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Abstract

Mobile Financial Services (MFS) has become the new frontier in many countries. Since 2013, MFS in Bangladesh has risen steeply. The study aims to examine the MFS adoption behavior through the lens of modified Technology Acceptance Model (TAM) utilizing Randomized Conjoint Experiment for establishing a causal relationship between the attributes and adoption behavior. This study is the first attempt to encompass the causal relationship while investigating adoption behavior. Data were collected through a structured survey questionnaire at two districts in Bangladesh, including 2400 responses from 240 respondents. It was found that distance and cost per transaction has a significant impact, while ease of use has a moderately significant influence on customer's adoption behavior. However, the findings also concluded that social influence and trust have no significant influence. To both regulators and service providers, the findings will provide insights into the customer's point of view and industry demand as well. The study also included some suggestions for future investigations.

Keywords: Mobile Financial Services (MFS), causal, conjoint, ease of use, Bangladesh

1. Introduction

Technological advancements have been evident in a radical change in every aspect of our daily life. Mobile Phone is one of those technologies that reshape our financial and nonfinancial activities (Claessens *et al*., 2002). Day-to-day, people are becoming accustomed to cashless transactions and joining in banking channel without being present to the bank. Zhou *et al*. (2010) define MFS as the technology using a mobile network to access the banking system through the Wireless Application Protocol (WAP).

The number of transactions conducted through mobile financial services is increasing rapidly, which outruns traditional payment options in terms of growth rate (Iman, 2018; Khan *et al*., 2017). A lot of evidence can be established on the success of mobile payment services. In North America, mobile payment or chashless payment has gained much popularity (Dahlberg *et al*., 2015). In the 1990s, Paybox and Deutsche Bank established the first mobile financial service, which became popular in several European countries (Riivari, 2005). In 2007, Safaricom and Vodafone launched M-PESA in Kenya, making her the first developing country to adopt mobile financial services. In a few years, M-PESA expanded its services to Africa, East Europe, and Asia. M-PESA was credited to increase per capita consumption levels and uplifting 194,000 households, or 2% of Kenyan households, out of poverty by 2016 (Suri & Jack, 2016)

The evolving trends of the MFS resulted in growing customer involvement rates, promoting digital financial transactions, decreasing transaction costs, and resulting in a new era of rules and regulations (Laforet & Li, 2005). South Asia is widely considered to be one of the next big markets of mobile financial services (MFS), where a wide range of innovative and unique approaches are being taken to reach the millions of unbanked (Reaves *et al*., 2017).

A tiny percentage of the 164.7 million population (UNFPA, 2020) of Bangladesh has a bank account. Thus, a safe and reliable financial transaction is scarcely available, which is widely viewed as an impediment to socio-economic development. However, a dramatic change can be observed in the last decade due to the rapid growth of Mobile Financial Services (MFS). In April 2020, the number of mobile phone users in Bangladesh has reached 163 Million (BTRC, 2020). So, we can assume that the current momentum of MFS will continue in the years to come. As of April 2020, 15 financial institutions are providing services throughout the country. 995265 MFS Agents are running a network of 85.13 million clients. In April 2020 alone, transactions through MFS channels amounted to a total of 290.30 Million BDT (Bangladesh Bank, 2020).

Mobile Financial Services (MFS) has been the most prominent tool of financial inclusion in Bangladesh. MFS has opened doorways for the customers, regardless of their geographical location, to a limited range of financial services such as making deposits and withdrawals, sending and receiving money, making utility bill payments, etc. Bangladesh Bank has allowed Person to Business payments (utility bill payments, merchant payments, mobile top-up, deposits into savings schemes, loan repayments, etc.); Business to Person payments (salary disbursements, dividend/refund, etc.); Business to Business payments (vendor payments, supply chain management payments, etc.); Online and e-commerce payments; Government to Person payments (pension payments, social safety net subsidies, etc.); Person to Government payments (tax, fee, levy payments, toll charge, fine, etc.); Disbursement of inward foreign remittances and Loan disbursements to borrowers (Bangladesh Bank, 2018).

To ensure a safe MFS network, the factors behind the success of MFS in Bangladesh should be studied, and the reasons which cause the adoption of these services should be pinpointed. Moreover, adoption behavior have many aspects and are characterized by a complex decision making process. Furthermore, MFS decision are likely to perceive the same opportunity from different service providers which is based on the individual circumstances they face. Thus, adoption of MFS can be seen as the multidimensional decision making perspective that requires a joint assessment for multiple choices. Although several studies have been observed in recent years Shareef et al., 2018; Amin et al., 2015), till today, however, there is bo clear picture can be drawn on which attributes or factors, and in particularly which combination plays a strategic role regarding adoption behavior. This study attempts to tackle this research gap and addresses the multi-dimensionality of MFS adoption behavior from Bangladesh perspective. Thus, this study would like to investigate the causal influence of these factors on the customer's choices and which combination of the factors are particularly promising regarding adoption behavior. Therefore, the research question is, "Which attributes have a causal effect on customer's decision to adopt MFS in Bangladesh?"

Drawing from the past studies, we have identified five most influential favtors regarding MFS adoption behavior from the perspective of Bangladesh namely- (1) ease of use, (2) social influence, (3) trust, (4) cost, and (5) distance. The study has utilized conjoint choice experiment to decompose the effect of five attributes with different levels. The result suggest that for Bangladeshi people distance and cost per transaction plays a significant influence, while ease of use has a

moderately significant influence on customer's adoption behavior. Furthermore, the findings also concluded that social influence and trust have no significant influence.

The study contributes in several ways. First, our study add some values in understanding of MFS adoption behavior by identifying the critical decision making factors and their possible combinations that affects technology adoption behavior. Second, to our knowledge, this study is the first attempt that uses experimental research design on this field of study. None of the previous scholars tried to establish a causal relationship between consumer adoption behavior and influencing attributes. Likert scale-based questionnaires were used in most cases, and the respondents were asked to rate their responses. This approach is qualitative, and converting the answers to quantitative data is difficult and mostly subject to the understanding and experience of the researcher. The questionnaires themselves are very much subjective. As a result, relating the questionnaire to a specific attribute may differ depending on the interpretation. Thus, different studies have used different names or attributes, even sometimes the definition and scope of the attributes contrast or overlap. This perplexing nature makes such studies hard to replicate. This is the way, our findings helps in understanding why certain attributes are more relevant in a developing country perspective, and thus the findings of a causal study will allow both the regulators and the service providers to understand the market better and design the service packages in accordance.

This rest of the paper is organized as follows. Section 2 discusses the theoretical background of the study. The methodology of the research elaborately explained in the section 3. Section 4 focuses on the results of the survey, and section 5 presents the findings in detail. Finally, the limitation of this study, suggestions for further investigation, along with the implication of the findings are presented on section 6.

2. Theoretical Background

Mobile Banking Services are an essential and popular part of the digital finance aspiration of the modern world as it encourages socio-economic advancement through financial inclusion and efficiency. Previous studies had found that lack of technology usage has on the negative impact on economic development, which would hinder the increase and development of per capita income, skills development, and overall productivity (Szajna, 1996; Jorgenson, 2001; Ramayah, 2005).

Therefore, the adoption of different types of technology, including mobile financial services, is consistently attracted academic investigations. A review paper on mobile banking adoption by Shaikh & Karjaluoto (2014) presents an appraisal of 55 academic papers on this specific topic published between January 2005 and March 2014. Here the researchers found that quantitative research was the most popular method of investigation (82%), while the most frequently used theory was Technology Acceptance Model (TAM) and its different extensions (42%). The most frequently used attributes/variables found are perceived ease of use, perceived usefulness, social influence, risk, trust, cost, self-efficacy, compatibility, etc.

Technology Acceptance Model was based on the Theory of Reasoned Action (TRA), developed by Martin Fishbein and Icek Ajzen in 1967. This theory mainly focuses on an individual's behavior based on their attitudes and behavioral intentions. (Fishbein & Ajzen, 1969). The Technology Acceptance Model (TAM), developed by Fred Davis and Richard Bagozzi in 1989, is an information systems (IS) theory that tries to predict an individual's behavior regarding technology adoption. The model proposes that people are greatly influenced by the pre-existing intentions, attitudes while they try to adopt a technology. These intentions or attitudes can be explained using a few factors. Davis coined two terminologies to explain such behavior- ease of use and usefulness. Later, many researchers have developed more components and variables to scale human motivation behind the choice of technology (Davis & Bagozzi, 1989). TAM is an analytical and descriptive tool for assessing user acceptance of new technology by calculating the impacts of a few external factors on the user's intentions. The attributes used in TAM analysis are divided into two groups – Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). The factors which influence the user's perception of the usefulness of a specific technology are called Perceived Usefulness. And the factors which influence the user's perception of how effortless the new system will be are referred to as Perceived Ease of Use (Davis and Bagozzi, 1989).

A study Oliveira *et al.* (2016) finds that attributes such as compatibility, perceived technology security, performance expectations, innovativeness, and social influence had significant influences on customer adoption and intention to recommend mobile payment. The study had also pointed out that effort expectancy, facilitating conditions, price value, and habit had no significant influences. A study based on Indian mobile wallet adoption behavior found that ease of use, usefulness, perceived risk, and attitude have a significant influence on adoption behavior (Sing *et al.*, 2020). Another similar investigation by Baabdullaha *et al.* (2016) on Consumer use

of mobile banking (M-Banking) in Saudi Arabia detects performance expectancy, price value, facilitating conditions, hedonic motivation, habit, system quality, and service quality to be the significantly influencing attributes while attributes such as effort expectancy, social influence, information quality, usage satisfaction, and loyalty were found to have no significant influences. Alalwan *et al.* (2018) discovered that Jordanian customers' intentions and adoption of internet banking are influenced significantly by performance expectancy, effort expectancy, hedonic motivation, price value, and perceived risk; while, social influence did not have any impact of significance. While examining factors influencing E-banking ddoption in Zambia, Mwiya *et al.* (2017) had found that perceived usefulness, ease of use, and trust significantly and positively influences customer's attitude towards e-banking. In a study on consumer's attitude towards mobile payment applications, Kavitha & Kannan (2020) had discovered that consumer's attitude is significantly influenced by perceive ease of use, perceived usefulness, and perceived risk. Moreover, their study had also suggested that perceived security has no significant impact. In an attempt to investigate the factors affecting usage and adoption of internet & mobile banking in Pakistan, authors have found that perceived usefulness and security are the driving motivation behind customer's choices (Mazhar *et al.*, 2014). A study based on Sri Lanka, derives that perceived usefulness, perceived risk, and compatibility are the most significant attributes, while social influence had no significant influence on the adoption behavior (Ravichandran & Madana, 2016). Interestingly, from the above mentioned literatures we have observed several inconclusive result, and this dervies the urge of more investigation on this field.

However, academic work on the adoption of mobile financial services in Bangladesh is also scarce. A study by Shareef *et al.* (2018) investigated consumer adoption of mobile banking services according to adoption stages. They have found perceived awareness, perceived ability to use, perceived functional benefit, perceived information quality, and perceived Trust to be significantly correlated with customer adoption. In contrast, the availability of resources, computer self-efficacy, multilingual options, and perceived image did not have a definite impact. While examining Bangladeshi consumers' behavioral intention to use a mobile wallet, Amin *et al.* (2015) found that perceived usefulness significantly affected users' behavioral intention and perceived Ease of use had no significance on it. As there are only a few studies we have observed from the perspective of Bangladesh, and so far there were no causal studies available on this area, we have attempted to utilize five attributes to investigate a causal relationship namely, ease of use, social

influence, trust, cost, and distance for our study. A vivid discusiion on the selected attributes from the perspective of Bangladesh are mentioned below-

Ease of use

Ease of use is the measurement of how convenient the initiation of the service (such as opening an account) and understanding the operation of the service/user interface/software is perceived by the client. Ease of use is regarded as the degree or level where a person believes about the effort they are going to endure while using a technology (Davis, 1989). Ease of use has been widely studied in technology adoption behavior particularly in MFS services (Shaikh & Karjaluoto, 2014; Baabdullaha *et al.*, 2016; Mwiya *et al.*, 2017; Kavitha & Kannan, 2020; Amin *et al.*, 2015). While using a technology, categorization of required time and effort usually comes into the mind of the customer. Davis (1989) mentioned that less time and effocrt can obtain a certain level of satisfaction while difficult level makes people indifferent from obtaining the technology. Perceived ease-of-use (PEOU) indicates how easy the user expects the technology will be to use. Usually, more technical factors, such as user interface, learning carve, operation procedure, etc. are used as attributes of Perceived ease-of-use (PEOU). From the level of ease of use , we can divide it into three levels- easy, moderate and difficult.

Social influence

Social influence has a profound impact on trechnology adoption behavior (Graf-Vlachy et al., 2018). Social influence have been observed in several studies regarding the adoption of mobile financial services in our daily life (Shaikh & Karjaluoto, 2014; Oliveira *et al*., 2016; Baabdullaha *et al.*, 2016; Shareef *et al*., 2018). Some of the studies also found that social influence is not significant regarding technology adoption (Alalwan *et al*., 2018; Ravichandran & Madana, 2016). From the socio-economic perspective of Bangladesh, family members and friends are highly influential regarding technology adoption behavior (Dwivedi et al., 2007; Islam, & Grönlund, 2011). Ashaduzzaman et al. (2011) specified that choice of technology adoption is also influenced by co-workers in Bangladesh.

Distance (based on time)

Service point distance based on the reachability is an important issue for the Bangldeshi people. Johnson et al. (2018) mentioned that a long distance can create anxiety regarding cashless or m-payment adoption behavior. Rahman & Sloan (2015) mentioned that for the mobile phone users of Bangladesh, customer care point distance possesses a significant role regrading cashless transcation. Liza (2014) emphasized on the timely access to m-payment services based on the distance and availability. People perceive usefulness value while they can spend less time in taking the advantage of MFS services.

Cost

Perceived cost refers to the extent to which people believe that use of mobile payment services will have monetary cost (Islam, 2016). Based on the different types of MFS services, customers need to pay different types of prices to the service providers. Depending on the different service providers in Bangladesh, different of cost is incurred. But for most of the cases regarding cash-in (deposit) it is not necessary to pay any service charges, but for cas-out (withdraw) customers need to pay some charges (UNB News, 2020). Cost is an important factor regarding technology adoption behavior which has been found in many previous studies (Shaikh & Karjaluoto, 2014; Oliveira *et al*., 2016; Baabdullaha *et al*, 2016; Alalwan *et al*., 2018).

Trust

The role of trust in MFS and technology adoption behavior has been widely studied (Shaikh & Karjaluoto, 2014; Oliveira *et al*., 2016; Mwiya *et al.*, 2017; Mazhar *et al*. 2014; Shareef *et al*., 2018; Lippert & Davis, 2006). In Bangladesh people have faith on the existing banking process, and they can rely on mobile operators for making their transactions (Gani et al., 2020). Moreover, in Bangladesh there are two organizations – bKash and Nagad provide MFS services in Bangladesh, and they holds the largest proportion of the market share on this field (Islam, 2020). So, it is clear that the whole country can be divided in two proportions.

3. Data and Method

The conjoint analysis presents respondents with a few sets of products with different levels of attributes and requests them to rank their preferences. The change in consumer preference with the change of levels of attributes allows the researcher to calculate the component-specific treatment

effects (Horiuchi *et al*., 2015). In this study, theoretical definitions provided by Hainmueller *et al*. (2013) regarding the average marginal component effect and interaction effect would be used. The levels of the five chosen attributes of a bundle would randomly appear in choice profiles and would differ from one another. Along with the two randomly constructed bundles (Bundle A and B), a fixed bundle called the status quo (Bundle C) would be in a trial. In each trial, respondents are requested to rank those three bundles (A, B, and C) according to their preferences, such as 1 for most preferred, 2, and 3 for less preferred accordingly.

Average Marginal Component Effects (AMCE) helps to evaluate the effect of an individual component. In our current context, the MFS client might be interested in a bundle with a lower Cost per transaction but may not choose that if the service point is in a distant location from his home. Similarly, the preferences will change in response to the changes in attribute levels. To understand these changing preferences, the average marginal component effects (AMCE) is introduced (Azimy *et al*., 2020). External choice probability is the likelihood of respondents accepting a new service compared to the service they are currently using (Azimy *et al*., 2020). The internal choice probability is the likelihood that an alternative bundle or proposed service is preferred over the other alternative bundle or proposed service. This calculation is regardless of the current service in use (Azimy *et al*., 2020).

After consulting previous studies, analyzing the current industry scenario, and pilot survey experience, five attributes were selected. Four of the attributes have three levels, and the rest has two levels which are mentioned in Table 1.

The main survey questionnaire (Appendix 1) consisted of two parts. In part A, A Microsoft Excel Visual Basic Program was formed. The program randomized the attribute and levels from 162 possible bundles (3X3X3X3X2). Five trials, each containing two bundles of attributes with random levels along with a status quo choice, were presented to the respondents and asked to rank them 1 to 3, while one being the most preferred and three being the least preferred.

Part B of the questionnaire included descriptive information related to financial transactions. A total of 24 questions were included in this part. For avoiding suspicion and ensuring voluntary cooperation of the respondents, identification information such as name, phone number, etc. was excluded from the questionnaire. A sample trial of the choice set is provided on Table 2.

Table 1: Attributes and Levels

No.	Attributes	Level 1	Level 2	Level 3
1	**Ease of use** (Operation of the software used)	**Easy** It takes 15 minutes to initiate and understand the operation	**Moderate** It takes an hour to initiate and understand the operation	**Difficult** It takes a few hours to initiate and understand the operation
2	**Social influence** (Influence of other users)	Family & friends	Co-workers	None
3	**Distance** (Time needed to reach the nearest branch of the service provider)	Around or less than 10 minutes	Around or less than 30 minutes	More than 30 minutes
4	**Cost** (Cost per transaction in BDT)	5	15	25
5	**Trust** (The service is provided by)	A bank	A new company (other than a bank)	

Before committing to the primary survey, a pilot study was performed in December 2019, with 25 respondents. The experience helped to finalize the survey questionnaire. Data was collected using Microsoft Excel Program with the help of portable computing devices. Because of the COVID-19 pandemic, the survey was interrupted, and needed to be conducted in two parts. The timeline was March 8, 2020, to April 24, 2020, and June 5, 2020, to June 15, 2020.

MFS clients from both urban and rural parts of Bangladesh were selected for the study. Due to difficulty if collecting data from all over the country, we have selected two districts randomly using the list of 64 districts in Bangladesh. The two districts are Chottogram and Noakhali (Appendices 2). From each district, two sub-districts (commonly known as Upazilas) were chosen, and from each Upazila, two villages were selected. In total, four urban areas (2 district cities and two Upazila towns) and eight rural areas (villages) were selected randomly.

Table 2: Sample Trial

No.	Attributes	Choice A	Choice B	Choice C
1	Ease of use (Operation of the software used)	Easy (It takes 15 minutes to initiate and understand the operation)	Difficult (It takes an hour to initiate and understand the operation)	I want to use my current service
2	Social influence (Influence of other users)	None	Family & friends	
3	Distance (Time needed to reach the nearest branch of the service provider)	Around or less than 30 minutes	Around or less than 10 minutes	
4	Cost (Cost per transaction in BDT)	5	15	
5	Trust (The service is provided by)	A bank	A new company other than a bank	
Your Ranking (1, 2, 3)□				

In total, 240 respondents were interviewed on a random basis for the survey. One hundred twenty respondents from each district were interviewed (Table 3). Every respondent ranked five trials according to their preferences. From each trial, one external and one internal response was recorded. Thus 240 samples have produced 2400 (=240X5X2) observations.

For analyzing data, we have selected the randomized conjoint experiment designed by Hainmueller, Hopkins & Yamamoto, 2013.

$$\boldsymbol{y_{itj} = \beta_0 + \sum_{l=1}^{5} \sum_{d=2}^{Dl} \beta_{ld} \times a_{itjld} + u_{itj}}$$

Where the potential outcome (AMCE) of individual i in trial t of bundle j will be defined by y_itj, here, l stands for the number of attributes, Dl indicates the number of levels in each attribute. Likewise, β_ld is the coefficient of each component to be estimated and a_itjld is a dummy variable for the dth level of a bundle j in trial t of a respondent i; and $u\_itj \in \{0,1\}$ is the error term.

Table 3: Sample Distribution

	Urban			Rural		
District	Upazila	Sample		Village	Sample	
Chattogram	Boalkhali	24		Saroatali	18	120
				Charandwip	18	
	Rangunia	24		Mariamnagar	18	
				Hosnabad	18	
Noakhali	Companigonj	24		Char Fakira	18	120
				Musapur	18	
	Kabirhat	24		Ghoshbagh	18	
				Dhan Shalik	18	
Total		96			144	240

4. Results

4.1 Descriptive Statistics

Table 4 illustrates the descriptive statistics of the sample.

Table 4: Sample Statistics

Variable	Description	Frequency	%	**Variable**	Description	Frequency	%
Age	18-30	108	45.00	**Monthly Income in BDT**	0-10000	61	25.42
	31-40	74	30.83		10000-20000	63	26.25
	41-50	36	15.00		20000-30000	51	21.25
	50+	22	9.17		30000-40000	34	14.17
Location	Urban	96	40.00		40000-50000	17	7.08
	Rural	144	60.00		50000+	14	5.83
District	Chattogram	120	50.00	**Type of Financial service in use**	MFS only	133	55.42
	Noakhali	120	50.00		Both Bank and MFS	107	44.58
Gender	Male	121	50.42	**Distance from home to Financial Service Point (Time in minutes)**	Up to 10 minutes	102	42.50
	Female	119	49.58		10 to 30 minutes	125	52.08
Marital status	Single	75	31.25		More than 30 minutes	13	5.42
	Married	161	67.08	**Nature of use**	Personal	198	82.50
	Divorced	4	1.67		Business	32	13.33
Occupation	Private Service	36	15.00		Both	10	4.17
	Public Service	24	10.00	**Education**	School	11	4.58
	Unemployed	12	5.00		SSC	50	20.83

	Student	36	15.00		HSC	83	34.58
	RMG Worker	24	10.00		Bachelor	65	27.08
	Farmer	36	15.00		Master's	31	12.92
	Housewife	36	15.00				
	Small Business Owner	24	10.00				
	Retired	11	4.58				
	Other	1	0.42				

Table 5 indicates the average monthly transaction (frequency) of the respondents

Table 5: Average Monthly Transaction Frequency

	Description	Frequency	Percentage
1	Receive money	0.93	16.64
2	Send Money	1.04	8.60
3	Receive remittance	0.12	2.15
4	Utility bill payments	0.64	11.45
5	Online Shopping	0.18	3.22
6	Regular Shopping	0.33	5.90
7	Buy talk-time	2.11	37.75
8	Other	0.24	4.29
9	Average monthly transaction (Total)	5.64	100

Table 6 depicts the usage frequency (times of use per month) according to gender and location.

Table 6: Usage Frequency According to Gender and Location

Overall	5.64	Urban	6.67	Rural	4.96
Male	6.84	Urban male	8.21	Rural male	5.94
Female	4.42	Urban female	5.12	Rural female	3.94

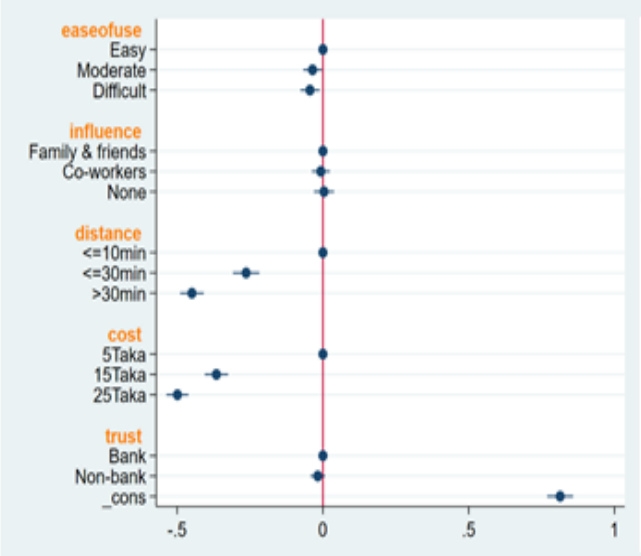
4.2 Experimental result

The AMCE of the attributes on the internal and external choice probabilities are depicted through the coefplot graph in Figures 1 and 2, respectively. A solid circle represents a point estimate of AMCE, and the horizontal bar represents the cluster-robust 95 percent confidence interval.

The levels used as the baseline supposedly define the "best-case scenario" for the respondents and include easy to operate, used by friends and family members, less than 10 minutes distance from respondent's home, cost BDT 5 per transaction and provided by a bank. Thus, the influence of the attribute would be found as negative causal effects.

4.2.1. External Choice Probability

Figure 1 shows the external causal effects of the attributes on preferences through the coefplot graph and regression analysis.



Linear regression — Number of obs = 2,400; F(9, 235) = 240.88; Prob > F = 0.0000; R-squared = 0.4246; Root MSE = .32987

(Std. Err. adjusted for 240 clusters in qid)

ExternalCh~e	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Easeofuse						
Moderate	-.0355953	.0161808	-2.20	0.029	-.0674862	-.0037044
Difficult	-.0444256	.0167067	-2.66	0.008	-.0773367	-.0115145
Influence						
Co-workers	-.0070393	.0156552	-0.45	0.653	-.037887	.0238085
None	.0036962	.0174827	0.21	0.833	-.0307436	.038136
Distance						
<=30min	-.2634043	.022553	-11.68	0.000	-.3086551	-.2181096
>30min	-.4492809	.0206482	-21.76	0.000	-.4899567	-.4086052
Cost						
15Taka	-.3652997	.0204003	-17.91	0.000	-.405487	-.3251123
25Taka	-.4909869	.0191027	-26.12	0.000	-.536618	-.4613557
Trust						
Non-bank	-.0175949	.0127363	-1.38	0.168	-.0426846	.0074948
_cons	.8136603	.0224973	36.17	0.000	.769342	.8579787

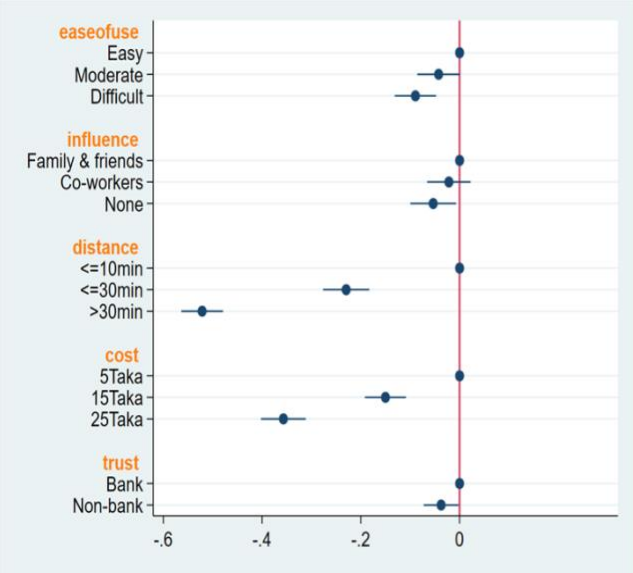
Figure 1: External Choice Probability and Regression Results for External Choice

Ease of use, Distance from the financial service point, and Cost per transaction has a significant causal effect on the preferences. However, the other two attributes- social influence and Trust do not have a significant causal effect. When Ease of use is at level 2 (Moderate) 3.55%, and at level 3 (Difficult), 4.44% of the respondents show significant negative influence in adoption behavior. Regarding Distance from the financial service point, at level 2 (less than or around 30 minutes), 26.34%, and at level 3 (more than 30 minutes), 44.93% of the respondents show significant negative influence. In the case of Cost per transaction, at level 2 (BDT 15), 36.53%, and at level 3 (BDT 25), 49.90% of the respondents show significant negative influence.

At the same time, from the estimated constant value (0.81), we can interpret that regardless of how the levels of the attributes change, most MFS clients (81%) favor the proposed services. Thus, it seems that 81% of the respondent are dissatisfied with their current services and wish to switch from it, which indicate a call for urgent policy interventions.

4.2.2. Internal Choice Probability

Figure 2 shows the external causal effects of the attributes on preferences through the coefplot graph and regression analysis.



Linear regression

Number of obs	2,400
F(9, 239)	209.20
Prob > F	0.0000
R-squared	0.2803
Root MSE	.42505

(Std. Err. adjusted for 240 clusters in qid)

InternalCh~e	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Easeofuse						
Moderate	-.0424206	.0219849	-1.93	0.055	-.0857295	.0008884
Difficult	-.0894633	.0212633	-4.21	0.000	-.1313508	-.0475758
Influence						
Co-workers	-.0217072	.0223529	-0.97	0.332	-.065741	.0223267
None	-.0534997	.0235353	-2.27	0.024	-.0998628	-.0071366
Distance						
<=30min	-.2296619	.0237748	-9.66	0.000	-.276497	-.1828269
>30min	-.5213528	.0214918	-24.26	0.000	-.5636903	-.4790153
Cost						
15Taka	-.1501825	.0212126	-7.08	0.000	-.19197	-.108395
25Taka	-.3567201	.0230624	-15.47	0.000	-.4021517	-.3112886
Trust						
Non-bank	-.0374657	.0179159	-2.09	0.038	-.072759	-.0021724
_cons	1.009998	.0251234	40.20	0.000	.9605059	1.059489

Figure 2: Internal Choice Probability and Regression Results for Internal Choice

The results indicate that Ease of use, Distance from the financial service point, and Cost per transaction has a significant causal effect on the preferences. However, the other two attributes-social influence and Trust do not have a significant causal effect. When Ease of use is at level 2 (Moderate) 4.24%, and at level 3 (Difficult), 8.94% of the respondents show significant negative influence in adoption behavior. Regarding Distance from the financial service point, at level 2 (less than or around 30 minutes), 22.97%, and at level 3 (more than 30 minutes), 52.13% of the respondents show significant negative influence. In the case of Cost per transaction, at level 2 (BDT 15) 15.02%, and at level 3 (BDT 25), 36.67% of the respondents show significant negative influence.

As we can conclude that the preferences are similar to the overall findings. However, the magnitudes of effects are different. For example, when not comparing to the current services, respondents tend to be affected by Distance more, and in case of Cost per transaction, the magnitude is less than that of external choice probability.

From the results stated above, we can compare External Choice Probability with Internal Choice Probability. The regression value for each level of the three significant attributes are compared in the table 7 below.

Table 7: Comparison Between Results of External and Internal Choice Probabilities

	External Choice Probability	Internal Choice Probability

Ease of Use		
Level 2: Moderate	3.55%	4.24%
Level 3: Difficult	4.44%	8.94%
Distance from the Financial Service Point		
Level 2: Less than or around 30 minutes	26.34%	22.97%
Level 3: More than 30 minutes	44.93%	52.13%
Cost per Transaction		
Level 2: BDT 15	36.53%	15.02%
Level 3: BDT 25	49.90%	36.67%

Comparison of these results shows that in case of Ease of use, adoption behavior is more significantly (and negatively) affected in the Internal choices where current services are not in consideration. This outcome indicates that people are not unhappy with the current Ease of use situation. While comparing the results of Distance from the financial service point at different levels, the results from External and Internal Choice Probabilities are similar, which indicates the consistent concern of the respondents regarding this attribute. In the case of Cost per transaction, it appears that respondents show more significant concern in External choices than in Internal choices. This tendency interprets their unhappiness over the current situation.

This study has tried to estimate the Subsample analysis using subsample characteristics. The causal effects were measured according to gender, location, nature of use (current financial service), type of financial services in use, average monthly transaction (nature and frequency), etc. All the subsample analysis broadly aligns with the overall results indicating significant causal effects of Ease of Use, Distance, and Cost on the preferences. Therefore, only remarkable outcomes are listed below.

Gender: Both Distance and Cost show a relatively more substantial effect on the choices of women than the choices of men. Interestingly, the result shows that Ease of Use has more influence on men's decision.

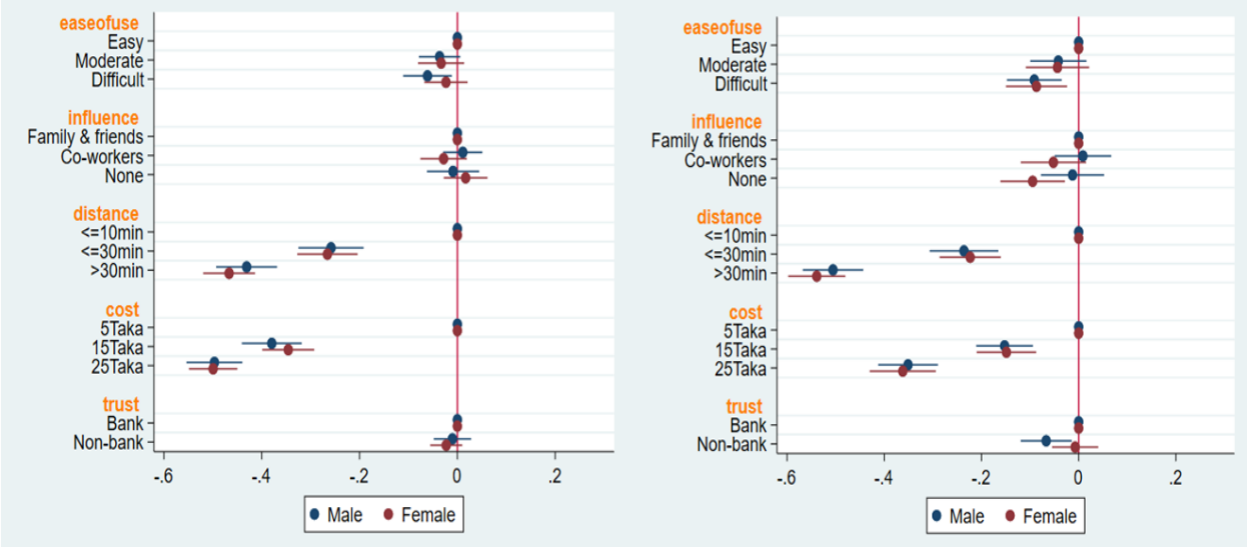


Figure 3: External and Internal Choice Regarding Gender

Location: Choices of rural respondents show a more robust effect from Distance, while urban respondents are affected by Cost more. Also, Urban respondents are found to be influenced by Distance only when it is more than 30 minutes. The rural population is more influenced by Ease of use, unlike their urban counterparts.

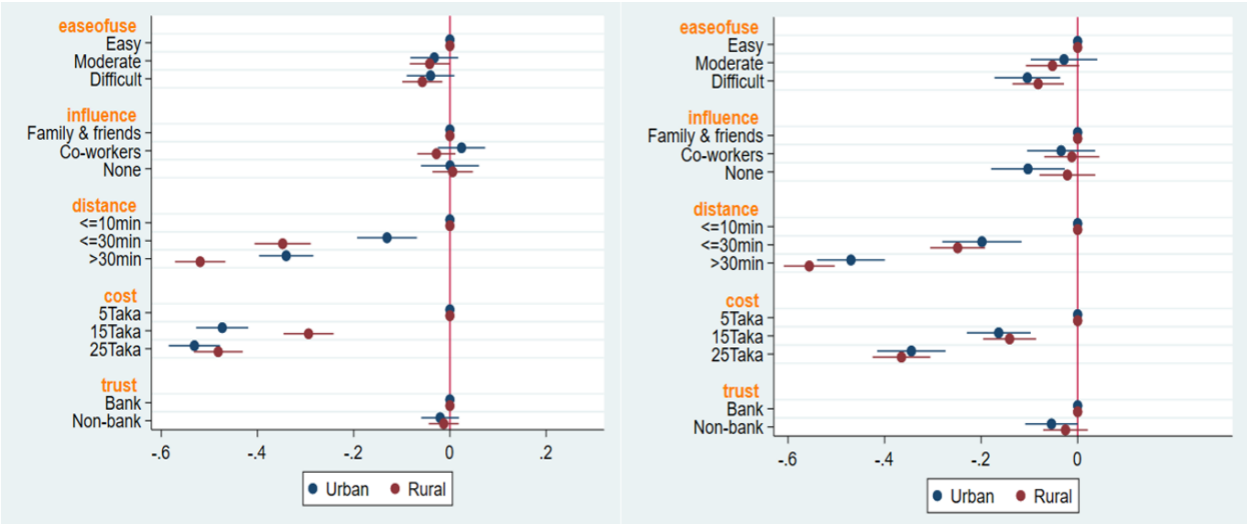


Figure 4: External and Internal Choice Regarding Location

Location and Gender: Distance has a relatively more potent influence on the choices of rural female respondents. In comparison, rural male respondents care relatively more about Costs than

Distance. Also, rural male respondents are more concerned about the Ease of use than rural female respondents.

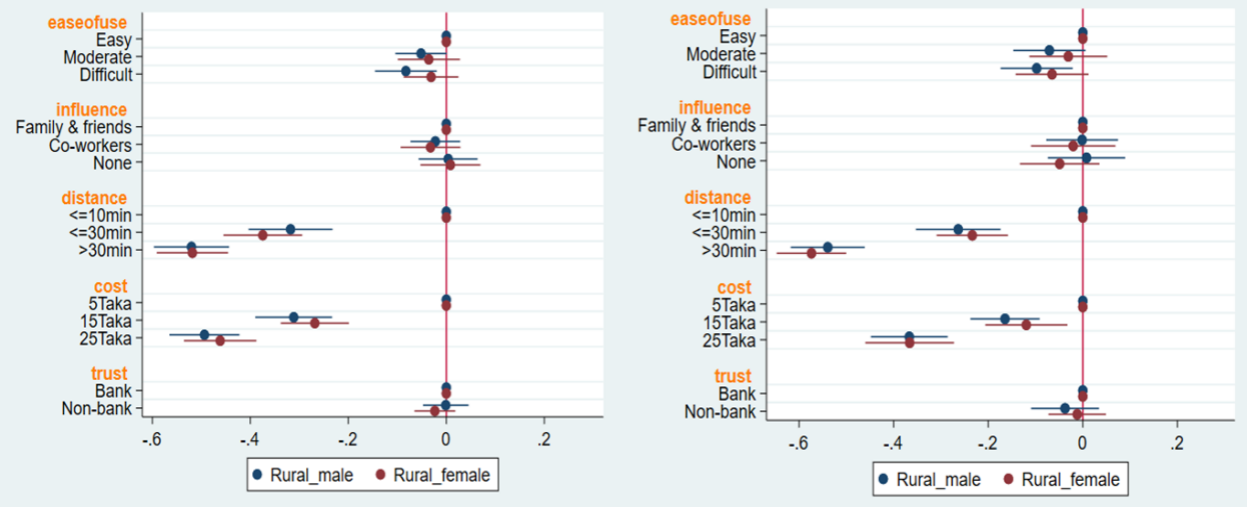


Figure 5: External and Internal Choice of Rural Respondents Regarding Gender

Nature of use: Choices of respondents who use MFS for business purposes are more concerned about Distance than Cost.

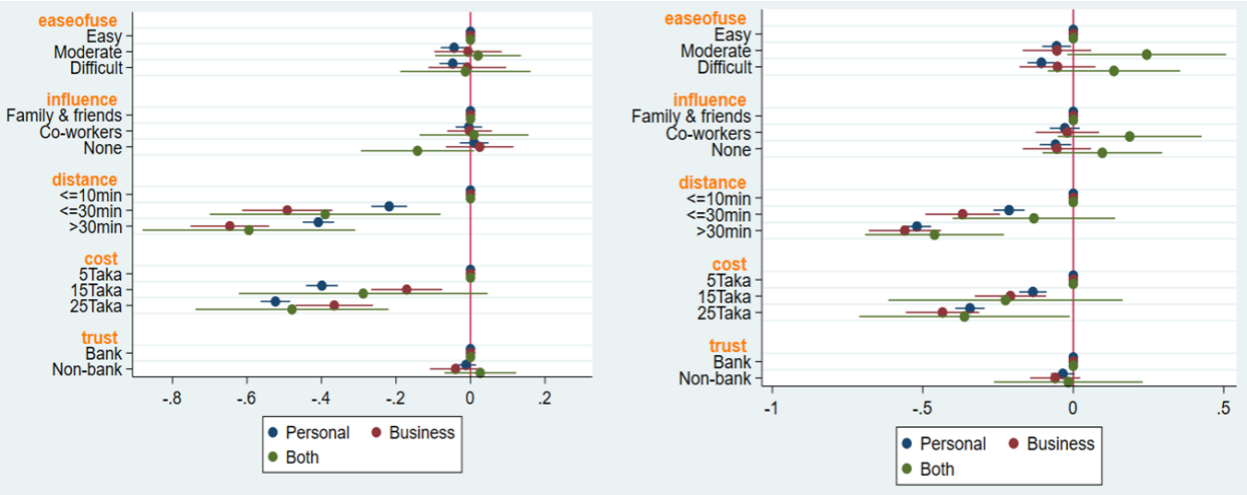


Figure 6: External and Internal Choice Regarding Nature of Use

5. Discussion

This study has found that distance from the financial service point and cost per transaction has a substantial and significant negative causal effect on the preferences. Another attribute, ease of use, also has an impact on choices, although not as strong as the two attributes stated above. However,

the results also show that the other two attributes- social influence and Trust do not have a significant causal effect. These results are consistent in both External Choice Probability and Internal Choice Probability analysis. Although the magnitude of the impact of the attributes as well as the levels would differ.

The study finds that ease of use has a significant influence on MFS adoption behavior which is congruent with several studies (Alalwan *et al.*, 2018; Sing *et al.*, 2020; Mwiya *et al.*, 2017; Kavitha & Kannan, 2020 and Shareef *et al.*, 2018) and this study is congruent on significant outcome. However, we have also found that some researchers have similarly discovered ease of use have insignificant influence on adoption behavior (Oliveira *et al.*, 2016; Baabdullaha *et al.*, 2016 and Amin *et al.*, 2015).

For the people of Bangladesh, distance is an another important factor. Oliveira *et al.*, 2016; Baabdullaha *et al.*, 2016 and Ravichandran & Madana, 2016 had found Distance from the financial service point to have a significant influence on adoption decision while Shareef *et al.*, 2018 disregarded this conclusion.

Due to the socio-economic condition, cost is an important issue. our result find that cost per transaction has a significant impact on adoption behavior was supported by Alalwan *et al.*, 2018 and other researchers such as Oliveira *et al.*, 2016 and Baabdullaha *et al.*, 2016 found cost having insignificant influence. As the other two authors have conducted their study in different areas (Alalwan *et al.* (2018) in Jordan, Baabdullaha *et al.* (2016) in Saudi Arabia and Oliveira *et al.* (2016) in Portugal), the demographic difference may have caused different conclusion. However, the influence of price value seems to be a natural and intuitive scenario, which is distinctly supported by survey data.

Social influence is one of the mojor indicators in technology adoption behavior. Surprisingly, in this study we have observed that social influence desn't have significant influence for the case of MFS in Bangladesh and the result of the study is similar to Alalwan *et al.* (2018) and Ravichandran & Madana (2016) . In many cases, the availability of multiple services was scarce, which may have left respondents depending on the services near to them. This explanation also needs to be tested in further research. However, the survey results do not support the significant impact of social influence on adoption behavior.

Regarding the role of trust, we have observed an insignificant effect on MFS adoption behavior and our result is congruent with Kavitha & Kannan (2020). In most of the previous researchers disagree with our finding concluding with its significant impact on adoption decision (Oliveira *et al*., 2016; Baabdullaha *et al.*, 2016; Alalwan *et al*., 2018; Mwiya *et al.*, 2017; Mazhar *et al*. 2014; Ravichandran & Madana, 2016 and Shareef *et al*., 2018). However, such an inconclusive result can be the opportunity to investigate more on the issue specially for the developing countries.

In the subsample analysis, it was found that the ease of use has more influence on men's decision rather than women's (Figure: 3). This can be explained by the frequency of use between men and women. As men are more recurrent (monthly) users of MFS services (6.84 times per month) comaperd to women (4.42 times per month) they tend to avoid difficulties and prefer easily operable services (Table: 6).

Rural respondents show more concern towards Distance, while urban respondents are affected by Cost more. Also, Urban respondents are found to be influenced by Distance only when it is more than 30 minutes. The survey had also discovered that the Rural population is more influenced by Ease of use, unlike their urban counterparts (Figure: 4). Comparatively, more accessibility to several MFS services and better communication in the urban areas may explain this tendency.

We have found that rural females care about distance more while rural male's primary concern is cost (Figure: 5) These findings can be explained by the social and economic structure of rural Bangladesh where men usually take the responsibility to work outside, and women typically avoid long journeys. Another finding is that respondents who use MFS for business purposes are more concerned about distance than cost (Figure: 6). As businessmen are more concerned about the reliability and compatibility of the financial services, rather than costs, this finding appears to be explainable.

The results of this study would draw a few recommendations for both regulators and service providers. From the regulatory point of view, promoting the root level spread of MFS activities should be the preliminary focus. At the same time, including more services within MFS may also be appreciated as customers do not care much about trust issues. Reviewing the current process to increase Ease of use would also be appreciated. The primary concern of the service providers

should be that customers are not satisfied with the current services. Focus on covering more remote areas and try to lessen the costs should be the preliminary goals.

6. Conclusion

In the last decade, Mobile Financial Services has achieved a tremendous boost in business. This study intended to investigate the factors or attributes behind the adoption behavior of customers, which made this upsurge possible. Along the course of this study, we tried to formulate a new approach to enquire about the causal relationship between attributes and adoption behavior. For this account, a modified version of the TAM theory was introduced. We were able to establish a causal relationship between the adoption behavior and three of the five attributes, Distance, Cost, and Case of use. The results have also discovered no significant influence on the rest of the two attributes, social influence, and Trust.

This study confirms that as the respondents do not prefer a bank over a non-bank entity or influence of others. However, the issue of availability is still a major issue driving the adoption behavior of customers as the results show the respondent's significantly negative attitude towards a service that lacks service centers nearby. Similarly, the costs per transaction are also a significant concern for the customers. This study has found the customer's dissatisfaction with the present cost structure. After analyzing the results and reviewing the findings of the previous works, we have proposed a few recommendations and encouraged future researchers to investigate newer aspects.

References

Ajzen I. & Fishbein M., (1969), The Prediction of Behavioral Intentions in a Choice Situation, *Journal of Experimental Social Psychology, 5(4),* 400-416.

Akhter N. & Khalily M. A. B., (2017), Impact of Mobile Financial Services on Financial Inclusion in Bangladesh. Paper no 52. Institute for Inclusive Finance and Development (InM). Available at: https://inm.org.bd/papers/impact-of-mobile-financial-services-on-financial-inclusion-in-bangladesh/

Alalwan A. A., Dwivedi Y. K., Rana P. N., & Algharabat R., (2018), Examining Factors Influencing Jordanian Customers' Intentions and Adoption of Internet Banking: Extending UTAUT2 with Risk, *Journal of Retailing and Consumer Services, 40,* 125-138.

Amin M. K., Azhar A., Amin A., & Akhter A., (2015), Applying the Technology Acceptance Model in Examining Bangladeshi Consumers' Behavioral Intention to use Mobile Wallet: PLS-SEM Approach, *18th International Conference on Computer and Information Technology (ICCIT), 93-98, December 2015,* Retrieved from

https://www.academia.edu/32455459/Applying_the_Technology_Acceptance_Model_in_examining_Bangladeshi_consumers_behavioral_intention_to_use_Mobile_Wallet_PLS_SEM_Approah.

Ashaduzzaman, M., Khan, M. M., & Ahmed, S. S. (2011). Consumer choice behavior towards mobile phone Operators in Bangladesh. Researchers World, 2(4), 30.

Azimy M. W., Khan G. D., Yoshida Y., & Kawata K., (2020), Measuring the Impacts of Saffron Production Promotion Measures on Farmers' Policy Acceptance Probability: A Randomized Conjoint Field Experiment in Herat Province, Afghanistan, *Sustainability, 12(10),* 4026, DOI:10.3390/su12104026

Baabdullaha A. M., Alalwan A A., Rana N. P., Kizgin H., & Patil P., (2019), Consumer Use of Mobile Banking (M-Banking) in Saudi Arabia: Towards an Integrated Model, *International Journal of Information Management, 44,* 38-52.

Bangladesh Bank, (2020), Mobile Financial Services (MFS) comparative summary statement of March 2020 and April 2020. Retrieved on June 29, 2020, Retrieved from https://www.bb.org.bd/fnansys /paymentsys/mfsdata.php

Bangladesh Bank, (2018), Bangladesh Mobile Financial Services (MFS) Regulations, Available at https://www.bb.org.bd/mediaroom/circulars/psd/jul302018psdl04e.pdf

Bangladesh Bank, (2017), Circular regarding MFS Services, PSD Circular no. 01/2017, dated: 11/01/2017, Available at https://www.bb.org.bd/openpdf.php

Bangladesh Bank, (2012), Mobile financial services in Bangladesh: an overview of market development. Bangladesh Bank Policy Paper, 1-28.

Bangladesh Bank, (2011), Amendment of Guidelines on Mobile Financial Services (MFS) for the Banks available at https://www.bb.org.bd/aboutus/regulationguideline/mfsguideline.pdf

BTRC, (2020), Mobile Phone Subscribers in Bangladesh, April 2020, Retrieved on July 18, 2020, from http://www.btrc.gov.bd/content/mobile-phone-subscribers-bangladesh-april-2020

Claessens, S., Glaessner T., & Klingebiel D., (2002). Electronic Finance: Reshaping the Financial Landscape Around the World, *Journal of Financial Services Research, 22(1-2),* 29-61.

Dahlberg T., Guo J., and Ondrus J. (2015), A critical review of mobile payment research, *Electronic Commerce Research and Applications 14(5),* 265-284.

Davis F. D., Bagozzi R. P. & Warshaw, P. R., (1989), User Acceptance of Computer Technology: A Comparison of Two Theoretical Models, *Management Science, 35(8),* 982-1003.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

de Luna, I.R., Liébana-Cabanillas F., Sánchez-Fernández J., and Muñoz-Leiva F., (2019), Mobile payment is not all the same the adoption of mobile payment systems depending on the technology applied, Technological Forecasting and Social Change, 146, 931–944.

Dwivedi, Y. K., Khan, N., & Papazafeiropoulou, A. (2007). Consumer adoption and usage of broadband in Bangladesh. Electronic Government, an International Journal, 4(3), 299-313.

Gani, M. O., Alam, M. I., Alam, M.Z., Ahmed, M.R. , Chowdhury, S. A. (2020). Determinants of M-Payment Adoption Behaviour in Bangladesh, *International Journal of Business Information Systems* 1(1):1, DOI: 10.1504/IJBIS.2020.10029186

Graf-Vlachy, L., Buhtz, K., & König, A. (2018). Social influence in technology adoption: taking stock and moving forward. Management Review Quarterly, 68(1), 37-76.

Hainmueller J., Hangartner D., & Yamamoto T., (2015), Validating vignette and conjoint survey experiments against real-world behavior. *Proceedings of the National Academy of Sciences,*

112(8), 2395-2400, Retrieved from www.pnas.org/lookup/suppl/doi:10.1073/pnas.1416587112/ DCSupplemental

Hainmueller J., Hopkins D. J., & Yamamoto T. (2014), Causal Inference in Conjoint Analysis: Understanding Multidimensional Choices via Stated Preference Experiments, *Political Analysis, 22(1),* 1-30.

Horiuchi Y., Smith D. M., & Yamamoto T., (2015), Identifying Multidimensional Policy Preferences of Voters in Representative Democracies: A Conjoint Field Experiment in Japan. MIT Political Science Department Research Paper, DOI: http://dx.doi.org/10.2139/ssrn.2627907

Iman N., (2018), Is mobile payment still relevant in the fintech era*?, Electronic Commerce Research and Applications, 30,* 72–82.

Islam, M. M. (2016). An Investigation of Drivers and Barriers Stimulating in the Acceptance of Mobile Payment in Bangladesh, *Universal Journal of Industrial and Business Management 4(*4): 104-113, 2016 http://www.hrpub.org DOI: 10.13189/ujibm.2016.040402

Islam, M. S., & Grönlund, Å. (2011). Factors influencing the adoption of mobile phones among the farmers in Bangladesh: Theories and practices. *ICTer, 4(1).*

Islam, M.Z. (2020). Inmates can get funds through bKash, Nagad (The Daily Star), Retreived from: https://www.thedailystar.net/business/news/inmates-can-get-funds-through-bkash-nagad-1895815, accessed on 5 October 2020.

Johnson, V. L., Kiser, A., Washington, R., & Torres, R. (2018). Limitations to the rapid adoption of M-payment services: Understanding the impact of privacy risk on M-Payment services. *Computers in Human Behavior*, *79*, 111-122.

Jorgenson D.W., (2001), Information technology and the US economy, *American Economic Review, 91 (1),* 1-32

Kavitha K. & Kannan D. D., (2020), Factors influencing consumers attitude towards mobile payment applications, *International Journal of Management, 11(04),* 140-150, Article ID: IJM_11_04_015, ISSN Online: 0976-6510

Khan B. U. I., Olanrewaju R. F., Baba A. M., Langoo A. A., and Assad S., (2017), A Compendious Study of Online Payment Systems: Past Developments, Present Impact, and Future Considerations, *International Journal of Advanced Computer Science and Applications, 8(5),* 256-271.

Laforet S., and Li X., (2005), Consumers' Attitudes Towards Online and Mobile Banking in China, *International Journal of Bank Marketing, 23(5),* 362–380.

Lippert, S. K., & Davis, M. (2006). A conceptual model integrating trust into planned change activities to enhance technology adoption behavior. *Journal of information science, 32*(5), 434-448.

Liza, F. Y. (2014). Factors influencing the adoption of mobile banking: Perspective Bangladesh. *Global Disclosure of Economics and Business*, *3*(2), 199-220.

Mazhar F., Rizwan M., Faiz U., Ishrat S., Razzaq M. S., & Khan T. N., (2014), An Investigation of Factors Affecting Usage and Adoption of Internet & Mobile Banking in Pakistan, *International Journal of Accounting and Financial Reporting, 4(2),* 478, ISSN 2162-3082

Mwiya B., Chikumbi F., Shikaputo C., Kabala E., Kaulung' ombe B., & Siachinji B., (2017), Examining Factors Influencing E-Banking Adoption: Evidence from Bank Customers in Zambia, American Journal of Industrial and Business Management, 7, 741-759, Retrieved from http://www.scirp.org/journal/ajibm, ISSN Online: 2164-5175

Oliveira T., Thomas M., Baptista G. & Campos F., (2016), Mobile Payment: Understanding the Determinants of Customer Adoption and Intention to Recommend the Technology, *Computers in Human Behavior, 61*, 404-414

Rahman, M. M., & Sloan, T. (2015). Opportunities and challenges of M-commerce adoption in Bangladesh: An empirical study. *The Journal of Internet Banking and Commerce, 20*(3), DOI: 10.4172/1204-5357.1000124

Ramayah T., Ignatius J., & Aafaqi B., (2005), PC Usage Among Students in a Private Institution of Higher Learning: The Moderating Role of Prior Experience, *Maiaysian Journal of Educators and Education, 20*, 131-152.

Ravichandran D., & Madana M. H. B. A. H., (2016), Factors Influencing Mobile Banking Adoption in Kurunegala District, *Journal of Information Systems & Information Technology (JISIT), 1(1)*, 24-32, ISSN: 2478-0677

Reaves B., Bowers J., Scaife N., Bates A., Bhartiya A., Traynor P., & Butler K. R., (2017) Mobile Money, Mobile Problems: Analysis of Branchless Banking Applications, *ACM Transactions on Privacy and Security (TOPS), 20(3),* 1-31.

Riivari J., (2005), Mobile Banking: A Powerful New Marketing and CRM Tool for Financial Services Companies All Over Europe, *Journal of Financial Services Marketing, 10(1),* 11–20.

Shaikh A. A., & Karjaluoto H., (2014), Mobile Banking Adoption: A Literature Review, *Telematics and Informatics, 32 (1*), 129-142.

Shareef M. A., Dutta A. B. S., Kumar V., & Dwivedie Y. K., (2018), Consumer Adoption of Mobile Banking Services: An Empirical Examination of Factors According to Adoption Stages, *Journal of Retailing and Consumer Services, 43*, 54-67.

Singh N., Sinha N., & Liébana-Cabanillas F. J., (2020), Determining Factors in the Adoption and Recommendation of Mobile Wallet Services in India: Analysis of the Effect of Innovativeness, Stress to Use and Social influence, International Journal of Information Management, 50, 192-205.

Suri T., & Jack W., (2016), The Long-run Poverty and Gender Impacts of Mobile Money, Science, 354 (6317), 1288–1292. DOI:10.1126/science. aah5309.

Szajna B., (1996), Empirical Evaluation of the Revised Technology Acceptance Model, *Management Science, 42(1),* 85-92.

UNB News (2020). Fintech MFS: Mobile Wallet for Easy Money Transfer, Payment & Savings in Bangladesh. Retreived from- https://unb.com.bd/category/Business/fintech-mfs-mobile-wallet-for-easy-money-transfer-payment-savings-in-bangladesh/43453, accessed on- 5 October 2020.

UNFPA, (2020), World Population Dashboard, retrieved on July 18, 2020, Retrieved from https://www.unfpa.org/data/world-population/BD

Zhou T., Lu Y., & Wang B., (2010), Integrating TTF and UTAUT to Explain Mobile Banking User Adoption, *Computers in Human Behavior, 26(4),* 760–767.

Appendix 1 - Survey Questionnaire

Consumer adoption of Financial Services in Bangladesh: Examining the Attributes (Questionnaire for the survey)		
	Please answer the following questions.	
Q1	Age	
Q2	Gender	Male
		Female
		Other
Q3	Marital status	Single
		Married
		Divorced
Q4	Education	School
		SSC
		HSC
		Bachelor
		Master's
Q5	Location	Urban
		Rural
Q6	Occupation	Private Service
		Public Service
		Unemployed
		Student
		RMG Worker
		Farmer
		Housewife
		Small Business Owner
		Retired
		Other
Q7	Monthly Income in BDT	0-10000 BDT
		10000-20000 BDT
		20000-30000 BDT
		30000-40000 BDT
		40000-50000 BDT
		More than 50000 BDT
Q8	Mode of transport used for travel	Bus
		Micro Bus
		Rickshaws
		Motorcycles
		Bicycles
		On foot
		Human Holler
		Car
		Electric Autos
		CNG Autos

Q9	Type of Financial service in use	MFS only
		Bank and MFS
Q10	Distance from Home to Financial Service Point (Time in minutes)	5-10 minutes
		10-30 minutes
		More than 30 minutes
Q11	Cost of travel to the FSP (if any) in BDT	
Q12	Approximate monthly transaction (amount in BDT)	0-10000 BDT
		10000-20000 BDT
		20000-30000 BDT
		30000-40000 BDT
		40000-50000 BDT
		More than 50000 BDT
Q13	Approximate monthly transaction (frequency)	
Q14	I use MFS (every month) to Receive money	
Q15	I use MFS (every month) to Send Money	
Q16	I use MFS (every month) to Receive remittance	
Q17	I use MFS/RFS (every month) to Utility bill payments	
Q18	I use MFS/RFS (every month) to Online Shopping	
Q19	I use MFS/RFS (every month) to Regular Shopping	
Q20	I use MFS/RFS (every month) to buy talk time	
Q21	I use MFS/RFS (every month) to (other reasons)	
Q22	Nature of use	Personal
		Business
		Both
Q23	My motivation to use this service	Family members
		Friends
		Co-workers
		Friends & Family
		Family & Co-workers
		Friends & Co-workers
		All three
		job/business
		None
Q24	I find the operation of the financial service I use, to be (this include documents needed to open an account, waiting time for opening an account, other formalities, Necessity of frequently visiting the bank branch/agent's office, transaction time needed, etc.)	Easy
		Moderate
		Difficult
Surveyor's name		

	Your Choice Results	
	1st Trial	
	2nd Trial	
	3rd Trial	
	4th Trial	
	5th Trial	

Sample number
100

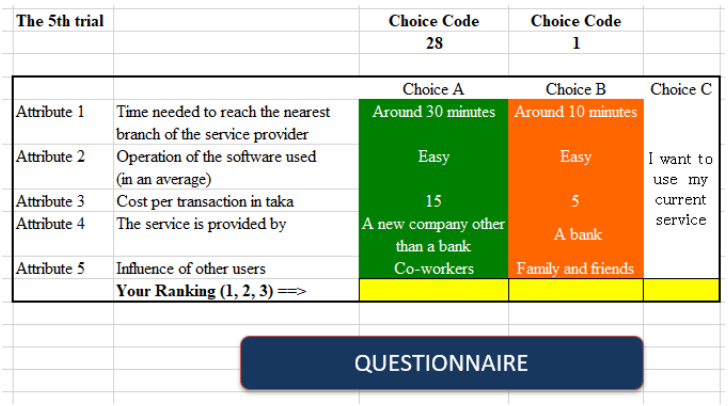
START

		Choice Code	Choice Code	
The 1st trial		**76**	**145**	
		Choice A	Choice B	Choice C
Attribute 1	Time needed to reach the nearest branch of the service provider	Around 10 minutes	Around 10 minutes	I want to use my current service
Attribute 2	Operation of the software used (in an average)	Moderate	Difficult	
Attribute 3	Cost per transaction in taka	15	5	
Attribute 4	The service is provided by	A new company other than a bank	A bank	
Attribute 5	Influence of other users	Co-workers	None	
	Your Ranking (1, 2, 3) ==>			

		Choice Code	Choice Code	
The 2nd trial		**117**	**94**	
		Choice A	Choice B	Choice C
Attribute 1	Time needed to reach the nearest branch of the service provider	Around 30 minutes	Around 10 minutes	I want to use my current service
Attribute 2	Operation of the software used (in an average)	Difficult	Moderate	
Attribute 3	Cost per transaction in taka	15	15	
Attribute 4	The service is provided by	A bank	A new company	
Attribute 5	Influence of other users	Family and friends	None	
	Your Ranking (1, 2, 3) ==>			

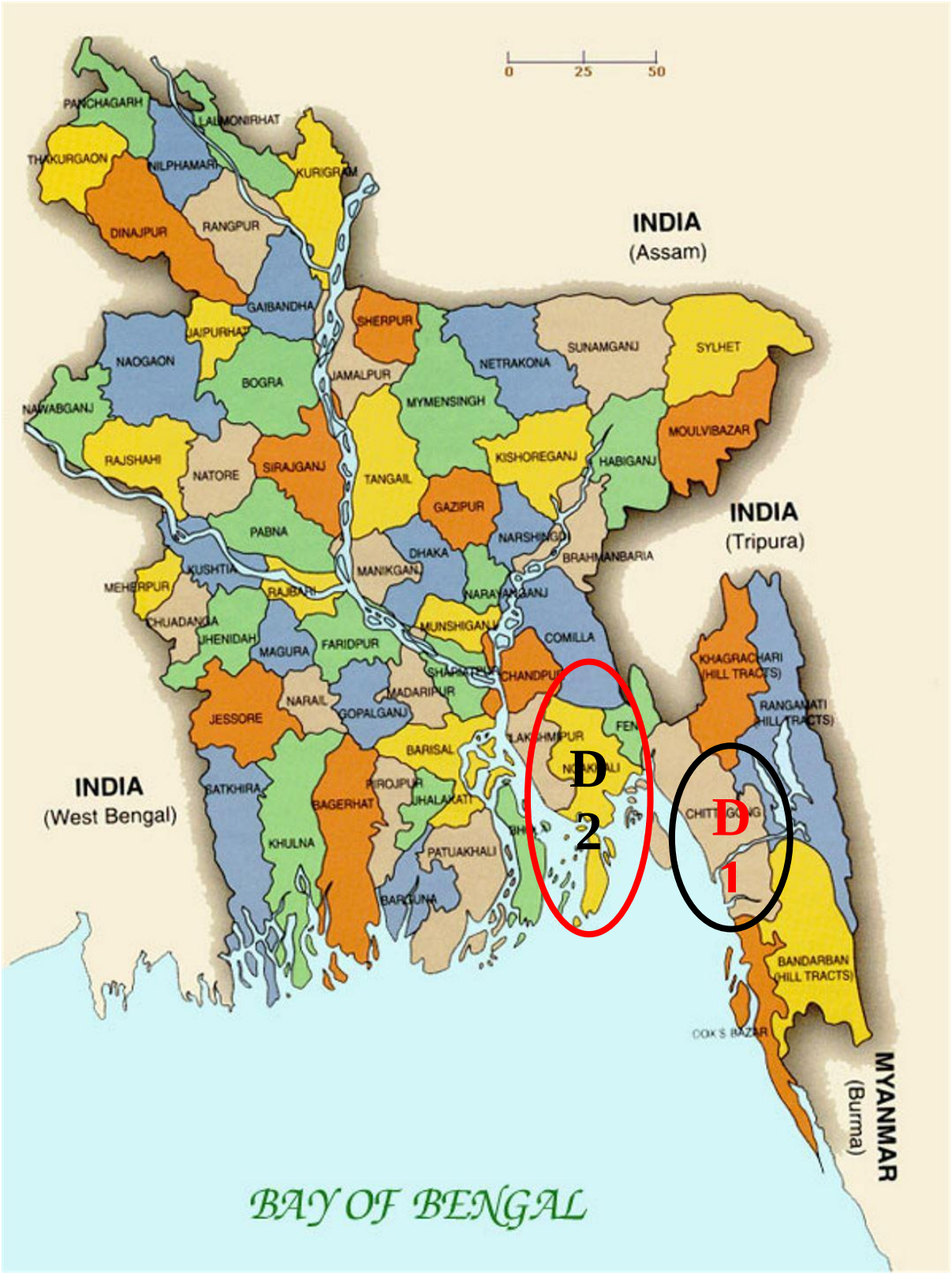
		Choice Code	Choice Code	
The 3rd trial		**96**	**19**	
		Choice A	Choice B	Choice C
Attribute 1	Time needed to reach the nearest branch of the service provider	Around 10 minutes	Around 10 minutes	I want to use my current service
Attribute 2	Operation of the software used (in an average)	Moderate	Easy	
Attribute 3	Cost per transaction in taka	25	5	
Attribute 4	The service is provided by	A new company other	A bank	
Attribute 5	Influence of other users	None	Co-workers	
	Your Ranking (1, 2, 3) ==>			

		Choice Code	Choice Code	
The 4th trial		**139**	**55**	
		Choice A	Choice B	Choice C
Attribute 1	Time needed to reach the nearest branch of the service provider	Over 1 Hour	Around 10 minutes	I want to use my current service
Attribute 2	Operation of the software used (in an average)	Difficult	Moderate	
Attribute 3	Cost per transaction in taka	5	5	
Attribute 4	The service is provided by	A bank	A bank	
Attribute 5	Influence of other users	Co-workers	Family and friends	
	Your Ranking (1, 2, 3) ==>			



The 5th trial		Choice Code 28	Choice Code 1	
		Choice A	Choice B	Choice C
Attribute 1	Time needed to reach the nearest branch of the service provider	Around 30 minutes	Around 10 minutes	
Attribute 2	Operation of the software used (in an average)	Easy	Easy	I want to use my current service
Attribute 3	Cost per transaction in taka	15	5	
Attribute 4	The service is provided by	A new company other than a bank	A bank	
Attribute 5	Influence of other users	Co-workers	Family and friends	
	Your Ranking (1, 2, 3) ==>			

Appendix 2 - Survey Area


0
25
50
PANCHAGARH
LALMONIRHAT
THAKURGAON
NILPHAMARI
KURIGRAM
DINAJPUR
RANGPUR
INDIA
(Assam)
GAIBANDHA
JAIPURHAT
SHERPUR
NAOGAON
BOGRA
JAMALPUR
NETRAKONA
SUNAMGANJ
SYLHET
NAWABGANJ
MYMENSINGH
MOULVIBAZAR
RAJSHAHI
NATORE
SIRAJGANJ
TANGAIL
KISHOREGANJ
HABIGANJ
GAZIPUR
INDIA
(Tripura)
PABNA
NARSHINGDI
DHAKA
BRAHMANBARIA
KUSHTIA
MANIKGANJ
MEHERPUR
RAJBARI
NARAYANGANJ
CHUADANGA
MUNSHIGANJ
JHENIDAH
MAGURA
FARIDPUR
COMILLA
KHAGRACHARI
(HILL TRACTS)
CHANDPUR
MADARIPUR
NARAIL
RANGAMATI
(HILL TRACTS)
JESSORE
GOPALGANJ
BARISAL
D
2
D
1
INDIA
(West Bengal)
SATKHIRA
PIROJPUR
BAGERHAT
JHALAKATI
KHULNA
PATUAKHALI
BARGUNA
BANDARBAN
(HILL TRACTS)
COX'S BAZAR
MYANMAR
(Burma)
BAY OF BENGAL