Determinants of Mobile Payment Adoption by Merchants in Ethiopia

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Abstract

Nowadays the world witnessed a rapid growth in mobile commerce and the widespread use of mobile devices. The growth of mobile commerce depends on widely accepted mobile payment systems. However, this trend is not well experienced in developing countries like Ethiopia. Even though merchants somehow benefited from the rapid growth in electronic commerce and the use of mobile devices in e-commerce, they still hesitate to effectively employ in their day-to-day transactions. Little research has been conducted to examine and explain the merchants' views on the new payment technology. In this paper, we explore the factors that affect merchants' adoption of mobile payment in Ethiopia. The result suggests that relative advantage, ease of use, usefulness, attitude, trust, risk/security, and cost are factors that affect mobile payment adoption positively and significantly. Whereas compatibility is found not significant for merchants' adoption of mobile payment systems in the Ethiopian context. Based on the findings, the study proposes a conceptual model for mobile payment adoption to guide practice and future research in this emerging area.

***Keywords**:* Mobile payment, Mobile payment adoption, CBEBirr, M-Birr, Technology Acceptance Model

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1. INTRODUCTION

People carry out transactions by using physical money in the form of coins and bills for so long and still significantly rely on it throughout the world and still more in the developing world (Finance Monthly, 2017; Kiong *et al.*, 2022). Since the diffusion of IT, people have the comfort of choosing how to carry out payment transactions using IT instruments and services like mobile phones, credit cards, and so on. Mobile payment is a two-sided market, where retailers or merchants accepting mobile payments represent one side, and customers using the service another (Apanasevic, 2013; Abrahão *et al.*, 2016). These days, mobile payment systems are becoming an important payment mode for today's businesses (Dahlberg *et al.*, 2008; Wrobel-Konior, 2016) and have lots of advantages over other technologies, such as interacting with anybody anywhere, being in use independently, customized information and services, and getting quick answers from users (Coursaris & Hassanein, 2002; Dastan, 2016). It is also much less expensive than opening bank branches especially in rural areas (Pidugu, 2015; Wijayanthi, 2019). Mobile phones are providing an extraordinary opportunity for expansion of financial activity in developing countries where the number of phone users exceed the number of those having bank accounts (Nurhussen, 2016).

Merchants are vital stakeholders in that their adoption or expansion of mobile payment services is a pivotal determining factor for the mobile payment environment (Pidugu, 2015; The Star, 2019). Merchants play a dual role in the mobile payment ecosystem. From the consumers' perspective, merchants are service providers as well as merchants themselves being consumers of the service providers like banks and mobile operators as they pay for the system mostly (ISACA, 2011; Taheam *et al.*, 2016; Su *et al.*, 2018). Regardless of the possible benefits of merchant adoption of mobile payment, merchants still hesitate to employ mobile payment in their transactions, making the penetration of merchant adoption of mobile payment relatively low compared to other recent forms of cashless, noncontact payment modes, such as credit cards and e-payment systems.

In line with this, there is still a poor cashless payment mechanism in Ethiopia, especially among people in rural areas and young people without a bank account (Mothobi & Grzybowski, 2017). In 2017, for instance, out of total utility bills paying Ethiopian customers, 99 percent were paid using cash only, whereas the corresponding figure was only 12 percent in Kenya, 27 percent in

Tanzania, and 59 percent in Sub-Saharan Africa on average (Demirguc-Kunt *et al.*, 2018). At the same time, out of total Ethiopian wage recipients, only 0.2 percent received through a mobile phone, compared to 37 percent in Kenya, 24 percent in Tanzania, and 19 percent in Sub-Saharan Africa on average (Demirguc-Kunt *et al.*, 2018). Due to this, the National Bank of Ethiopia is spending more money on availing hard currency through printing, shipping, distributing for commercial banks and then collecting when the money is out of use due to worn-out and destruction of the worn-out cash money. As well there is limited access to quicker and easier, compatible and integrated payment solutions with existing infrastructure, reliable, secure and trusted service for merchants to deliver. With the existing cash-based means of exchange of goods and services, the merchant is exposed to cash theft and consuming time to deposit in banks. Adopting mobile payment by merchants enables them to have anywhere and anytime payment for services and goods via mobile devices.

Without merchants adopting mobile payment systems, there will not be consumers using mobile payment services or mobile payment systems. Besides, there is a gap between academic research and industrial practice in understanding the merchant perspective on, and experience of, mobile payment systems despite more than a decade of research into mobile payments (Niina & Kristiina, 2008; Pidugu, 2015; Dahlberg *et al.*, 2014). This gap demands a theoretical understanding to discover factors for mobile payment adoption by merchants and to incite deeper understanding and deliver a theoretical explanation of how the adoption of mobile payment enhances the payment experience of merchants. Explaining these gaps in the literature will help both researchers and experts to appreciate the key factors that could affect merchants in adopting mobile payments in their business transactions in Ethiopia in order to make an appropriate model by sampling CBE Birr and M-birr. The rest of the paper is organized as follows: The next section reviews the literature on merchants' mobile payments adoption, the third section presents the theoretical model guiding the study; the section that follows details the methodology employed. Consequently, the findings are analyzed and discussions of the findings are presented. Finally, discuss the implications of the findings.

2. REVIEW OF RELATED WORKS

Scholars reveal that research on electronic payment has been more focused on internet banking and mobile banking (Eisennman *et al.*, 2006; Dahlberg *et al.*,

2014; ÖRS, 2018). Mobile payments, performing as a platform providing different mobile services, serve and bring together two groups of users: retailers or merchants from one side and customers from another side. These two different groups are linked to each other by the network effect phenomenon and represent a two-sided market (Eisennman *et al.*, 2006).

Niina & Kristiina (2008) explored merchant adoption of mobile payment systems by examining empirically and discussing factors that drive and inhibit the adoption of mobile payment by merchants in Finland. Their results suggest that the main adoption drivers are related to the means of increasing sales or reducing the costs of payment processing, while the barriers to adoption include the complexity of the systems, unfavorable revenue sharing models, lack of critical mass, and lack of standardization. Richard *et al*. (2019), in a recent study, found the drivers and barriers of mobile payment adoption by merchants and provided a theoretical explanation of how the adoption of mobile payment improves the payment experience of merchants. The study adopted an exploratory approach by using the case study of two merchants in the retail sector in Ghana. The findings demonstrate that, in Ghana, the business model and nature of the business, contextual factors, and technology type, as well as competition and cost, serve as drivers of merchant adoption of mobile payment. On the other hand, factors such as risk, legal challenges, lack of trust, and lack of skills on the part of some merchants to comprehend mobile payment applications were classified as barriers to mobile payment adoption in Ghana.

Alm *et al.* (2022) in their part argue that the mass adoption of mobile payments will only be triggered when the benefits – both perceived and real - become clear to consumers and merchants. Because mobile payments are still relatively new, the benefits largely pertain to the perceived potential until the service is adopted widely and the benefits accrue to everyone (ControlScan, 2013). Mohammadi and Jahanshahi (2008) established a framework for evaluating the barriers and drivers of the customer and merchant adoption of mobile payments. Accordingly, the distinct four categories of barriers to merchant adoption: relative advantage, compatibility, complexity, and costs. Network externalities and security and trustworthiness of mobile payments were also considered relevant factors in mobile payment adoption.

There are a limited number of studies conducted in Ethiopia on the adoption of e-payment specifically on mobile payment adoption. Wondwossen & Tsegai (2005) studied the challenges and opportunities of e-payments in Ethiopia and

found that the main obstacles to the development of E-payments are lack of customer trust in the initiatives, unavailability of payment laws and regulations, particularly for e-payment, lack of skilled manpower and frequent power disruption. Furthermore, Bezaalem (2019) examines the factors affecting customers' adoption of mobile payments with a special focus on the customers of Commercial Bank of Ethiopia, Dashen Bank, and M-Birr. Hence, local studies focused either on the e-payment aspect in general or on customers' adoption aspect of mobile payment and did not explore the factors affecting mobile payment adoption by merchants in Ethiopia.

2.1 Theoretical model

Several models and theories have been proposed to study the adoption of technology. This study adopted a research model by ÖRS (2018). The adopted model is built based on the most frequently used constructs affecting the latent variable in the mobile payment system. The variables reflected in this model are usefulness, ease of use, security, cost, compatibility, social influence, enjoyment, anxiety, Knowledge, and innovativeness. Thus, this study reviewed different models and pick this model since it is found the best fit for the study objective.

2.2 Research hypothesis

1) Ease of uses

Ease of use is defined as the degree to which a person believes that using a particular system would be free from the difficulty that is, utilizing a specific technology (like mobile payment) would be free of physical and mental exertion (Davis, 1989; Abrahão *et al.*, 2016). The complexity of innovation was negatively related to their rate of adoption

H1: Ease of use has a positive effect on attitude towards the adoption of mobile payment technology.

2) Usefulness

Usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989). Perceived usefulness explains the user's recognition that the interactive mobile payment adoption will enhance their task performance in the purchase of goods and mobile cash (Cudjoe *et al.*, 2015).

H2: Usefulness of the use of mobile payments has a positive effect on attitude towards the adoption of mobile payment technology.

3) Relative Advantage

Relative advantage is to express to what extent the new technology or product is perceived as better than the existing product. In relative advantage, there are a number of sub-dimensions like the degree of economic profitability, low initial cost, a decrease in discomfort, savings in time and effort, and the immediacy of the reward (Dahlberg *et al.*, 2015; Albuquerque *et al.*, 2016). The relative advantage of an innovation generally, as perceived by members of the social system, is positively related to its rate of adoption (Rogers, 1995; Abrahão *et al.*, 2016). The potential adopters can gain an economic and social advantage if innovation is undoubtedly advantageous (Rogers, 1995).

H3: The relative advantage of using mobile payment has a positive effect on attitude towards the adoption of mobile payment technology.

4) Compatibility

Compatibility indicates the degree in which the technology service is perceived as consistent with socio-cultural values and beliefs; with the previous and present ideas; and with client needs of innovation (Rogers, 1995). Using mobile payment systems only require understanding operation procedures and application areas, and it does not change users' behavior with payment activities (Cudjoe, et al., 2015).

H4: Compatibility of mobile payment systems has a positive effect on the attitude towards the adoption of mobile payment technology.

5) Trust

Due to the inherent nature of mobile payments, trust is believed to influence directly or indirectly the intention of adoption and acceptance of mobile payments because mobile services are exposed to various uncertainties and uncontrollable consequences (Aithal, 2016; Sarder, 2016). Loss and theft of mobile devices result in identity theft inconveniences such as frustration and unavailability of mobile payment services caused by network failure, and data pilfering attacks, to name just a few examples (Mallat & Kristiina, 2005).

H5: The perceived trust of using mobile payments has a positive effect on the attitude toward the adoption of mobile payment technology.

6) Risk

Perceived risk in consumer adoption intention of financial technology has three important dimensions: security, privacy, and monetary and it can be used by merchants as well. Perceived privacy risk is defined as the possibility that inline businesses might use personal information inappropriately invading consumer's privacy with mobile payment consumers authorize the retailer to use their personal information and gain access to their bank account (Featherman & Pavlou, 2003; Olivia, 2018), Perceived financial risk refers to users' perception about the possible monetary loss caused by the usage of mobile payment (Featherman & Pavlou, 2003; Abrahão *et al.*, 2016). The transfer of money between accounts in mobile payment may raise great concern about financial information, such as accounts and passwords being stolen and the subsequent risk of losing money.

H6: Perceived risk has a positive effect on trust to use of mobile payment technology.

7) Attitude

Attitude is defined as an individual's positive or negative evaluation of new technology adoption of acceptance. Attitude toward adoption is the cognitive process that depicts the prospective adopter's affection for adopting new technology (Fishbein, 1979; Aithal, 2016). Attitude toward adoption is hypothesized in different beliefs perceived ease of use, perceived usefulness, relative advantage, and compatibility. Attitudes are described as the sum of beliefs attributed to a particular behavior (Aithal, 2016; Nag, 2018).

H7: Attitudes towards mobile payment systems has a positive effect on the adoption of mobile payment technology.

8) Cost

Within the context of mobile payment technologies, the cost could be defined as the amount of money that has to be spent on the usage of mobile payment technologies and/or required tools to acquire related technology (Aithal, 2016; ÖRS, 2018).

H8: Cost of mobile payment systems has a negative effect on the adoption of mobile payment technology.

3. RESEARCH DESIGN

An empirical quantitative research approach is employed to assess factors affecting mobile payment adoption. The research followed a cross-sectional survey study design as it is conducted within a specified period and place to explore factors that affect merchants' mobile payment adoption.

3.1 Study population and sampling

As of the end of May 2019, the number of business users or merchants for the mobile payment system of CBE is 4,756 that of M-Birr put up at 1,309. Thus, the total number of mobile payment accounts of consumer users in the two selected companies was 6,065. Selecting only registered merchants from Addis Ababa and around is because there are a lot of merchants in the area so including everyone in the population may take too long. In order to determine the sample size, the researchers used the formula recommended by (Yamane, 1967).

$$n = \frac{N}{1 + N * e^2}$$

Where,

- n is a sample size
- N is a total population
- e2 is a probability of an error

Thus, the sample size for this study is determined as follows:

$$n = \frac{6{,}065}{1 + 6{,}065 * 0.5^2}$$

n= 376

Since this research is aimed to identify and analyze factors for merchants' adoption of mobile payments in Ethiopia, considering all mobile payment service providers in the country would have been better. However, due to time and resource constraints, only two service providers were randomly selected: CBE Birr and M-birr. To make sure the manageability of the research process and guarantee the achievement of a reliable outcome, a simple random sampling technique was used for the selection of banks. Populations of the study which are merchants of mobile payment users at the specified companies are chosen with a systematic random sampling method.

Two mobile payment system providers have been selected from the available providers randomly. These organizations were government bank (CBE-Birr) and non-bank (M-birr) and registered (active as well as non-active), mobile payment users, as merchants in Addis Ababa and Oromia special zone, surrounding Addis Ababa. In addition, study participants at the specified companies were chosen with a systematic random sampling method (Singh & Masuku, 2014).

Closed-ended questionnaires were used as a primary data collection. The variables and the corresponding item measurements of the questionnaire are adopted from ÖRS (2018) for mobile payment systems. After the data was collected the proportion of valid questionnaires that are returned were 201 from CBE-Birr merchants and 162 from M-birr merchants.

3.2 Data Analysis Method

Out of 376 questionnaires that have been distributed to merchants, 363 valid questionnaires were collected and used for data analysis. Descriptive analysis has been conducted to analyze the demographic data of respondents using SPSS version 20. Structural Equation Modeling (SEM) using Partial Least Squares (PLS) version 2 has been used for path coefficient modeling due to its capability of testing the effects of several interaction items.

4. RESULT AND DISCUSSION

Based on the demographics and other personal background information obtained, 44.6% of the participants comprise of the age group of 18 to 30. And also most of the participants (71.3%) have 1-3 years of experience using mobile payment.

4.1 Internal Consistency Reliability (ICR)

Reliability concerns the extent to which a measurement of a phenomenon provides a stable and consistent result (Heale & Twycross, 2015). According to Heale and Twycross (2015), reliability is also concerned with repeatability under constant conditions. Testing for reliability is important as it refers to the consistency across the parts of a measuring instrument. Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items is as a group. In this study, the reliability test used as an internal consistency measure is Cronbach's Alpha coefficient with a cutoff value of 0.6 and Composite Reliability with a cutoff value of 0.7 as recommended (Fornell & Larcker,

1981). Cronbach's alpha (α) is commonly used in social and behavioral sciences to measure ICRs that range alpha values from 0 (completely unreliable) to 1 (completely reliable). However, it is blamed to provide a conservative measurement in PLS since it assumes all indicators are equally reliable. In contrast, PLS prioritizes indicators according to their reliability, resulting in a more reliable measure called composite reliability. Hence, ICR is basically measured using composite reliability in this study.

According to Fornell & Larcker (1981) and Wong (2013), ICR values larger than 0.7 are desirable to assure strong internal consistency reliability. In the measurement model, composite reliability ranged from 0.867 to 0.895 and Cronbach's alpha range of 0.701 to 0.843. Therefore, high levels of internal consistency and reliability have been demonstrated among all reflective latent variables. Outer loadings for indicators of reflective variables show individual indicators' reliability. The reflective variables are more than the minimum acceptable value of 0.7 (Table 1).

Table 1. Composite Reliability and Cronbach's α values

Factors	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Adoption/Actual use of Mobile Payment	0.701	0.870	0.770
Attitude	0.843	0.895	0.680
Cost	0.769	0.867	0.684
Compatibility	0.754	0.891	0.803
Ease of use	0.790	0.877	0.704
Relative Advantage	0.775	0.869	0.689
Risk/Security	0.791	0.877	0.705
Trust	0.831	0.888	0.664
Usefulness	0.840	0.895	0.681

Table 1. Composite reliability, Cronbach's α values, and AVE

Convergent Validity (AVE)

The two most common construct validity measures are convergent validity and discriminant validity (Wong, 2013). According to Fornell & Larcker (1981), convergent validity involves the degree to which individual items reflecting a variable converge in comparison to items measuring different variables. A commonly applied criterion of convergent validity is the Average Variance Extracted (AVE) which reflects the average commonality for each latent factor in a reflective model. Besides, AVE values should be greater than 0.5 that confirms at least half the variance of indicators is explained by the respective factor (Wong, 2013; Fornell & Larcker, 1981). Table 2 shows that all values of AVEs were greater than the threshold value. Each factor surpasses the value of 0.5 showing that model validity is established convergent validity is confirmed. (Henseler, Hubona, & Ray, 2016; Wong, 2013; Chen, et al., 2019).

Discriminant Validity

Discriminant validity is another means of assuring construct validity. While convergent validity involves the degree to which individual items reflecting a construct converge in comparison to items measuring different constructs, discriminant validity tests whether the items do not unintentionally measure something else (Fornell & Larcker, 1981; Mothobi & Grzybowski, 2017)). There are two common approaches to determining discriminant validity in PLS-SEM.

1. The square root of AVE is larger than the correlation between any pair of corresponding latent variables; discriminant validity is confirmed (Fornell & Larcker 1981; Cheung, 2019). The table below demonstrates that the square roots of AVEs (highlighted and bold on the diagonal) are larger than all the correlation values that confirm discriminant validity.

	MPA	MPA/U	MPC	MPCM	MPEU	MPR/S	MPRA	MPT
MPA	0.824							
MPA/U	0.869	0.877						
MPC	0.587	0.865	0.827					
MPCM	0.501	0.425	0.266	0.896				

MPEU	0.498	0.452	0.316	0.370	0.839			
MPR/S	0.459	0.391	0.257	0.389	0.659	0.839		
MPRA	0.688	0.619	0.470	0.477	0.491	0.489	0.830	
MPT	0.615	0.526	0.348	0.519	0.496	0.500	0.624	0.815
MPU	0.525	0.538	0.479	0.317	0.230	0.304	0.418	0.249

Table 2.Construct Discriminant validity Fornell-Larcker Criterion

b. Using cross-loadings. Cross-loadings are obtained by correlating the component scores of each latent variable with all other items. To assure discriminant validity, the loading of each indicator should be higher for its designated variable than or any of the other variables and each of the variables loads highest with its own items. The correlation of the latent variables scores with measurement items needs to show an appropriate pattern of loading, one in which the measurement item load highly on their theoretically assigned factor and not high on other factors. This can be identified by taking the cross-loading output from SmartPLS into the Excel sheet and using the conditional formatting to highlight all cell values greater than 0.6 (considering the lowest indicator reliability equals 0.754).

Structural model and Hypothesis Test

Path coefficient assessment

Path coefficients of a structural model can be interpreted as standardized beta (β) coefficients of ordinary least squares regressions to indicate the causal relationship direction and its strength. While the algebraic signs indicate the agreement between the initial theoretical assumption and the actual empirical result, the coefficient magnitude indicates how well the relationship is strong. The strength varied from -1 to 1 in where an absolute value closer to 1 indicates high strength while the value closer to 0 indicates weak relation. Moreover, the significance level of these β coefficients is very important to confirm the hypothetical relation. An accepted t-value equal to 1.96 is required to have a significant result at $p < .05$ (Wong, 2013; Fornell & Larcker, 1981; Henseler, Hubona, & Ray, 2016). If $p \leq 0.05$ (or alternatively absolute value of the t-value is less than 1.96) the hypothesis is accepted indicating the significance of the finding at least with a 95% level of confidence, otherwise it is not accepted. Both p-value and t-value justify the significance of relations: only relations possessing significant correlation should be taken into account. This study sets a limit to significance at 5%, thus, only relations exceeding 1.96 t-values (alternatively p-values of below or equal to 0.05) are considered

significant. A summary of path coefficients along with the t-value is presented in the table below to show whether the initially assumed relations are confirmed or not. Accordingly, all of the coefficients, except that of H4, are significant at the 5% significance level providing strong support for the hypothesized relationships. Based on the above parameter the results of the model analysis are presented in Table 3 below.

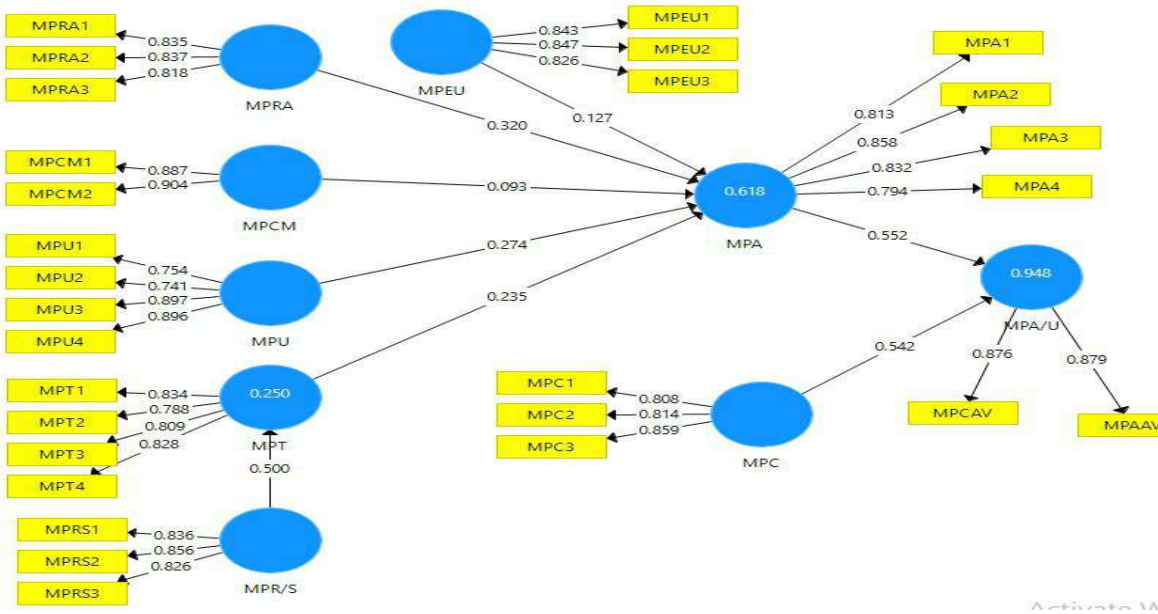

Figure 1. Combined Structural and Measurement Models

Mobile payment excessively impacted by cost and attitude towards the payment system. For this study, we use average cost value and average attitude to determine merchants' adoption and use of mobile payments. Hence, the attitude of merchants to adopt mobile payments is significantly impacted by usefulness, relative advantage, trust, and Ease of use, in their order of influencing strength as shown in table 3.

Hypothesis	Constructs	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Status
H1	MPEU -> MPA	0.127	0.127	0.038	3.383	0.001	Not Rejected
H2	MPU -> MPA	0.274	0.272	0.045	6.080	0.000	Not Rejected

H3	MPRA -> MPA	0.320	0.320	0.055	5.853	0.000	Not Rejected
H4	MPCM-> MPA	0.093	0.096	0.054	1.706	0.089	Rejected
H5	MPT -> MPA	0.235	0.235	0.045	5.251	0.000	Not Rejected
H6	MPR/S -> MPT	0.500	0.505	0.038	13.286	0.000	Not Rejected
H7	MPA ->MPA/U	0.552	0.552	0.014	38.085	0.000	Not Rejected
H8	MPC ->MPA/U	0.542	0.542	0.012	46.904	0.000	Not Rejected

Table 3. Path coefficients and T-values

Based on the analysis result, attitude (MPA) towards the adoption of Mobile payment is modeled as a function of MPRA, MPCM, MPEU, MPT, and MPU. From this, mobile payment Perceived ease of use (MPEU) was hypothesized to have a significant positive effect on merchants' attitude (H1). The empirical evidence of the study indicated that PEU is the second powerful factor in affecting customers' attitudes to adopt Mobile payment with a path coefficient of 0.127 and a p-value < 0.05 (or t-value >1.96), thereby supporting the Hypothesis H1. This aligns with the findings of (Pal, Vanijja, & Papasratorn, 2015; ÖRS, 2018). This suggests that merchants perceive that Mobile payments are easy to learn and use. Therefore, H1 is accepted.

Perceived usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989; De Leon, 2019). MPU was hypothesized to have a significant positive effect on merchants' attitude (H2). The empirical evidence of the study indicated that MPU is the first powerful factor in affecting merchants' attitude to adopt Mobile payment with a path coefficient of 0.274 and a p-value < 0.05 (or t-value >1.96), thereby supporting the Hypothesis H2. This suggests that customers perceive that mobile payments are useful. Thus, H2 is accepted.

MPRA is included to capture to what extent the new technology or product is perceived as better than the existing products. MPRA was hypothesized to have a significant positive effect on merchants' attitude (H3). The empirical evidence of the study indicated that MPRA is the second powerful factor in

affecting merchants' attitudes to adopt mobile payment with a path coefficient of 0.320 and a p-value < 0.05 (or t-value >1.96), thereby supporting the Hypothesis H3. This suggests that customers acquire relative advantages from the adoption of mobile payments as the latter enables them to purchase without time or place constraint, avoid queues, and improves their performance. Therefore, H3 is accepted.

Compatibility indicates the degree in which the technology service is perceived as consistent with socio-cultural values and beliefs; with a previous and present idea; and with client needs of innovation (Rogers, 1995; Junadi & Sfenrianto, 2015). MPCM was hypothesized to have a significant positive effect on customers' attitudes (H4). The empirical evidence of the study does not indicate that MPCM affects merchants' attitude to adopt mobile payment with a path coefficient of 0.093 and a p-value > 0.05 (or t-value <1.96). Therefore, failing to support the Hypothesis H4. This suggests that the effect of compatibility on the merchant's attitude for the adoption of mobile payment is not statistically significant. Therefore, H4 is not accepted.

Due to the inherent nature of mobile payments, trust is believed to influence directly or indirectly the intention of adoption and acceptance of mobile payments because mobile services are exposed to various uncertainties and uncontrollable consequences. MPT indicates the degree to which the technology service is perceived as trusted by users. MPT is a dependent variable that is affected by MPR/S (risk/security). MPT was hypothesized to have a significant positive effect on merchants' attitude (H5). The empirical evidence of the study indicated that MPT is the fourth powerful factor in affecting merchants' attitude to adopt mobile payment with a path coefficient of 0.235 and a p-value < 0.05 (or t-value >1.96), thereby supporting the Hypothesis H5. This suggests mobile payments are perceived as trustworthy, reliable and secured by customers. Therefore, H5 is accepted.

Perceived risk in merchants' adoption intention of financial technology has three important dimensions: security, privacy and monetary. Perceived privacy risk defined the possibility that inline businesses might use personal information inappropriately invading consumer's privacy with mobile payment consumers authorize the retailer to use their personal information and gain access to their bank account (Thakur & Srivastava, 2014). MPR/S was hypothesized to have a significant positive effect on merchants trust (H6). The empirical evidence of the study indicated that MPR/S is the most

powerful factor in affecting merchants trust to adopt mobile payment with a path coefficient of 0.500 and a p-value < 0.05 (or t-value >1.96), thereby supporting the Hypothesis H6. This suggests that customers perceive that mobile payments have low risk. Therefore, H6 is accepted.

MPA was hypothesized to have a significant positive effect on merchants adoption of mobile payments (H7). The empirical evidence of the study indicated that MPA is the most powerful factor in affecting merchants' adoption of mobile payment with a path coefficient of 0.552 and a p-value > 0.05 (or t-value <1.96), thereby supporting the Hypothesis H8. This suggests that the effect of customers' attitudes to adopt mobile payments is statistically significant. Therefore, H7 is accepted.
Merchants perceived cost refers to cost which the merchants actually pay for the deployment of the system. MPC was hypothesized to have a negative effect on mobile payment adoption. The empirical evidence of the study does indicate that MPC affects mobile payment adoption with a path coefficient of 0.542 and a p-value > 0.05 (or t-value <1.96). Therefore, H8 is accepted.

Conclusion

To achieve our research goal, an intensive literature review was done and a conceptual research model was employed that consists of eight latent variables adopted from ÖRS (2018). The study mainly focused on the effect of the following factors on merchants' adoption of mobile payments: perceived ease of use, usefulness, relative advantage, compatibility, trust, perceived risk, attitude, and cost, of Mobile payment service. The structural model presents how much of the variable is explained by the underlying factors of mobile payment adoption. In the inner variables attitude is modeled as a function of MPRA, MPCM, MPEU, MPT, and MPU. These variables explained 61.8 percent of the variance in AT as the R^2 value or coefficient of determination stood at 0.618. This implies that 39.2 percent of the variance in MPA is explained by other factors not included in the model. MRA, MPEU, MPU, and MCT are found to be positively and significantly affecting merchants' attitudes to adopt mobile payment.MPA and MPC as well significantly affecting merchants' attitudes to adopt mobile payment.

This result implies that for mobile payment technology to be adopted by merchants, they should perceive it as a useful and quick way of selling

compared with the traditional sales, they should believe that mobile payments are easy to use, understandable and can become skillful at using it, they should also ensure that the cost of mobile payment service is reasonable and affordable. Therefore, it can be concluded that merchants can adopt mobile banking services when the value and benefit of mobile payment are evident. On the contrary, MPCM is not significantly affecting merchants' attitudes to adopt mobile payment. This result indicates that for mobile payment to be adopted by merchants compatibility doesn't affect existing work practices and the extent to which the payment system "fits" with their current work process. Overall, the result of this study is indeed helpful to the banking industry, microfinance, and other mobile payment system providers in Ethiopia and will be used as the springboard for other researchers for future work in the area.

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