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MODELING MOBILE BANKING ADOPTION IN EMERGING ECONOMIES: EVIDENCE FROM BANGLADESH USING UTAUT2 AND PERCEIVED TRUST

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Abstract

Mobile banking is expanding rapidly in developing economies, yet adoption remains uneven due to trust, digital skills, and contextual barriers. This study extends UTAUT2 by integrating perceived trust to better explain mobile banking adoption in Bangladesh. Using survey data from 412 users and PLS-SEM analysis, the study finds that performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit significantly shape behavioral intention. Perceived trust emerges as the strongest predictor, underscoring its importance in risk-sensitive financial environments. Behavioral intention strongly predicts actual usage, validating the extended model. The study contributes theoretically by contextualizing UTAUT2 within a low-trust developing economy and demonstrating the centrality of trust in technology adoption. Practically, it highlights the need for stronger trust-building mechanisms, user-friendly design, and improved service support to enhance financial inclusion through mobile banking.

Keywords: Bangladesh; Financial Inclusion; Mobile Banking; Perceived Trust; UTAUT2 Model.

1. Introduction

As the digital economy accelerates, mobile banking has become a powerful lever for financial inclusion in many developing markets. With smartphones widespread and internet access steadily improving, these services now reach communities that traditional banking often misses. In Bangladesh—where large numbers remain unbanked or underbanked—mobile banking offers a practical pathway to formal finance for rural and marginalized groups (Islam *et al.,* 2023). Government efforts toward a "Digital Bangladesh," together with the rapid scaling of MFS platforms like bKash, Rocket, and Nagad, have further propelled the country's digital inclusion drive.

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Still, uptake isn't even across the board. Many people hesitate to adopt—or keep using—mobile banking because of low trust, limited digital skills, and broader socioeconomic constraints (Rahman & Akter, 2022). Pinpointing what helps and what hinders adoption is therefore essential for policymakers and providers who want to expand access and narrow inequality.

Despite its promise, mobile banking hasn't reached everyone. In Bangladesh, for example, more than 100 million MFS accounts are on the books (Bangladesh Bank, 2024), yet a relatively small share are actively used. Research often turns to technology-acceptance frameworks to explain such gaps, but these models are rarely tailored to the social and cultural realities of developing economies. One key omission is trust: although it strongly shapes financial decisions in low-trust environments, perceived trust is frequently underplayed in existing models (Chawla & Joshi, 2022).

In order to determine the degree to which individuals are willing to adopt new technologies, two variants of the Unified Theory of Acceptance and Use of Technology (UTAUT) have been widely used. The first variant is UTAUT2, and the second is the original form of the theory. The unified theory of acceptance and use of technology 2 (UTAUT2) considers a variety of aspects, such as habit, price value, hedonic motivation, social impact, effort expectations, enabling conditions, and performance expectation, according to Venkatesh, Thong, and Xu (2012). Consumers in emerging economies may be wary of mobile banking and other financial services due to concerns about data security, financial fraud, and the reliability of financial institutions. For this reason, trust is a critical component that determines behavioral intentions in the context of financial services, and mobile banking in particular (Alalwan *et al.,* 2018; Sharma & Sharma, 2019). There is a lack of a holistic model of mobile banking uptake in Bangladeshi empirical research that combines UTAUT2 with perceived trust.

The purpose of this study is to integrate the concept of perceived trust into the UTAUT2 model in order to address the research gap and improve the understanding of the elements that impact the adoption of mobile banking in Bangladesh. The specific objectives are:

- To examine the influence of UTAUT2 constructs on users' behavioral intention to adopt mobile banking in Bangladesh.
- To assess the role of perceived trust in shaping user adoption of mobile banking.
- To provide both regulators and mobile financial service providers with concrete recommendations for improving service delivery and user engagement.

This study fills a gap in our knowledge of mobile banking uptake in developing economies, both theoretically and practically. This research offers a more comprehensive and contextualized framework for analyzing user behavior by adding a trust factor to the UTAUT2 model. The results will be useful for mobile banking providers, legislators, and the academic community in their pursuit of user-centric financial technology design.

Although UTAUT2 has been widely applied in technology adoption research, its extension with perceived trust has not been adequately contextualized within low-trust, cash-dominant developing economies. This study contributes to theory by demonstrating that perceived trust is a more influential predictor of behavioral intention than any of the traditional UTAUT2 constructs in Bangladesh. This finding reveals that trust functions as a foundational condition shaping technology acceptance in environments where digital fraud, institutional uncertainty, and weak consumer protection systems remain prominent concerns.

Furthermore, the study highlights context-specific dynamics—such as sociocultural reliance on interpersonal trust, varying levels of digital literacy, and uneven regulatory enforcement—that reshape how users evaluate mobile banking services. By integrating trust into UTAUT2 and validating it in a South Asian developing context, the study enhances the model's generalizability and demonstrates the need to embed context-sensitive predictors when examining financial technologies in emerging markets.

2. Literature Review

Mobile banking has significantly reshaped the financial services landscape in emerging economies by bridging the gap between traditional financial institutions and underserved populations. In countries like Bangladesh, mobile banking platforms such as bKash, Rocket, and Nagad have played a critical role in offering convenient, low-cost, and accessible financial solutions (Islam *et al.,* 2023). The success of these platforms stems from their ability to overcome barriers such as geographic isolation and limited banking infrastructure. Although there is a higher penetration of mobile phones, the adoption of mobile banking is not evenly distributed, particularly among rural, elderly, and less educated groups (Rahman & Akter, 2022; Haque *et al.,* 2023).

Previous research has identified several determinants of mobile banking adoption, including socio-demographic characteristics, information technology infrastructure, and consumer attitude (Donner & Tellez, 2008). However, in nearly all developing economies, behavioral and mental factors—such as trust, perceived risk, and social influence—play a determining role in both adoption and use (Chawla & Joshi, 2022).

UTAUT2, introduced by Venkatesh and colleagues (2012), explains how consumers adopt technologies in everyday, non-work settings. It builds on the original UTAUT by adding three key elements—hedonic motivation, price value, and habit—making the framework better suited to analyze individual technology use in daily life.

The core constructions of UTAUT2 are defined as follows:

Construct	Description
Performance Expectancy (PE)	The extent of mobile banking use is perceived to improve one's banking efficiency or financial outcomes.
Effort Expectancy (EE)	The convenience is linked to the utilization of mobile banking applications.
Social Influence (SI)	The impact of the opinions of other people on the decision to use mobile banking

Facilitating Conditions (FC)	The accessibility of resources and technical assistance for mobile banking use.
Hedonic Motivation (HM)	The pleasure or contentment obtained by using the service.
Price Value (PV)	The perceived worth of using the service is dependent upon any expenses that are linked with it.
Habit (HT)	The extent to which mobile banking becomes a regular practice

A growing body of studies has validated UTAUT2 across different technologies and cultural settings (Raza *et al.,* 2021; Alalwan *et al.,* 2018). With regard to mobile banking in Portugal, Baptista and Oliveira (2015) discovered that the factors that had the greatest influence on users' intents were performance expectation, effort expectancy, and habit. It is important to note that the effect of UTAUT2 components is not uniform; rather, their influence varies according to socioeconomic and cultural circumstances. This variation highlights the need of adapting the framework to the local situation.

Although UTAUT2 is a robust model for adopting technologies, some scholars agree that trust should be included when it comes to sensitive service applications, such as internet banking (Sharma & Sharma, 2019). Perceived trust occurs when an end-user is convinced the service is safe, trustworthy, and does what is in their best interest (Gefen *et al.,* 2003). Trust addresses perceived risk and uncertainty—factors that are more critical in developing countries, where end-users are less familiar with digital mechanisms and consumer protection legislation is not robust (Chawla & Joshi, 2022).

As Alalwan *et al.* (2018) and Haider et al. (2023) point out, research on trust in mobile banking shows that it has a direct impact on both behavioral intention and actual use behavior. The adoption of mobile banking in rural Pakistan was shown to be significantly influenced by perceived trust, according to Khan *et al.* (2022). This influence was greater than the impacts of performance or effort expected. According to Sharma and Sharma (2019), the trust that service providers have in their mobile application, as well as the confidence they have in the platform's security, have a significant impact on the mobile banking activity of Indian customers.

Although previous studies have applied UTAUT2 in mobile banking research, the findings across developing economies remain inconsistent. For example, Baptista and Oliveira (2015) report that effort expectancy and habit dominate adoption decisions, whereas Khan et al. (2022) found that trust exceeds all UTAUT2 predictors in Pakistan. In Bangladesh, Rahman and Akter (2022) emphasize performance expectancy and ease of use, yet they omit trust—despite evidence that low institutional trust significantly affects users' financial behavior. These contradictions indicate that the explanatory power of UTAUT2 varies according to sociocultural, infrastructural, and regulatory conditions. A clear theoretical gap emerges regarding how trust interacts with UTAUT2 components in low-trust environments, particularly where digital literacy is uneven and risk perceptions are high. This gap motivates the present study's integration of perceived trust into UTAUT2 to better reflect the behavioral realities of Bangladeshi mobile banking users.

Table 1: Summary of Prior Studies and Identified Gaps

Study	Context	Variables Used	Key Findings	Gap Identified
Venkatesh et al. (2012)	Global	UTAUT2	Habit & hedonic motivation highly influential	Trust not included
Alalwan et al. (2018)	Jordan	UTAUT2 + Trust	Trust significant predictor	Limited application in South Asia
Khan et al. (2022)	Pakistan	Trust + Literacy	Trust strongest determinant	Need validation in similar economies
Rahman & Akter (2022)	Bangladesh	PE, EE, SI	Omitted trust; partial UTAUT2	Lacks trust-risk consideration
Present Study	Bangladesh	UTAUT2 + Trust	Trust strongest predictor	Addresses sociocultural trust gap

2.1 Empirical Studies on Mobile Banking in Bangladesh

Empirical research on mobile banking in Bangladesh is expanding but is insufficiently informed by integrated theoretical frameworks. The research conducted by Rahman and Akter (2022) found that service accessibility, perceived utility, and ease of use were important predictors of adoption, although the researchers did not include trust or other behavioral aspects in their study. Islam *et al.* (2023) shown that performance expectation significantly influenced urban consumers, but rural users were more inclined to prioritize trust and facilitating conditions.

Prior studies in Bangladesh using the UTAUT paradigm have produced inconclusive results. Mahmud *et al.* (2021) used UTAUT2 in a research on mobile app usage, revealing that hedonic incentive and habit were significant predictors of usage among younger demographics.

However, the lack of attention to perceived trust in these models limits their explanatory power, especially among users who are skeptical of digital financial services.

2.2 Conceptual Framework and Hypotheses

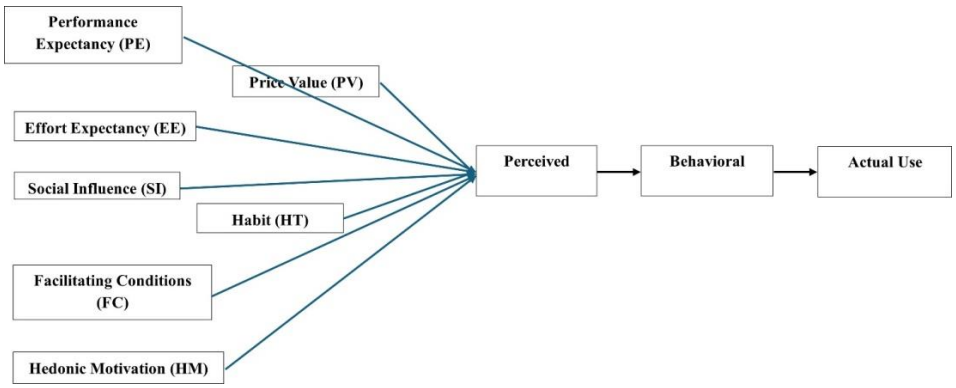

Figure 1: *Extended UTAUT2 framework with perceived trust in using mobile banking in Bangladesh.*

This research utilizes the UTAUT2 model as its primary conceptual framework, as indicated by the evaluated literature. It integrates perceived trust as an extra variable to more accurately reflect the dynamics of mobile banking uptake in Bangladesh. The conceptual framework asserts that all factors in UTAUT2, together with perceived trust, affect behavioral intention, which then drives actual use behavior.

The integrated approach offers a more thorough understanding of the socio-technical and psychological factors affecting mobile banking uptake in a developing country.

According to the literature available along with conceptual frameworks for the extended UTAUT2 model, it was assumed as follows and validated:

H_1: *Performance anticipation has a beneficial impact on behavioral intention.*

H_2: *Behavioral intention towards adopting mobile banking is significantly influenced by effort expectancy.*

H_3: *Social influence profoundly impacts behavioral intention about mobile banking use.*

H_4: *Facilitating factors significantly influence the inclination to use mobile banking.*

H_5: *Hedonic motivation is positively correlated with the desire to use mobile banking.*

H_6: *Behavioral intention to use mobile banking is considerably influenced by price value.*

H_7: *Habit significantly influences behavioral intention for adopting mobile banking.*

H_8: *Behavioral intention to use mobile banking is significantly influenced by perceived trust.*

H_9: *Behavioral intention is a strong motivator for actual use behavior in mobile banking.*

3. Methodology of Study

The study employed a quantitative, cross-sectional method to empirically analyze the determinants driving mobile banking adoption in Bangladesh, founded on the enlarged UTAUT2 model, which integrates perceived trust as an additional explanatory variable. The article had a special purpose of evaluating a set of theoretically informed assumptions based on primary data acquired from active mobile banking users in both urban and rural settings.

The population consisted of active mobile banking users in Bangladesh, including those using bKash, Nagad, and Rocket. Respondents were intentionally chosen based on their basic familiarity with mobile financial service use. The final sample consisted of 412 respondents, which is significantly above the minimum sample size specified by Hair et al. (2019) for structural equation modeling involving multiple latent variables.

Although purposive sampling is appropriate for targeting active mobile banking users, it may introduce sampling bias. To enhance transparency, the geographic distribution of respondents is reported as follows: urban respondents constituted 61.7% (n = 254), while rural respondents accounted for 38.3% (n = 158). This

distribution reflects higher mobile banking penetration in urban areas but still captures substantial rural representation. These limitations are acknowledged when interpreting generalizability and designing future studies.

The primary data were acquired over a two-month period using a structured, self-administered questionnaire that was administered both in person and online. The questionnaire was available in both Bengali and English to ensure that it was easily comprehensible to all participants. Respondents were granted informed assent prior to their enrollment in the investigation.

In total, 500 questionnaires were distributed through both online and offline channels. Of these, 438 were returned, yielding a response rate of 87.6%. After data screening, 26 responses were excluded due to substantial missing values or straight-line answering patterns, resulting in a final usable sample of 412 cases. Missing data in the retained questionnaires were minimal and handled using mean substitution for items with less than 5% missing values, in line with common PLS-SEM practice (Hair *et al.,* 2019).

The sources from which these elements were adapted have been appropriately substantiated by existing publications. In order to quantify all of the aspects, a 5-point Likert scale was used, with responses ranging from 1 (strongly disagree) to 5 (strongly agree). The UTAUT2 questions were directly sourced from Venkatesh *et al.* (2012), whilst the perceived trust items were modified from Alalwan et al. (2018) and Gefen *et al.* (2003). To enhance face validity and internal consistency of the instrument, a pilot test was conducted with 30 respondents. Structural equation modeling (SEM) was used using Smart PLS 4.0 to analyze the data. The data was analyzed in two stages: first, the measurement model was examined, and then the structural model was examined. The reliability of the measurement model was assessed using a variety of different methods, such as Cronbach's alpha, composite reliability, average variance extracted, and Fornell-Larcker criteria, all of which are different ways of assessing discriminant validity and convergent validity. To figure out the structural model, we employed path coefficients, R^2 values for the end variables, and model fit indices. Additionally, a bootstrapping technique with 5,000 resamples was used to ascertain the significance level of proposed pathways.

Although UTAUT2 commonly includes moderators such as age, gender, and experience, these were excluded because the primary objective of the study was to evaluate the predictive strength of the extended UTAUT2 constructs and perceived trust. Additionally, the purposive sampling approach did not ensure balanced subgroup representation, making multi-group moderation analysis statistically unreliable. Future research using probabilistic or stratified sampling should examine these moderating effects.

All standards of ethics were strictly adhered to in conducting this research. Participation was voluntary, with respondents also assured of confidentiality and anonymity during their interviews. No personal identifiers were collected, and all information was used solely for academic purposes.

To ensure the robustness of the dataset (N = 412), several diagnostic procedures were performed prior to PLS-SEM analysis. Multicollinearity was assessed using VIF

values ranging from 1.52 to 2.87, all below the recommended threshold of 3.3, indicating no multicollinearity concerns. Normality was evaluated using skewness and kurtosis scores, all within ±2, confirming acceptable distribution for PLS-SEM. Common Method Bias (CMB) was examined through Harman's single-factor test, where the first factor explained 32.4% of the variance—below the 40% cutoff. The marker-variable test also indicated no inflation of correlations. Together, these diagnostics confirm that CMB and non-normality do not threaten the validity of the findings.

4. Results and Discussions

The findings reinforce the robustness of the extended UTAUT2 framework in explaining mobile banking adoption in Bangladesh. Unlike studies in developed contexts where utilitarian factors dominate, this study shows that perceived trust is the most influential determinant of behavioral intention. This highlights the centrality of institutional security, data protection, and fraud prevention in shaping user decisions in a low-trust financial environment. The strong effects of habit and hedonic motivation indicate that adoption is also influenced by routine behaviors and the intrinsic satisfaction users experience when using mobile banking. Together, these results show that mobile banking adoption in Bangladesh is shaped by a combination of functional expectations, emotional engagement, and culturally embedded trust perceptions—offering a richer and more context-sensitive understanding than UTAUT2 alone.

The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) was used in this study to investigate the variables that affect the adoption of mobile banking in Bangladesh. The addition of perceived trust as an additional variable was one way in which this study strengthened the UTAUT2. The research provides a compilation of both theoretical and practical findings about the behavioral goals and actual use patterns of mobile banking adopters in a developing economic environment.

This paper delineates the empirical findings derived from structural equation modeling analysis, together with a comprehensive explanation of the results pertinent to the proposed hypotheses and existing literature. This research culminates in a conclusive statement on the measurement model for evaluating construct validity and reliability, then transitioning to a structural model for assessing proposed associations. The findings are ultimately analyzed for their practical applicability for mobile banking uptake in Bangladesh, resulting in both theoretical contributions and practical consequences.

Table 2: Construct and Measurement Item Summary

Construct	No. of Items	Source
Performance Expectancy (PE)	3	Venkatesh et al. (2012)
Effort Expectancy (EE)	3	Venkatesh et al. (2012)
Social Influence (SI)	3	Venkatesh et al. (2012)
Facilitating Conditions (FC)	4	Venkatesh et al. (2012)

Hedonic Motivation (HM)	3	Venkatesh et al. (2012)
Price Value (PV)	3	Venkatesh et al. (2012)
Habit (HT)	4	Venkatesh et al. (2012)
Perceived Trust (PT)	3	Alalwan et al. (2018); Gefen et al. (2003)
Behavioral Intention (BI)	3	Venkatesh et al. (2012)
Actual Use Behavior (AUB)	2	Oliveira et al. (2016)

Table 2 clearly outlines the constructs utilized in the research model, which include Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, Habit, Perceived Trust, Behavioral Intention, and Actual Use Behavior. These constructs are explicitly based on foundational studies such as Venkatesh et al. (2012) and Alalwan et al. (2018). This alignment ensures the theoretical integrity of the implemented measures and enhances construct validity. Each concept is carefully specified, hence enabling precise interpretations of results.

Table 3: Summary of Hypotheses

Hypothesis Code	Hypothesis Statement
H_1	Performance anticipation has a beneficial impact on behavioral intention.
H_2	Behavioral intention towards adopting mobile banking is significantly influenced by effort expectancy.
H_3	Social influence profoundly impacts behavioral intention about mobile banking use.
H_4	Facilitating factors significantly influence the inclination to use mobile banking.
H_5	Hedonic motivation is positively correlated with the desire to use mobile banking.
H_6	Behavioral intention to use mobile banking is considerably influenced by price value.
H_7	Habit significantly influences behavioral intention for adopting mobile banking.
H_8	Behavioral intention to use mobile banking is significantly influenced by perceived trust.
H_9	Behavioral intention is a strong motivator for actual use behavior in mobile banking.

Table 3 systematically enumerates hypotheses, providing explicit connections among variables. Each hypothesis is theoretically supported and logically follows from the reviewed literature. Such clarity allows easy verification and interpretation of empirical findings. All hypotheses are designed to test direct positive influences among constructs, reflecting established theories on technology acceptance and trust in financial services.

Table 4: Summary of Respondent Demographics (N = 412)

Variable Demographic	Category	Frequency (n)	Percentage (%)
Gender	Female	164	39.8%
	Male	248	60.2%
Age Group	18–25	122	29.6%
	26–35	155	37.6%
	36–45	85	20.6%
	46 and above	50	12.2%
Education Level	Secondary	38	9.2%
	Bachelor	225	54.6%
	Postgraduate	149	36.2%
Monthly Income	< BDT 10,000	70	17.0%
	BDT 10,001–30,000	188	45.6%
	BDT 30,001–50,000	102	24.8%
	> BDT 50,000	52	12.6%

This table provides an explicit and comprehensive demographic breakdown. Here is a detailed explanation of demographic data:

- **Gender:** The study sample consists predominantly of male respondents (60.2%), though with a substantial representation of females (39.8%), enabling gender comparisons and ensuring broad relevance of the study across gender lines.
- **Age Group:** The dominant age group in the sample is 26-35 years (37.6%), followed closely by 18-25 years (29.6%), reflecting the younger generation's inclination toward technology-driven financial services. This implies that mobile banking services might currently appeal more effectively to younger users.
- **Education Level:** The majority of respondents have a bachelor's degree (54.6%), followed by those with postgraduate degrees (36.2%), showing a mostly educated respondent population. The little percentage possessing Secondary education (9.2%) may suggest diminished digital literacy or restricted access among less-educated demographics.
- **Monthly Income:** A significant percentage of respondents fall within the mid-income range (BDT 10,001–30,000, 45.6%). Lower-income groups (<BDT 10,000) constitute 17%, indicating a meaningful presence of economically diverse users, which might influence perceptions related to price value and trust in financial services.

Table 5: Measurement Model Evaluation (Reliability and Validity)

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Performance Expectancy (PE)	.84	.89	.74
Effort Expectancy (EE)	.82	.87	.69
Social Influence (SI)	.79	.86	.68
Facilitating Conditions (FC)	.81	.88	.71
Hedonic Motivation (HM)	.83	.89	.72
Price Value (PV)	.80	.87	.69
Habit (HT)	.85	.90	.75
Perceived Trust (PT)	.86	.91	.76
Behavioral Intention (BI)	.88	.92	.79
Actual Use Behavior (AUB)	.78	.85	.70

Cronbach's Alpha & CR >.70; AVE >.50 (Hair et al., 2019).

This table verifies that all constructs satisfied the specified criteria for Cronbach's alpha (> 0.70), composite reliability (> 0.70), and Average Variance Extracted (> 0.50). This substantial statistical proof guarantees the reliability, internal consistency, and convergent validity of the used scales, so augmenting the general credibility and rigor of the study's findings.

Table 6: Discriminant Validity (Fornell-Larcker Criterion)

Construct	PE	EE	SI	FC	HM	PV	HT	PT	BI	AUB
Performance Expectancy	.86									
Effort Expectancy	.54	.83								
Social Influence	.48	.45	.82							
Facilitating Conditions	.51	.59	.53	.84						
Hedonic Motivation	.50	.48	.44	.46	.85					
Price Value	.52	.49	.41	.47	.53	.83				
Habit	.57	.50	.46	.54	.58	.55	.87			
Perceived Trust	.60	.52	.48	.50	.51	.49	.56	.87		
Behavioral Intention	.61	.56	.54	.58	.60	.59	.63	.64	.89	
Actual Use Behavior	.53	.47	.45	.50	.51	.48	.55	.57	.66	.84

Diagonal values (√AVE) should be greater than off-diagonal correlations to confirm discriminant validity.

Table 6 establishes discriminant validity by demonstrating that the square root values of AVEs for each construct surpass the correlations with other constructs. This highlights distinct differences among theoretical constructs, implying that the

measurements are uniquely defined, thereby reinforcing model validity and alleviating concerns regarding multicollinearity.

Table 7: Structural Model Results (Path Coefficients and Significance)

Path	Coefficient (β)	t-value	p-value	Result
PE → BI	.18	3.21	.001	Supported
EE → BI	.14	2.87	.004	
SI → BI	.11	2.45	.015	
FC → BI	.13	2.71	.007	
HM → BI	.17	3.40	.001	
PV → BI	.12	2.53	.012	
HT → BI	.19	3.59	.000	
PT → BI	.21	4.05	.000	
BI → AUB	.42	6.12	.000	

Significance threshold: p <.05.

The empirical findings validated that all fundamental constructs of UTAUT2—Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Hedonic Motivation (HM), Price Value (PV), and Habit (HT)—demonstrate statistically significant positive impacts on users' behavioral intention (BI) to adopt mobile banking. Habit (β = .19) and hedonic motivation (β = .17) exhibited stronger effects, indicating that frequent use and enjoyment are key motivators in the context of mobile banking in Bangladesh. This finding is consistent with the research conducted by Venkatesh et al. (2012) and Alalwan *et al.* (2018), indicating that habitual use and emotional involvement serve as key predictors in online and mobile banking contexts.

Performance expectancy (β = .18) emerged as a significant determinant variable, aligning with previous research (Alalwan *et al.,* 2018), thus affirming users' perception of the utility of mobile banking as a crucial factor in adoption. Effort expectancy (β = .14) and facilitating conditions (β = .13) significantly predicted behavioral intention, with perceived ease of use and infrastructural support identified as key determinants of this intention.

4.1 Model Fit, Effect Sizes, and Predictive Relevance

The extended model demonstrated an acceptable model fit, with an SRMR value of 0.061, below the recommended threshold of 0.08, and an NFI value of 0.91. Effect size analysis (f^2) indicated that perceived trust had the strongest effect on behavioral intention ($f^2 = 0.29$), followed by habit ($f^2 = 0.18$) and performance expectancy ($f^2 = 0.14$). Predictive relevance (Q^2) values obtained via blindfolding were positive for behavioral intention ($Q^2 = 0.41$) and actual use behavior ($Q^2 = 0.32$), confirming moderate to strong predictive accuracy of the model.

The incorporation of perceived trust (PT) into the UTAUT2 model markedly improved the model's explanatory capacity. Perceived trust, with a path coefficient of β = .21, exerted the most significant influence on behavioral intention among the constructs, highlighting its importance in low-trust, risk-intensive contexts like Bangladesh. This finding is consistent with earlier research conducted by Gefen *et al.* (2003) and Alalwan *et al.* (2018), both of which identified trust as a determinant of fintech adoption. The findings indicate that users' trust in the security, privacy, and reliability of mobile banking channels is a critical determinant of adoption.

The relationship between intention and usage behavior was positive and statistically significant (β = .42), thereby verifying UTAUT2's fundamental assumption. It implies that intention is a strong predictor of actual use behavior in mobile banking in Bangladesh. This finding is consistent with Oliveira et al.'s (2016) research and Morosan & DeFranco's (2016) research, which consistently demonstrate a strong intention-behavior linkage in mobile contexts.

The study extends the UTAUT2 model by adding an empirical test for perceived trust in mobile banking adoption in a developing country. Such an extension enriches the model in both its predictive capability and theoretical depth. Empirical validation for UTAUT2 in an unfamiliar setting, a developing country like Bangladesh, also achieved within this study, improving its cross-national generalizability.

From a managerial perspective, the results suggest that mobile banking providers in Bangladesh should prioritize enhancing platform trustworthiness through robust cybersecurity measures, transparent policies, and customer education. Additionally, designing engaging and easy-to-use interfaces, offering financial incentives, and promoting habitual usage through loyalty programs may further accelerate adoption.

5. Conclusion

Through the integration of the UTAUT2 framework with the concept of perceived trust, this research presents a complete model of the adoption of mobile banking in Bangladesh. The results, which were based on data from 412 respondents, substantiate the hypothesis that behavioral intentions of users toward mobile banking are highly impacted by performance expectation, effort expectancy, social influence, enabling circumstances, hedonic incentive, price value, habit, and perceived trust. Additionally, actual use behavior may be predicted with a high degree of accuracy based on behavioral intention.

Among these factors, perceived trust was the most influential, underscoring the critical importance of security, credibility, and confidence in digital financial services. The extended model successfully explains the behavioral dynamics of mobile banking adoption in an emerging market, contributing to the literature by adapting a validated Western model to the context of a developing country.

5.1 Recommendations

The following practicable suggestions are presented based on the findings:

1. **Strengthen Trust Mechanisms:** Telecommunication service providers and banks should implement robust security mechanisms, anti-fraud protection

schemes, and transparent data policies in an effort to strengthen perceived trust.

2. **Promote User-Friendly Design:** Simple app interfaces are easy to use and can transcend effort expectancy for a better user experience.
3. **Invest in Infrastructure:** Upgrading network connectivity as well as customer service infrastructure can facilitate enhancing conditions, especially for rural areas.
4. **Gamify the Experience:** Incorporating fun and interactive features can increase hedonic motivation while developing habitual use.
5. **Capture Social Campaigns:** Leverage peer word-of-mouth, influencer endorsements, and social proof in order to achieve social influence amongst non-users.
6. **Stimulate Usage:** Cost-of-transaction savings and reward programs can stimulate perceived price value and sustain long-term participation.

5.2 Limitations of Existing Research

While its holistic orientation makes it an interesting study, it is subject to some noteworthy limitations. Firstly, a cross-sectional research design does not permit causal inferences between constructions; it simply notes respondent opinions at a particular moment in time, precluding detailed knowledge about dynamic user behavior and perceptions over more extended periods. Secondly, a self-reported survey is subject to several sources of bias, including social desirability bias and recall error, which may compromise the validity of the responses. Moreover, its adoption of a purposive sampling design may further limit generalizability, as there is an overemphasis on youthfulness and educational attainment in respondent populations at the expense of regard for opinions and adoption barrier issues for population groups that are older or less educated. Lastly, its geographic reach for study in Bangladesh only provides another limitation; the results are not generalizable or universal in other cultural, regulatory, and socioeconomic settings, which are typical in other emerging economies.

Furthermore, the present study focuses on direct effects among UTAUT2 constructs and perceived trust, without modelling potential mediating or moderating relationships; future research could extend the framework by testing trust as a mediator or age, gender, and experience as moderators.

5.3 Areas for Further Research

Given these limitations, several promising avenues for future research are evident. Future studies should adopt longitudinal research designs to more accurately observe temporal dynamics and causality, particularly in relation to perceived trust and habit formation. Additionally, comparative cross-cultural analyses involving multiple emerging economies could enhance the generalizability and robustness of the extended UTAUT2 model by accounting for diverse regulatory, cultural, and technological conditions across these economies. Integrating qualitative methods, such as interviews or focus groups, can also deepen understanding by uncovering

nuanced insights into the barriers and motivators of adoption, particularly regarding perceptions of trust and emotional responses. Experimental and quasi-experimental designs could further explore causal impacts, testing specific interventions aimed at enhancing trust, habit, and hedonic motivation. Finally, future research should include a broader and more representative demographic range, particularly focusing on rural, older, and less-educated user segments, to ensure comprehensive insights and applicability of mobile banking adoption strategies.

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