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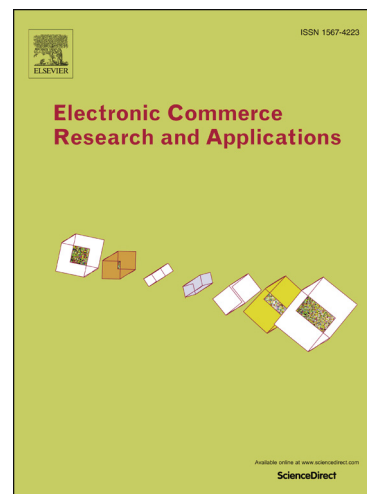
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**UNDERSTANDING THE DETERMINANTS OF MOBILE BANKING ADOPTION:
A LONGITUDINAL STUDY IN BRAZIL****Fernanda Malaquias, Rodrigo Malaquias, Yujong Hwang (contact author)**

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ABSTRACT

Studies about new technologies are needed in order to better understand their adoption and the potential challenges related with their diffusion. This research was developed to analyze mobile banking use and its determinants considering a longitudinal approach. We collected data in a country where mobile banking is still in its early adoption stages: Brazil. Our sample is comprised of observations from three different periods: the first sample with data from December 2014 to January 2015; the second sample with data from May to June 2016; and the third sample with data from November to December 2017. Using a quantitative approach, we observed that mobile banking use has increased during the period. This effect was also significant in the bivariate analysis even with a control for the level of personal innovativeness in information technology (IT) among the respondents who participated in the survey. Moreover, the perception of trust, ease of use, social influence, and task characteristics related to mobile banking also have registered an increase. The main contribution of this study is related with the quantitative analysis of the effect of time in the use of mobile banking (and in some determinants of its use) in an emerging economy.

Keywords: Emerging technologies; innovation; longitudinal analysis; mobile banking; social influence; trust

1. INTRODUCTION

The progress of wireless technologies and mobile devices has enabled the emergence of mobile banking, which has led to flexibility and mobility in the banking sector (Lin, 2011; Luo et al., 2010; Kourouthanassis and Giaglis, 2014). Mobile banking is an innovative technology that allows people to conduct banking transactions without going to the bank, providing benefits for both banks and their customers.

Predicting growth in adoption of mobile banking and expecting to reach their customers widely, banks are including mobile banking as part of their strategic investments (Oliveira et al., 2014). However, the level of adoption of mobile banking has been increasing over the years, its adoption rate is still low, and many adopters use it only to check account balances (Federation of Brazilian Banks, 2015; Federal Reserve System, 2015; Mohammadi, 2015; Shaikh and Karjaluoto, 2015).

Many factors have been pointed to in the literature as determinants of mobile banking adoption and use (*Use*). The list of determinants includes *Trust*, *Social Influence (SI)*, *Ease of Use (EU)*, *Personal Innovativeness with Technology (PIIT)*, and *Task Characteristics (Task)*, among others (Zhou et al., 2010; Lin, 2011; Yu, 2012; Chitungo and Munongo, 2013; Shaikh and Karjaluoto, 2015; Malaquias and Hwang, 2016). Considering these determinants pointed by the literature, the main objective of this research is to analyze mobile banking use in Brazil using a longitudinal approach.

In Brazil, a research by the Brazilian Federation of Banks with 20 financial institutions has indicated that the use of Internet and mobile channels is growing year after year, having already overcome the use of traditional channels, including ATMs, branches, and contact centers. Most responsible for this increase in the use of digital channels in recent years is the mobile platform formed by applications installed on smartphones and tablets. However, despite this growth, in 2014, participation in the mobile channel corresponded to only 12% of total transactions (Brazilian Federation of Banks, 2015). Brazil, therefore, can be considered to be a country in which the process of diffusion of mobile banking is still in its early stages. Growth opportunities remain, and there is an expectation of potential increases in the mobile banking adoption rate as well.

Diffusion of innovation theory states that time is an important variable in the diffusion process of an innovation (Rogers, 1995). Time is involved in the innovation-decision process in which individuals engage from knowledge of an innovation's existence until its adoption or rejection. Time is also involved in the innovativeness of an individual compared with other members of a social system. Finally, time is involved in the innovation's adoption rate.

Most studies on mobile banking have analyzed the determinants of mobile banking adoption based on static cross-sectional data (Lin et al., 2014). According to Shaikh and Karjaluoto (2015), many researchers have indicated the need for longitudinal studies of mobile banking adoption. Thus, this study contributes to the literature on mobile banking by extending our understanding about the process of adoption over time.

Through this study, we will also evaluate the effects over time of the various determining factors of mobile banking adoption that we noted above. When considering additional variables in the analysis, we also include a control based on the personal characteristic of respondents, to achieve a more effective comparison.

2. LITERATURE REVIEW

Prior research has analyzed mobile banking and the factors that influence its adoption. Among the factors identified in these previous studies are trust, social influence, ease of use, personal innovativeness, and task characteristics (Zhou et al., 2010; Lin, 2011; Yu, 2012; Chitungo and Munongo, 2013; Shaikh and Karjaluo, 2015; Malaquias and Hwang, 2016). Through a longitudinal approach, the current study aims to examine how the effects of these factors evolved over time. Figure 1 presents illustrates the research framework that uses these constructs and the related variables. Our main purpose is to analyze the effects of time on the use of mobile banking, but we also have the interest to evaluate other variables related to the use of mobile banking.

INSERT FIGURE 1 ABOUT HERE

Trust plays an important role in individual behavior toward adopting an innovation, mainly in the early adoption stage (Luo et al., 2010). According to Lin et al. (2014), developing customer trust in mobile banking is a dynamic process in which although initial trust is an important indicator of mobile banking success, but it does not necessarily lead to the desired objectives if trust does not persist. As mobile banking adoption involves unknown risks, customers need to rely on trust to mitigate their risk perceptions (Luo et al., 2010). Lin (2013) also pointed out that when customers obtain reliable and trustworthy services, they are more likely to continue using mobile banking.

Trust develops over time as a result of experience and familiarity with another party (Gefen et al., 2003; Lewicki and Bunker, 1995). Thus, to the extent that customers have a good experience with this technology, without problems related to privacy and security, the effect of passing time tend to be positive for trust in mobile banking. In this context, it is important for banks to take care of the security of mobile banking over time because information about hacker intrusions and potential vulnerabilities in the mobile channel typically decrease consumer intentions to use this technology.

Social influence reflects “the influence of people important to the user on the adoption behavior” (Zhou et al., 2010, p. 762). Several studies have analyzed the impact of social influence on mobile banking adoption. Yu (2012), for example, identified that it has significant effects on individuals’ intention to adopt mobile banking. Zhou et al. (2010) also have reported that user adoption is significantly affected by social influence. Mohammadi (2015) concluded that the social context for consumers plays an important role in encouraging them to adopt mobile banking, and social stimulus can facilitate the use of mobile banking. As pointed to by Rogers (1995), the meaning of an innovation is gradually worked out through a social process in which subjective evaluations about an innovation are

communicated. In the present context, it is natural to expect that, with more individuals using mobile banking, the social influence related to this technology will grow over time.

Personal innovativeness is related to the risk-taking propensity of the individuals (Ararwal and Prasad, 1998). It represents the relative earliness or lateness with which an individual adopts an innovation compared with others (Rogers, 1995). Individuals with higher personal innovativeness tend to develop more positive beliefs about innovations and are expected to be their early adopters (Lu et al., 2005). In the domain of IT, the literature has shown that personal innovativeness has positive influence perceptions of trust, usefulness and ease of use of technologies (Lu et al., 2005; Chitungo and Munongo, 2013). Lu et al. (2005), for example, found that personal innovativeness directly affects perceptions of usefulness and ease of use toward wireless internet services via mobile devices. In the context of mobile banking, Chitungo and Munongo (2013) identified that personal innovativeness has significant effect on user's attitude, which in turn influences the intention toward mobile banking. Time is related to the innovativeness of the individuals because some users (non-innovators) can take more time to adopt new technologies than others (innovators).

Perceived *ease of use* can be defined as "the degree to which mobile banking is perceived as easy to understand and operate" (Lin, 2011, p. 254). Users will perceive mobile banking as easy to use when they recognize that they have the capabilities to use it for their banking transactions (Gu et al., 2009). They found that that perceived ease of use affects behavioral intention to adopt mobile banking. Customers also will perceive it to be trustworthy and useful, and will be more willing to adopt it (Lin, 2011). Perceived ease of use can be viewed as a driver of usage intention (Lu et al., 2005) and may differ for potential and experienced customers (Lin, 2011). Though perceived ease of use had a significant effect on attitude toward mobile banking, it was greater for experienced customers. In e-commerce, Gefen et al. (2003) has written that the more familiar users are with a website, the more they will perceive it as easy to use. Thus, the perception of ease of use of a technology tends to grow over time to the extent that people have more experience with it (Gefen et al., 2003).

The task characteristics construct in this research is related to user task requirements (Zhou et al., 2014). For mobile banking, if an individual has low demand for mobile transactions, she will not adopt it (Zhou et al., 2010). Previous studies have analyzed task characteristics and their impact on mobile banking adoption (Oliveira et al., 2014). The authors found that task characteristics affect task technology fit, which in turn affects behavioral intention toward mobile banking use. Malaquias and Hwang (2016) also identified a significant and positive relationship between trust in mobile banking and tasks characteristics. As mobile devices are increasingly present in daily life of people, individuals tend to use more these devices to develop their personal activities. Therefore, we expect that the need to perform banking services tasks over mobile devices will increase over time.

3. METHODS AND DATA

This study involves a longitudinal analysis of mobile banking use and other factors related to this technology. We invited undergrad students in business management and accounting to participate in the research. They were informed that participation was not mandatory, that they could leave the questionnaire for when they intend to do it, and that no personally-identifying information (PII) regarding their identification was needed. Data were collected using anonymous forms. For the empirical analysis, we collected data in three different periods, as we explain in the following paragraphs. In all these three case, we used paper and pencil questionnaires.

- **Sample 1:** The first sample had 595 complete questionnaires collected from December 2014 to January 2015. Questionnaires were complete when the respondent give answers to all questions.
- **Sample 2:** The second sample had 197 complete questionnaires May to June 2016.
- **Sample 3:** The third sample had 241 complete questionnaires, from November 2017 to the beginning of December, 2017.

In total, the dataset for this study is comprised of responses from 1,033 questionnaires. The interval of time between each sample is at least 15 months, which permits a comparison of values with more than a year of difference. Moreover, there are 33 months between the 1st and 3rd sample, which is more than 2½ years. All the questionnaires were answered through anonymous forms. This methodology does not permit a matching procedure (which would be a good option in this case), but it contributes to a higher rate of response, since respondents do not need to identify themselves. Nevertheless, all three rounds of data collection were done at the same university, and the respondents had similar characteristics since all of them were business student. Moreover, some respondents may have participated in all three surveys, but this information is not available in our database following the criteria of anonymity.

The participants of this study were undergrad students, and the age of the majority of respondents was in the range of 18 – 30 years, Yet the results do not necessarily represent a generalizable panorama regarding mobile banking adoption. Luo et al. (2010, p. 227) suggest that undergrad students usually “have the basic computer skills and the necessary technology infrastructure to conduct mobile banking, which relies on the integration of wireless and Internet technologies.” Therefore, even with a potential limitation of using responses from such students, the results of this study can contribute with the research in the field of mobile banking since we considered a part of population that presents the skills and basic infrastructure to adopt this technology.

The questionnaire used in this research was adopted from previous studies. Their items are available in Appendix A. We calculated the mean of each variable to represent the individual observation of each respondent. In order to compare the means of the constructs according to each sample, we

employed a *t*-test for mean differences. The null hypothesis of this test is that the difference is 0; the alternative hypothesis is that the difference is not equal to 0.

4. RESULTS

The first step in this research was to analyze the difference between the variables in the three different periods of mobile banking adoption. Table 1 presents the descriptive statistics of all variables of the study; this information is presented by period.

INSERT TABLE 1 ABOUT HERE

Table 1 presents initial evidence about the averages of the constructs over time. In order to compare these values and evaluate the significance of their differences, we employed *t*-tests. The results are summarized in Tables 2, 3 and 4. They present results for combinations between the three samples: the difference in Samples 1 and 2, 1 and 3, and 2 and 3.

INSERT TABLES 2, 3 AND 4 ABOUT HERE

As we can see in Tables 2, 3 and 4, the variables *Use* (difference = 1.152; 1.668, both significant at 1%) and *Task* (difference = 0.981; 1.339, both significant at 1%) presented the highest differences between the samples. This result confirms our expectations regarding task activities since mobile devices are increasingly present in the daily lives of people. Thus, individuals have tended to use this technology more frequently over time. It is also important to note that the difference in the level of *PIIT* between Samples 2 and 3 was not statistically significant, but there was an increase in the use of mobile banking over time (difference = 0.516; significant at 1%). Moreover, the differences in variables between Samples 2 and 3 (*Use*, *Task*, *Trust*, *EU* and *SI*) were significant at the 5% level.

Since banks have been considering investments in mobile banking as a strategic feature (Oliveira et al., 2014), there is an expectation that financial institutions must reach at least an acceptable rate of return on these investments over time. This is consistent with the benefits provided by mobile banking to its customers, such as flexibility and mobility (Lin, 2011; Luo et al., 2010; Kourouthanassis and Giaglis, 2014).

The results in this research are in accord with diffusion of innovations theory. Time is an important factor through which to understand diffusion. In Brazil, from the responses obtained in the survey, the use of mobile devices to develop banking activities seems to be in the process of growth.

In Samples 2 and 3, the variable *PIIT* showed a significant difference when compared with Sample 1 (Tables 2 and 3). We also performed an additional test for robustness. This new analysis was helpful to indicate whether a respondent in Sample 1 and another in Samples 2 or 3 with an equivalent level of *PIIT* would differ in terms of their decisions to adopt mobile banking. Thus, through the indices of *PIIT* variable, we developed another round of mean comparison between the years. For this, we created a group with individuals who scored more than 3 and less than 4 for the variable *PIIT* (237

respondents). Then, we followed the same reasoning as in Tables 2, 3 and 4. For the results, see Appendix B, under the column with “ $4 > PIIT > 3$ ”.

T results of this test indicate the same conclusion as for the previous analysis: the effects of the variables *Use*, *Task*, *Trust*, *EU* and *SI* increased over time. Comparing Samples 1 and 3, this increase is statistically significant at 1%. This is not true, however, for *PIIT*, which is a control that indicates these sub-samples have individuals with equivalent levels of innovation in IT.

For a second test of the hypothesis for the effects of time, we developed a regression (Model 1) with *Use* as the dependent variable, and the others as independent variables. We also included two dummy variables for time in Model 2. Time is represented by *Sample2* and *Sample3*, with *Sample1* as the base case for comparison. The results are presented in Table 5. The is to evaluate whether the positive effect of time remains significant even in the presence of the controls for the other variables.

INSERT TABLE 5 ABOUT HERE

The results in Table 5 confirm that the effect of time is statistically significant at 1%, and is stronger for Sample 1 than Sample 3 (coefficient = 0.567). We repeated the analysis in Model 2 excluding the observations of Sample 2, and the dummy variable remained statistically significant at 1% (coefficient = 0.606, $N = 836$). Nevertheless, when we repeated the test excluding Sample 1, the coefficient of the dummy remained positive (coefficient = 0.141, $N = 438$), but was not significant at 5%.

It is also important to note that the results in Table 5 suggest there is no significant effect of *PIIT* on the *Use*, which is not in line with previous research. This result may be related to the fact that, among the respondents, convenience to develop banking activities (represented by *Task*) and the opinions of others (represented by *Social Influence*) have been dominant in explaining the use of mobile banking. Therefore, considering the samples with undergraduate students, their individual relationship with IT may not necessarily be the main variable through which to understand mobile banking use.

CONCLUSION AND IMPLICATIONS

We developed this research to analyze the potential effects of passing time in mobile banking use. We also considered in our analysis other variables that affect the use of this contemporary technology. Our database comprised different questionnaire responses in three samples of different periods of adoption during 2015-2015, 2016, and 2017.

The results of this study indicate that there is an important effect of time in the adoption of new technologies. Even with a relatively short lag between the surveys (two years and six months), we observed a significant difference for all the variables studied: the use of mobile banking, trust in mobile banking, task characteristics related to mobile banking, ease of use, social influence, and personal innovativeness in IT. These differences were especially salient when we compared the responses of Sample 1 versus Sample 3. Moreover, using some additional criteria for robustness checking, as a control for *PIIT* in the regression, the results about the positive effect of time in the decision

to adopt mobile banking remain equivalent between Samples 1 and 3. In this context, the main contribution of this study is the quantitative analysis of the potential effect of time in the use of mobile banking, as well as for some determinants of its use. Based on the results from three different surveys, the results indicate that as time goes by, some determinant factors can change and the use of mobile banking tends to increase (in the case of the emerging economy considered in this study: Brazil).

The variables with the highest difference between the samples are the use of mobile banking and task characteristics. Thus, it is possible to realize an increase in the adoption of this technology and in the need of using mobile devices to perform banking activities over time. This result has theoretical and practical implications.

Regarding theoretical implications, we can argue that studies on mobile banking developed in different periods should be compared with care. Some differences presented by previous studies may exist due to the stages in which the technology is in each environment, and not necessarily due to the respondent's characteristics. Furthermore, the perception of factors related to mobile banking seems to change over time; thus, further research can explore the behaviour of the relationship between mobile banking use and its determinants over time.

In terms of practical implications, the literature suggests that banks have expectations about the rate of return for investments made in new technologies. This is the case for mobile banking. On the other hand, the evaluation of rate of return should be considered by observing that, over time, there is a tendency for the mobile banking adoption rate to increase. Further, the other variables that contribute with mobile banking adoption also increase over time (e.g., the case of ease of use and social influence that are important variables in the context of mobile banking).

According to the results, *Time* also affects the variable *Trust* in mobile banking, which is an antecedent of mobile banking *Use*. This is an important result for practitioners, since we observe evidence that *Trust* also changes over time. In this study, we observe an increase in *Trust* with *Time*, so banks need to keep their ads and security levels to maintain or increase perceptions that mobile banking is trustworthy. Both large banks and small financial institutions that offer services through mobile devices should try to increase the rate of customer use of mobile banking, and also keep their current customers using these services.

Moreover, ease of use also increased between the samples. This indicates that individuals may realize mobile banking as being easy to use as they interact with it. Even so, banks should continue improving their systems in terms of usability, since ease of use can contribute to greater adoption of mobile banking.

Some additional factors may also be useful in order to better understand our main results. For example, the effect of time may have been positive related to the use of mobile banking due to investments in advertisement by banks, or due to individual and personal preferences to develop activities using mobile devices, including banking transactions. As time passes, the set of factors may

change and different variables may affect the use of mobile banking. Therefore, some additional issues can still should be investigated in future research.

The limitations related to this research are related to the impossibility to use a matching procedure, since the responses were collected through anonymous questionnaires. On the other hand, future research can follow the perceptions of a group of respondents over time, and the results can be compared with those obtained in this research. Another limitation is the use of responses from undergraduate students. They represent a natural portion of potential and current users of mobile banking. So, further research is suggested using a longitudinal approach with more diversified samples.

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APPENDIX A: QUESTIONNAIRE ITEMS

ITEM	SOURCE
Mobile banking use (<i>Use</i>)	
I often use mobile banking to conduct banking transactions.	Zhou et al. (2010)
Task Characteristics (<i>Task</i>)	
I need to ...	
... transfer money anytime anywhere.	Zhou et al. (2010)
... manage my account anytime anywhere.	Oliveira et al. (2014)
... acquire account information in real time.	
Trust in mobile banking (<i>Trust</i>)	
Mobile banking ...	
... seems trustworthy.	Zhou (2013)
... seems secure.	Oliveira et al. (2014)
... keeps its promise.	
Ease of use (<i>EU</i>)	
I find that mobile banking is easy to use.	Davis (1989)
Learning how to operate mobile banking is easy for me.	Zhou et al. (2010)
	Zhou (2012)
Social Influence (<i>SI</i>)	
Those people that ...	
... influence my behavior think that I should use mobile banking.	Zhou et al. (2010)
... are important to me think that I should use mobile banking.	Oliveira et al. (2014)
Personal Innovativeness in IT (<i>PIIT</i>)	
If I heard about a new IT, I would look for ways to gain experience with it.	Agarwal and Karahanna (2000)
Among my peers, I am usually the first to try out new information technologies.	Zhou (2012)
I like to experiment with new information technologies.	Hwang (2014)

For all these items in Appendix A, respondents were asked to answer using a Likert scale, ranging from (1) strongly disagree to (5) strongly agree.

APPENDIX B: SENSITIVITY in SUB-SAMPLES WITH DIFFERENT LEVELS OF PIIT

Sample 1 (Dec 2014-Jan 2015)
x Sample 2 (May-Jun 2016)

Vars	Sample	$4 > PIIT > 3$		
		N	Diff	Signif
Use	1	141	0.747	0.001
	2	51		
Task	1	141	0.772	0.000
	2	51		
Trust	1	141	0.405	0.008
	2	51		
EU	1	141	0.074	0.582
	2	51		
SI	1	141	0.486	0.012
	2	51		
PIIT	1	141	-0.002	0.939
	2	51		

Sample 1 (Dec 2014- Jan 2015) x
Sample 3 (Nov 2017-Dec 2017)

Vars	Sample	$4 > PIIT > 3$		
		N	Diff	Signif
Use	1	141	1.677	0.000
	3	45		
Task	1	141	1.288	0.000
	3	45		
Trust	1	141	0.648	0.000
	3	45		
EU	1	141	0.358	0.007
	3	45		
SI	1	141	0.974	0.000
	3	45		
PIIT	1	141	0.020	0.493
	3	45		

Sample 2 (May 2016-Jun 2016)
x Sample 3 (Nov 2017-Dec 2017)

Vars	Sample	$4 > PIIT > 3$		
		N	Diff	Signif
Use	2	51	0.929	0.002
	3	45		
Task	2	51	0.516	0.030
	3	45		
Trust	2	51	0.243	0.132
	3	45		
EU	2	51	0.284	0.082
	3	45		
SI	2	51	0.488	0.022
	3	45		
PIIT	2	51	0.022	0.527
	3	45		

Table 1: Descriptive statistics for the variables in the study

Sample	Variables	N	Mean	SD
1	<i>Use</i>	595	2.158	1.461
1	<i>Task</i>	595	2.794	1.322
1	<i>Trust</i>	595	3.264	1.074
1	<i>EU</i>	595	3.902	0.933
1	<i>SI</i>	595	2.330	1.223
1	<i>PIIT</i>	595	3.286	1.010
2	<i>Use</i>	197	3.310	1.495
2	<i>Task</i>	197	3.775	1.122
2	<i>Trust</i>	197	3.758	0.852
2	<i>EU</i>	197	4.284	0.881
2	<i>SI</i>	197	3.053	1.147
2	<i>PIIT</i>	197	3.778	0.940
3	<i>Use</i>	241	3.826	1.397
3	<i>Task</i>	241	4.133	0.975
3	<i>Trust</i>	241	3.943	0.734
3	<i>EU</i>	241	4.450	0.789
3	<i>SI</i>	241	3.425	1.093
3	<i>PIIT</i>	241	3.805	0.952

Notes: *Use* = Mobile banking use; *Task* = Task characteristics; *Trust* = Trust in mobile banking; *EU* = Ease of use; *SI* = Social influence; *PIIT* = Personal innovativeness with IT. Sample 1 = Dec. 2014-Jan 2015; Sample 2 = May-Jun 2016; Sample 3 = Nov-Dec 2017.

Table 2: Comparison of the coefficients across Samples 1 and 2

Vars	Sample	N	Mean	Diff	Signif
<i>Use</i>	1	595	2.158	1.152	0.000
	2	197	3.310		
<i>Task</i>	1	595	2.794	0.981	0.000
	2	197	3.775		
<i>Trust</i>	1	595	3.264	0.494	0.000
	2	197	3.758		
<i>EU</i>	1	595	3.902	0.383	0.000
	2	197	4.284		
<i>SI</i>	1	595	2.330	0.723	0.000
	2	197	3.053		
<i>PIIT</i>	1	595	3.286	0.492	0.000
	2	197	3.778		

Notes: Sample 1 = period Dec 2014-Jan 2015; Sample 2 = May-Jun 2016.

Table 3: Comparison of the coefficients across Samples 1 and 3

Vars	Sample	N	Mean	Diff	Signif
<i>Use</i>	1	595	2.158	1.668	0.000
	3	241	3.826		
<i>Task</i>	1	595	2.794	1.339	0.000
	3	241	4.133		
<i>Trust</i>	1	595	3.264	0.679	0.000
	3	241	3.943		
<i>EU</i>	1	595	3.902	0.549	0.000
	3	241	4.450		
<i>SI</i>	1	595	2.330	1.095	0.000
	3	241	3.425		
<i>PIIT</i>	1	595	3.286	0.519	0.000
	3	241	3.805		

Notes: Sample 1 = Dec 2014-Jan 2015; Sample 3 = Nov- Dec 2017.

Table 4: Comparison of the coefficients across Samples 2 and 3

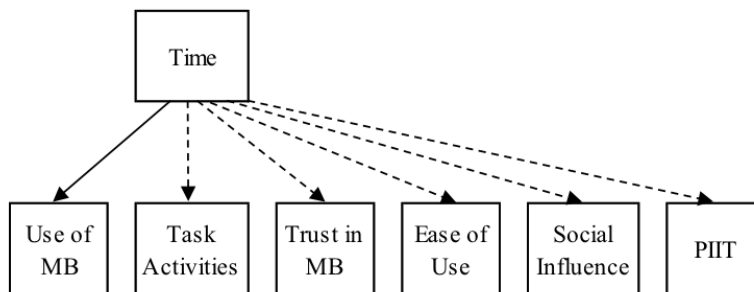
Variable	Sample	N	Mean	Diff	Signif
<i>Use</i>	2	197	3.310	0.516	0.000
	3	241	3.826		
<i>Task</i>	2	197	3.775	0.358	0.000
	3	241	4.133		
<i>Trust</i>	2	197	3.758	0.185	0.015
	3	241	3.943		
<i>EU</i>	2	197	4.284	0.166	0.038
	3	241	4.450		
<i>SI</i>	2	197	3.053	0.372	0.000
	3	241	3.425		
<i>PIIT</i>	2	197	3.778	0.027	0.770
	3	241	3.805		

Notes: Sample 2 = May-Jun 2016; Sample 3 = Nov- Dec 2017.

Table 5: Hypothesis testing results for a regression model to assess time effect

Vars	Model 1			Model 2		
	Coef	<i>t</i>	Signif	Coef	<i>t</i>	Signif
<i>Task</i>	0.564	17.140	0.000	0.509	15.090	0.000
<i>Trust</i>	0.256	5.490	0.000	0.238	5.190	0.000
<i>EU</i>	0.176	3.390	0.001	0.185	3.620	0.000
<i>SI</i>	0.183	5.670	0.000	0.144	4.440	0.000
<i>PIIT</i>	0.016	0.410	0.685	-0.003	-0.070	0.941
<i>Sample2</i>				0.361	3.660	0.000
<i>Sample3</i>				0.567	5.820	0.000
<i>Constant</i>	-1.269	-7.090	0.000	-1.090	-6.110	0.000
	<i>N</i>	1,033		<i>N</i>	1,033	
	<i>R</i> ²	50.1%		<i>R</i> ²	51.8%	
	Adj- <i>R</i> ²	49.9%		Adj- <i>R</i> ²	51.5%	

Notes: *Sample2* = 1 for May-Jun 2016 sample, 0 otherwise; *Sample3* = 1 for Nov-Dec 2017 sample, 0 otherwise.

Figure 1. Research framework

Note: The main purpose of the study is to analyze the effect of time in the use of mobile banking, and the indirect effect that time can present on the other variables related with mobile banking adoption.