` service, was conducted in a multiple regression analysis using. Regression analysis is assumed to be better statistical technique that can be used to analyze such associations Hair et al., (2005) cited in (Yee-Loong et al., 2010). The composite scores used in this regression analysis were computed through data imputation method found in AMOS.

Table 4, shows R value of 0.438 and R^2-value of 0.192. The R^2-value indicates that 19.2 percent of variation in users' intention to use mobile banking can be explained due to a variation in the significant factors of the model. Showing support to prior results, explaining power of the model (R^2= 19.2%) lies in the range of R^2s extended from 17 to 53 percent (Venkatesh, et al., 2003).

Table. 4 The effect of Variables on Mobile banking adoption, standardized regression weight

Dependent Variable	Independent Variables	Standardised Coefficient (Beta)	Hypothesis	Result
Intention to Adopt Mobile Banking	Attitude	-.09*	H_1	Rejected
	Social Influence	.31***	H_2	Supported
	Usefulness	.06	H_3	Rejected
	Ease of Use	-.14**	H_4	Rejected
	Government Support	.17**	H_5	Supported
	Trust on M-banking	.20***	H_6	Supported
	R	.438 ***		
	R^2	.192 ***		
	*R in stepwise regression	.416***		
	*R^2 in stepwise regression	.173***		

Note: * Correlation is significant at the 0.05 level (two-tailed); ** correlation is significant at the 0.01 level (two-tailed)
*R and *R^2 are the R and R^2 value explained only by three significant factors (Social Influence, Trust, Government Support)
Source: *Own calculation in SPSS*

Stepwise regression analysis has also been conducted so that contribution of each constructs to the model is identified separately. The result thereof indicates 17.3 % (see Table 4) of variation in users' intention is explained by three factors (social influence, trust and government support). This shows that the contribution recorded for ease-of-use and attitude is relatively low (R^2 0.192 - R^2 0.173= .19).

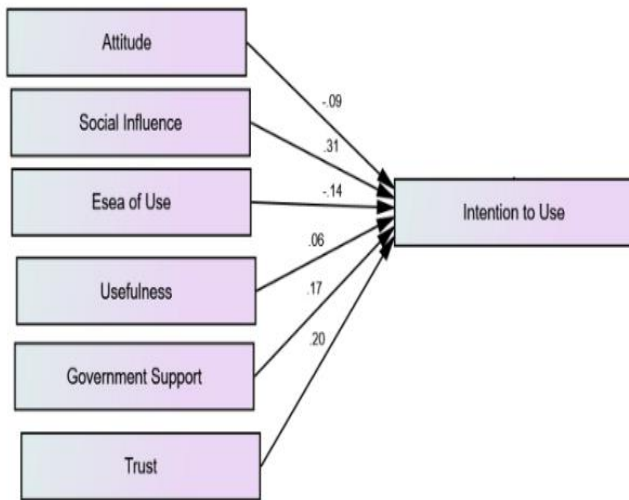The model depicted hereunder in figure 2 is identical to the result in table 4.

Fig. 2 Regression result of imputed constructs

Source: *Own regression result using AMOS 23*

As demonstrated in Table 4, there are three variables in the model supporting their respected hypothesis; while three did not. Three positive and two negative variables having significant relations with users' intention to use mobile banking. One variable i.e. usefulness however, was not found significant. Hence H3 was rejected due to low (β= .06) standardized weight; while ease-of-use (H4 β= -0.14, $p < 0.01$) and attitude (H1 β= -0.09, $p < 0.05$) were rejected due to variation from hypothesized positive expectation.

The three constructs supporting hypotheses, are H5 government-support, (β= 0.17, $p < 0.01$); H6 trust on mobile banking (β= 0.20, $p < 0.001$); and H2 social-influence, (β= 0.31, $p < 0.001$). These alone have R value 0.416 which is more than 94% of (R 0.438/R 0.416) the R value explained in the whole model (see Table 4). Detail discussion of the finding is presented in the subsequent part of this article.

VI. DISCUSSION OF RESULTS

Attitude: The expectation based on prior studies was the better attitude the customers have toward mobile banking the greater will be their intention to adopt it (Ajzen, 1985; Yang, 2005; Aboelmaged & Gebba, 2013; Shaikh, & Karjaluoto, 2015; Groß, 2018; Gupta, & Arora, 2017). Nevertheless, attitude as depicted in Table 4, shows significant (β= -.09*), but unexpected negative coefficient. Prior studies found attitude either positive and significant or insignificant predictor of intention to use. *Affect toward use* based on MPCU, and *Affect* based on SCT, which were considered by Venkatesh et al., (2003) as equivalent constructs for *Attitude*, show insignificant and low (β< 0.05) beta values. Hence Except for the negative sign recorded in this study (β= -0.09), the coefficient recorded in this study was comparable with the findings reported in (Venkatesh et al., 2003). Hence, since the model shows poor and negative

regression weight the strange result might be due to either poor data quality that needs further explanation.

Social Influence: Social influence in this study indicates the degree to which people believe that important persons or the community around them have influence on their decision to use a new system or technology. With its different names (subjective norm, intrinsic motivation, social factors and image), social influence according to (Venkatesh, et al., 2003) shows mixed results. However, under certain condition, social influence portrayed positive and significant effect on users' intention to adopt a system. Result of this study is the supporting the mandatory setting case of Venkatesh's, et al., (2003) study.

The standardized regression weight as portrayed in figure 2 or Table 4 indicates social influence have positive and (β = 31***) moderate effect on the peoples' intention to use mobile banking. Out of the total variance explained (19.2%) in the model, more than 11% (i.e. R^2 = 0.113 taken from stepwise regression) is explained by social influence.

Value of social influence in such a tribal community is apparently expected to play a larger role in directing their decision. Because they lead communal life style, mostly, in extended family with shared economic as well as social decisions. Moreover, people in Afar region, have great respect to their traditional administration (Kassa, 1997; Reda, 2014). Hence if clan leaders or any other influential persons, give them advice to use or they see one of their leaders are using new things, they tend more to use it. This is similar to what (Im, et al., 2011) found that impact of social influence is greater in less individualistic culture than the other way. Because, knowing a new technology from whom they believe is more trust worthier than being informed from advertisement.

Usefulness: Despite the fact that several studies found usefulness as a strong predictor of intention-to-use a system/technology Venkatesh, et al., (2003); Venkatesh, & Bala, (2008); Brown, et al (2012); Agrebi, & Jallais, (2015), there are still some like Aboelmaged & Gebba, (2013) found it insignificant. Surprisingly, usefulness in this study emerged supporting the rare case of abulemaged's finding in United Arab Emirate case of students.

Thus, the insignificant finding here, supported with Aboelmaged 's result leads to a more flexible view of usefulness's role in predicting intention to use. Usefulness, according to Venkatesh et al., (2003) was considered as the most established construct which can predict intention to use, at any form of models and theories. Nonetheless, the argument saying: "people perceiving mobile banking as useful system will have an intention to adopt mobile banking" will no longer be considered as always working argument.

Perceived ease of use: Predicting users' intention to use a system with most of the substitute constructs (like Ease of use, complexity, Effort expectancy, Self-efficacy and perceived ease of use), portrayed significant and positive results (Venkatesh et al., 2003). Contrary to these the finding in Table 4 demonstrates significant but negative signed (β= -0.14, p<.05) result. Further, after applying stepwise regression analysis, to separate explaining power of

individual constructs, the construct 'Ease of use' no longer became a significant predictor of users' intention to use mobile banking.

Despite its deviation from majority of prior findings, it pays supports to Yee-Loong's et al., (2010) finding that depicted unexpected negative coefficient (β= -0.156) just similar to this study. Furthermore, Venkatesh et al., (2003), when they test moderation effect of experience between perceived ease of use and user intention to use, in the case of TAM2, it shows negative and significant value. This result leads to a conclusion that strong predictors in some regions might not stay strong throughout all regions with different cultures.

Government Support as was utilized to predict user intention to adopt a system in previous studies, it was included in this study to estimate intention. Accordingly, the researcher found government-support supporting the hypothesis (H_5) significantly (β=0.17 at p<.01), and is found concurrent with prior findings like (Jaruwachirathanakul & Fink, 2005; Yee-Loong et al 2010). This result indicates, intention to use mobile banking in Afar regional state could be predicted with users' perception about government-support to the service.

Governments is assumed to maintain security of internet and mobile related transaction by investing in information system. Hence, users assuming existence of government support in mobile banking service might feel more secured and will have confidence to use mobile banking. This shows government support have some connection with trust in addition to the facility and infrastructure issues.

Trust: The hypothesis saying: "People having trust on security of Mobile banking will have intention to adopt mobile banking" was supported in this study. Next to the construct social influence, trust showed higher, significant and positive standardized beta value (β=0.20 at p<001). This positive beta weight indicates that people who have trust on mobile banking are also willing to adopt it. Hence, the construct trust can be taken as a predictor of users' intention to use mobile banking in the study area. In this regard, the finding supports the side of researchers (Yee-Loong et al 2010; Alafeef, et al., 2011; Hanafizadeh, et al., 2014; Shaikh, &Karjaluoto, 2015; Illia, et al., 2015…) who reported trust as a predictor of intention to use a system/technology.

Despite the risk and uncertainty posed in electronic transactions, as stated in Pavlou, (2003); and Luo, Zhang, & Shim, (2010) the result shows, bank users in Afar region have trust on mobile banking scheme. From the very nature of clan based community which have developed their own risk sharing culture, it is apparent that they might not have a fear on possible future financial risk. Hence the result might be related to their trust and confidence on the risk sharing culture of the pastoral community.

VII.CONCLUSION AND IMPLICATION

Constructs predicting users' intention to use mobile banking in this study have portrayed, forming a new group of important constructs. These group of constructs depicting significant and positive relation with intention to use mobile banking are, related in one or another, to "trust". Trust,

social influence, and government support were the positive and significant predictors of users' intention to use mobile banking.

The relation of the construct "social influence" with the construct of "intention to use mobile banking" can be seen from the nature and characteristics of the social influence embedded in the pastoral dominated Afar society. The society have a great respect and trust for elders and clan leaders. Even for government authorities to undertake any governmental programs, they need to discuss and convince the clan leaders and influential stake holders in the pastoral state. Hence result of this study indicates if bank users in the region have get consent, advise, order, reputation and increased status from their elders, clan leaders or other influential people around them, they tend to use mobile banking technology.

The other construct found positive and significant antecedent of intention to use mobile banking in this study was "Trust". This construct portrayed positive relation with intention to use mobile baking. This indicates if bank users have confidence that no risk will be created to their transaction due to using mobile banking, it is plausible they will be ready to use the service. These result may lead readers to ask if social influence have some relation in increasing trust of users to adopt mobile banking service.

The third construct found significant predictor of users' intention to use mobile banking in this study was government support. This construct was composed of the roles a government can play in promoting and driving the mobile banking service: regulating and implementing good laws to the service and fulfilling sufficient facility and related infrastructure.

Since this construct is conceptualized partly from security related items, questions might be raised regarding relation it might has with "Trust". Did its trust or facility part play more, in creating relation with intention to use.

Generally, predicting users' intention to use mobile banking in such a region with its own particular culture, using constructs of only TAM for instance, may give miss leading picture of prediction. Because, variables considered positive and strong predictors in previous studies appeared here to be either negative or insignificant. Usefulness, one of the most utilized factors in technology acceptance, for instance, manifest a result against most of previous studies. Besides, attitude and ease-of-use emerged, in unpredicted manner, to be negative and weak factors of determining the acceptance study.

On the other hand, constructs previously known for their mixed results such as social influence trust and government support became positive predictors of intention to use mobile banking. Social influence studied mostly as subjective norm come out with positive and moderate prediction coefficient of intention to use mobile banking. Trust and government support have also demonstrated positive prediction result. The congruence in sign and effect of all these three constructs (social influence, trust and government support) leads to somehow new perspective of studying relationship within these constructs themselves in predicting intention to use mobile banking.

Result of this study is supposed to contribute somehow in furthering the existing acceptance literature in terms of introducing new cultural and demographic settings. Apart from possible sampling and estimating errors which might have affected robustness of the result, it is plausible to make conclusion about the role that this study may contribute in the field of technology acceptance practices, theories.

Being the study was made in clan based pastoral dominated region, it emerged with some strange results. The results formed somehow different group of significant predicting constructs. This in turn may have role in adding new perspective to the existing mobile banking acceptance literature.

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APPENDIX

Table. 5 Variables and Item Description with reliability and CR alpha results

	Constructs and Items Measuring Each Constructs	Code	Adopted with some modification from:
1	**Dependent Variable (1)** **Intention to use the mobile banking**	**Behavioural Intention**	Venkatesh, et al (2003) Venkatesh, et al (2008) Yee-Loong et al 2010) Venkatesh, et al (2012) extended
	Assuming that I would have access to mobile banking, I intent to use them	BIac1	>>
	I intend to use mobile banking if the cost and times is reasonable for me	BIcos2	>>
	I predict I would use the mobile banking in the future	BIfu3	>>
	I plan to continue to use mobile banking	BIcon4	>>
2	**In Dependent Variables (6)** **Attitude toward using mobile banking**	**Attitude**	Venkatesh, et al (2003)
	In my opinion it is desirable to use Mobile banking	AttiDe1	Kalu, Nwanosike, and Ogbuabor, (2017)
	I think using mobile banking makes works more interesting.	AttiIn2	Venkatesh, et al (2003)
	I think it is good for me to use Mobile banking.	AttiGd3	Kalu, et al (2017)
	Overall, my attitude towards Mobile banking is favourable	AttiOv4	Kalu, et al (2017)
3	**Social influence and need for social status**	**Social Influence**	Venkatesh, et al (2003)
	People who influence my behaviour think that I should use the mobile banking.	SocInf1	Venkatesh, et al (2003) Venkatesh, et al (2008)
	People who are important to me think that I should use the mobile banking.	SocImp2	>>
	By using Mobile banking, I give a modern impression of myself to other people	SocSo3	Kalu, et al (2017)
	By using Mobile banking, I stand out of ordinary people who use traditional	SocSo4	Kalu, et al (2017)
4	**Individuals Perceived usefulness** about adopting mobile banking	**Perceived usefulness**	TAM (Yee-Loong et al 2010) Venkatesh, et al (2012) extended UTAUT TAM (Yee-Loong et al 2010)
	I believe Mobile banking makes conducting banking transactions easier for me	UseE1	>>
	I believe Mobile banking allows me to manage my finances more efficiently	UseEf2	>>
	I believe Mobile banking increases my productivity	UseP3	>>
	I believe Mobile banking will made communications with banks much easier	UseC4	>>
	Overall, I believe Mobile banking is more useful than traditional ways of banking	UseO5	>>
5	**Individuals' Perceived ease of use about mobile banking**	**Perceived ease of use**	TAM (Yee-Loong et al 2010) Venkatesh, et al (2012) extended UTAUT TAM (Yee-Loong et al 2010)
	I would find mobile banking is easy to use	EasU1	TAM (Yee-Loong et al 2010)
	Learning to use Mobile banking would be easy for me	EasL2	
	My interaction with mobile banking would be clear and understandable	EasI3	
	It would be easy for me to remember how to perform task with mobile banking	EasR4	
	It would be easy to get mobile Banking to do what I want it to do	EasA5	
6	**Perceive Government support to mobile banking service provision**	**Government Support**	(Yee-Loong et al 2010)
	Government encourages and promotes the usage of mobile banking	GovE1	>>

	The mobile banking infrastructure and facilities such as network is sufficient	GovI2	>>
	The government is driving the development of mobile banking	GovD3	>>
	The government has good regulations and laws for mobile banking	GovR4	>>
7	**Perceive Trust of individuals towards using Mobile banking**	**Trust**	TAM (Yee-Loong et al 2010) Kalu, et al (2017)
	I trust that transaction made through mobile banking is secure	TrusSe1	>>
	I trust payments made through mobile banking channel will be processed securely	TrusPa2	>>
	I believe my personal information on Internet banking will be kept confidential and Private	TrusP3	>>