BEHAVIORAL DETERMINANTS OF DIGITAL FINANCIAL INCLUSION IN INDIA: AN INTEGRATED TAM–TPB APPROACH WITH THE MEDIATING ROLE OF DIGITAL FINANCIAL BEHAVIORAL INTENTION

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ABSTRACT

Digital Financial Inclusion continues to be recognized as an increasing priority in developing economies, yet simply having access to a digital financial infrastructure doesn't mean it will lead to being utilized. To fill this gap, this current research looks into the psychological factors behind Digital Financial Inclusion (DFI) through the Technology Acceptance Model (TAM) and Theory of Planned Behaviour (TPB), with the added construct of Digital Financial Behavioural Intention (DFBI). Using survey data from 450 individuals in rural and semi-urban areas of India, this study uses two stages of Structural Equation Modelling (SEM) which comprises Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and Path Analysis. The findings demonstrated that DFBI is significantly shaped by, perceived usefulness (PU), perceived ease of use (PEOU), attitude, subjective norm, and perceived behavioural control, and continues to be a very strong predictor of DFI. Many of the previous antecedents objectified weak and/or insignificant direct and indirect effects on DFI through the mediation of DFBI; however all of these notions indicate the importance of Behavourial Intention as a key factor in converting digital access to financial engagement. The findings provide theoretic contribution through validating an integrated TAM-TPB framework within the developing economic context and provide clear actionable insights to policymakers and fintech stakeholders to encourage more inclusive Digital Financial Adoption.

Keywords: Digital financial inclusion, Technology Acceptance Model, Theory of Planned Behavior, behavioral intention, SEM, India

1. INTRODUCTION

Financial inclusion has historically been recognised as a major driver of inclusive economic growth, poverty alleviation and social equity, especially in developing or emerging market economies, (Beck et al., 2007; Demirgüç-Kunt et al., 2018). Inclusive financial systems by facilitating the availability of access to savings, loans, insurance and payment systems, provide individuals with tools to manage risk, make investments into productive activities and enhance household welfare. The concept of financial inclusion has evolved rapidly due to the proliferation of digital technology. Digital financial services such as mobile banking, digital wallets (eWallets), and electronic payment platforms can increasingly be considered scalable and cost-effective solutions for overcoming legacy barriers to the traditional banking

infrastructure, geographic isolation, and relatively high transactional costs (Ozili, 2020; Sahay et al., 2020). Globally, digital finance has offers significant opportunities for enhancing financial access. Mobile Money in Sub-Saharan Africa, Digital Payment Ecosystems in East Asia and FinTech are changing the way we conduct everyday financial transactions and has contributed to the acceleration of Financial Inclusion of underbanked populations (Aker & Mbiti, 2019; Jack & Suri, 2016; Frost, 2023). Furthermore, while access to digital financial infrastructure has proliferated rapidly, and there has been little evidence of meaningful, consistent utilisation. The latest World Bank's Global Findex Database (2022) shows that there is a continuing disparity between ownership and usage, particularly among women, people living in rural areas, senior citizens and low-income demographic groups.The access-usage paradox indicates that even though individuals may have access to financial services, they may not be using them to their fullest advantage because of different behavioral and psychological characteristics that affect their willingness to use those services.

India provides an excellent opportunity to study this paradox. Over the past decade, India has become a global leader in digital financial system development with initiatives such as the Pradhan Mantri Jan Dhan Yojana (PMJDY), Aadhaar-based digital identity verification, and Unified Payments Interface (UPI), resulting in almost all people having bank accounts and rapidly growing use of digital payment systems (NPCI, 2024; MoSPI, 2025). However, empirical studies show that a large percentage of bank accounts remain unused or inactive and that use of digital financial services is concentrated among urban, younger, and digitally literate individuals, which indicates that infrastructure alone cannot create fully inclusive financial systems in India (Ghosh, 2023; Sarma & Pais, 2021). Additionally, it points to the need to examine the underlying behavioral mechanisms that drive people's decisions to adopt and use digital financial services.

Prior research increasingly recognizes that what matters to individuals is their perception of usefulness, ease of use, trust, social influence and perceived ability in choosing to adopt and continue using digital financial services (Davis, 1989; Ajzen, 1991; Singh & Srivastava, 2020). The Technology Acceptance Model (TAM) focuses on cognitive evaluations (i.e. the perceived usefulness and perceived ease of use) as determinants of technology adoption (Davis, 1989). In contrast, the Theory of Planned Behavior (TPB) considers the factors of attitude, norm, and control, and proposes that attitude, subjective norm, and perceived behavioral control determine behavioral intention and behavior (Ajzen, 1991, 2002). Although both frameworks have been applied extensively in research on digital banking and mobile payment, they are often used separately, and are therefore the source of fragmented explanations of digital financial inclusion. Moreover, existing studies often focus on direct relationships between adoption determinants and usage outcomes while missing the key role that behavioural intention plays as the psychological connection between perceptions and actual financial engagement. Behavioral intention has been repeatedly found to be the closest and most accurate predictor of behavior in various technology adoption situations (Venkatesh et al., 2003; Oliveira et al., 2016). In the context of digital finance, intention represents motivational readiness of individual to incorporate digital services in routine financial activities especially in the context of perceived risk, low digital literacy, and social uncertainty (Sharma & Kukreja, 2022).

The present research seeks to fill the above gaps by developing and testing an integrated TAM-TPB framework with Digital Financial Behavioral Intention (DFBI) as a mediating variable between adoption antecedents and digital financial inclusion outcomes. The proposed model will be tested in rural/ semi-urban India using structural equation modelling (SEM). The findings of this research will provide a comprehensive behavioural explanation of why digital financial access and usage does not always result in meaningful digital financial inclusion. The research will contribute to technology adoption theory, behavioural finance, and financial inclusion literature, as well as provide actionable recommendations for policymakers and fintech enterprises attempting to design and implement digital financial participatory strategies beyond access, but primarily sustained and meaningful participation amongst all individuals.

2. THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

Digital financial inclusion encompasses not only access to digital financial infrastructure but also sustained and meaningful use of digital financial services to conduct payments, save, borrow, and transfer money (Ozili, 2020; World Bank, 2022). Digital financial inclusion is therefore fundamentally behavioral and influenced by individuals' cognitive processes, social context, and perceived agency to use digital financial services. This complexity informs our approach to understanding digital financial inclusion and how it is achieved through the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB) by identifying Digital Financial Behavioral Intention (DFBI) as a key mediating process between adoption precursors and inclusive results.

2.1 Technology Acceptance Model (TAM)

Originally introduced by Davis in 1989, the Technology Acceptance Model (TAM) is widely accepted as one of the most tested means to explain why people use information systems and how that decision to accept (or reject) a system affects their use of that system. In TAM, there are two primary cognitive beliefs that guide users when they make their decision to accept a system and use it, namely Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). PU is described as how much value an individual thinks will be realised based on improved performance of a task, while PEOU indicates how easy is it for an individual to interact with the system they are assessing (Davis, 1989). With regard to digital financial services, PU is viewed as how fast a transaction can take place, the convenience that a digital service will provide, how transparent the service is, and whether the service provides a lower cost compared to using cash or going into a branch-based financial system (Oliveira et al., 2016; Gupta & Arora, 2019). Within the context of developing economies, research has demonstrated that when users perceive a digital banking platform or payment service is providing them with benefits in terms of time saved by less travel, lower costs for each transaction, and better access to financial institutions, this perception increases their intention to use the digital service (Karjaluoto et al., 2019; Shah and Patel, 2022).

In newly developed nations, PEOU plays a major role in whether a user will decide to use a digital financial service or not, because digital and financial literacy levels are not equally distributed (Mothobi & Gillwald, 2018; Raza et al., 2024). For example, when using a digital service, users may fail to fully understand what is happening because the user interface is

complex, and this may lead to frustration or confusion. The result is that many users in emerging markets ultimately abandon a digital financial service, despite their initial perceptions of its usefulness or potential benefits (Runsewe et al., 2024). A number of previous studies have confirmed that users who have an easier experience with digital financial services, i.e., they do not face too many challenges, develop stronger intentions of using the service, and continue to use the service if it is intuitive and easy to use (Zhao & Bacao, 2021; Singh & Srivastava, 2020).

Based on TAM, the following hypotheses are proposed:

H1: Perceived usefulness has a positive and significant effect on digital financial behavioral intention.

H2: Perceived ease of use has a positive and significant effect on digital financial behavioral intention.

H3: Perceived usefulness has a positive and significant effect on digital financial inclusion.

H4: Perceived ease of use has a positive and significant effect on digital financial inclusion.

2.2 Theory of Planned Behavior (TPB)

Although the Technology Acceptance Model (TAM) provides the foundation for this study by focusing on the cognitive evaluation of the technology itself, it does not adequately address the effects of other individuals on an individual's adoption of digital financial services, nor does it account for the individual's ability to control their behaviour. Therefore, this study will also include the Theory of Planned Behaviour (TPB) which builds upon the TAM by including the concept of Perceived Behavioural Control (PBC) along with Attitude (ATT) and Subjective Norm (SN). TPB argues that one's intentions to behave in a particular manner are determined jointly by three factors (ATT, SN, PBC), which are considered to be the immediate precursors of one's actual behaviour (Ajzen, 1991; Fishbein & Ajzen, 2010). An individual's overall opinion about digital financial services represents their attitude towards using these types of platforms. Positive attitudes are likely to develop from seeing digital services as modern, empowering, providing more control over finances, and offering convenience (Chawla & Joshi, 2019; Sharma & Kukreja, 2022). Research investigating mobile payment and e-wallet adoption has consistently shown that positive attitudes significantly increase a user's behavioural intentions to adopt or continue using these services (Singh & Srivastava, 2020; Saprikis et al., 2022).

Subjective Norm reflects the social pressures perceived by individuals from their family members, friends, community leaders, or societies that affect their decisions to participate in digital financial services (Ajzen, 1991). In collectivistic cultures such as India, financial behaviours often encompass social influence and therefore normative influence is a strong driving force behind an individual's decision to adopt digital finance (Hofstede, 2001; Chaouali & El Hedhli, 2019). Digital finance can be legitimised by the recommendations of trusted social networks and visible peer adoption (Singh et al., 2023). Perceived Behavioural Control (PBC) refers to individuals' confidence in their ability to successfully engage with digital financial services and is determined by an individual's access to resources, skills, and support (Ajzen, 2002). In the case of digital finance, PBC is highly associated with digital

literacy, self-efficacy, and the level of perceived security associated with using these types of services (Bandura, 1986; Ullah et al., 2022). An individual's ability to navigate the application interface, fix errors, and protect themselves against fraud will increase the likelihood that the individual will develop strong intention to use the service and subsequently use the service for a long term (Shah & Patel, 2022; Raza et al., 2024). Accordingly, the following hypotheses are formulated:

H5: Attitude has a positive and significant effect on digital financial behavioral intention.

H6: Subjective norm has a positive and significant effect on digital financial behavioral intention.

H7: Perceived behavioral control has a positive and significant effect on digital financial behavioral intention.

H8: Attitude has a positive and significant effect on digital financial inclusion.

H9: Subjective norm has a positive and significant effect on digital financial inclusion.

H10: Perceived behavioral control has a positive and significant effect on digital financial inclusion.

2.3 Mediating Role of Digital Financial Behavioral Intention

Behavioral intention is a key construct of both TAM and TPB. It has been validated many times as the best predictor of actual behaviour in different contexts related to technology use (Ajzen, 1991; Venkatesh et al., 2003). In digital finance, an individual's Digital Financial Behavioural Intention (DFBI) represents their motivation and readiness to engage with digital platforms for completing everyday activities related to finance, including making payments, saving money, and transferring funds (Oliveira et al., 2016; Sharma & Kukreja, 2022). Research has shown that although cognitive and social factors impact perceptions of an individual's willingness to adopt technology, they primarily affect the actual use of that technology through intentions (Singh & Srivastava, 2020; Shah & Patel, 2022). Intentions can be particularly vital in developing countries where there are resources available for the infrastructure of digital finance, but there are mental barriers preventing them from using those resources (Ghosh, 2023; World Bank, 2022). The present research argues that DFBI is the mediator between access to digital financial services and a person using those services, meaning digital financial inclusion is not an automatic outcome but a behavioural progression that requires a person to form an intention before they will engage with these services. The following hypothesis will now be proposed:

H11: Digital financial behavioral intention has a positive and significant effect on digital financial inclusion.

H12–H13: Digital financial behavioral intention mediates the relationships between TAM–TPB antecedents and digital financial inclusion.

3. RESEARCH METHODOLOGY

3.1 Research Design

The current study aims to conduct an empirical investigation into the factors influencing the digital financial inclusion pattern within the framework of Technology Acceptance Model (TAM) and Theory of Planned Behaviour (TPB) via a quantitative, explanatory, and cross-sectional research design. Given that this research seeks to empirically test the theory-driven hypotheses and quantitatively estimate causal relationships between the latent constructs using statistical modeling approaches, a quantitative approach is warranted (Hair et al., 2019). As the explanatory nature of this design allows for the assessment of cognitive, attitudinal, social and control-related determinants of digital financial behavioural intentions and, thereby, digital financial inclusion. Cross-sectional design involves obtaining data from one point in time as opposed to longitudinal studies where data collection occurs at multiple time points. Due to their ease of use and ability to accurately represent and capture the current attitudes, intentions and behaviours of individuals within an established socio-economic environment, the use of cross-sectional survey designs is prevalent in both the technology adoption and financial inclusion fields (Oliveira et al., 2016; Sharma & Kukreja, 2022). Although Longitudinal design offers the ability to understand behavioural change over time, Cross-sectional surveys are appropriate to evaluate theory and support the development of policy relevant inferences in the context of emerging economies (Hair et al., 2019).

3.2 Research Context and Study Area

This research occurred within rural and semi-urban areas of India where there is rapid growth of the Digital Infrastructure; however, there exists a gap in the use of that Digital Infrastructure. With the implementation of several initiatives to create a Digital Financial Ecosystem in India such as the Prime Minister's Jan Dhan Yojana, Aadhaar-based identification system and the Unified Payment Interface, there is widespread access to Digital Financial Products; however, there are still great challenges as regards the lack of usage and dormant accounts by those individuals living in Rural and Semi-Urban locations (Ghosh, 2023; World Bank, 2022). Due to Digital Inclusion concerns, Rural and Semi-Urban areas have been targeted to research this particular group because they tend to have access to the Digital World but are typically reluctant to participate (Sarma & Pais, 2021).

3.3 Sampling Design and Sample Size

The target population included people who had access to at least one type of digital financial service, either a bank account, mobile banking application or digital payment platform. A purposive sampling technique was adopted to ensure that respondents had prior exposure to digital financial services which is essential to the valid assessment of perceptions and behavioral intention (Churchill & Iacobucci, 2010). A total of 450 valid responses were collected and retained for analysis. The sample size is larger than minimum values that require Structural Equation Modelling (SEM), which include 200 observations as a minimum (Kline, 2016) or a 10:1 ratio of cases per estimated parameters (Hair et al., 2019). In order to increase the level of analytical rigor and to alleviate typical method issues, the data were randomly divided into two subsamples of 225 respondents each for Exploratory Factor

Analysis (EFA) and Confirmatory Factor Analysis (CFA), respectively, following best practices in measurement validation (MacCallum et al., 1999).

3.4 Instrument Development and Measurement of Constructs

Using a structured questionnaire based on existing, validated scales from previous research in technology adoption and digital finance, the researchers collected data. Each of the constructs utilized in the study was defined as a latent variable that could be measured using multiple indicators, which had been accepted by the academic community for use in research on behaviour and perceptions. The questions were administered using a 5-point Likert scale where participants indicated their level of agreement with the items from "1" (Strongly Disagree) to "5" (Strongly Agree) (Joshi et al., 2015). Perceived usefulness and perceived ease of use were based on the original TAM scale (Davis, 1989). Items measuring the participants' attitudes, subjective norms, and perceived levels of behavioural control were drawn from the theory of planned behaviour (TPB) literature (Ajzen, 1991, 2002; Shih & Fang, 2004). Digital financial behavioural intention was defined as a participant's motivation to use digital financial services and was developed in accordance with prior research on mobile banking and digital payments (Oliveira et al., 2016; Singh & Srivastava, 2020). Digital financial inclusion was defined as the extent to which an individual actively engages and meaningfully participates in digital financial activities; therefore the concept was measured as the extent of meaningful and active involvement with digital financial services than merely the availability of services (Ozili, 2020). The questionnaire was evaluated for content validity and clarity prior to conducting data collection to ensure it was appropriate to the study's context and participants understood the questions (Hair et al., 2019).

3.5 Data Collection and Data Analysis Procedure

Data were collected using a mixture of on and off-site administration of surveys in order to guarantee inclusion of respondents with different levels of digital access. Participation was voluntary and anonymity and confidentiality were assured to minimize social desirability bias. To check for possible non-response bias, early responses and late responses were compared after the procedure proposed by Armstrong and Overton (1977), and no significant differences were found. Data analysis was performed with the help of statistical software, i.e., version 21.0 of the Statistical Package for Social Sciences (SPSS) and version 24.0 of the statistical software package AMOS, and the analysis was done in a multi-stage manner.

First, Exploratory Factor Analysis (EFA) was conducted to investigate the underlying structure of the factors and to test the dimensionality of the constructs. The appropriateness of the data for factor analysis was assessed by using the Kaiser-Meyer-Olkin (KMO) measure and the Bartlett's Test of Sphericity (Kaiser, 1974). Second, Confirmatory Factor Analysis (CFA) were used to validate the measurement model in terms of reliability, convergent validity and discriminant validity. Reliability was measured by Cronbach's alpha and the composite reliability while convergent and discriminant validity were measured by Average Variance Extracted (AVE) and the Fornell-Larcker criterion (Fornell & Larcker, 1981; Hair et al., 2019). Finally, Structural Equation Modelling (SEM) was used to test the hypothesized relationships between TAM constructs, TPB constructs, digital financial behavioural intention and digital financial inclusion. SEM is especially suitable for this study as it gives

the opportunity for estimating several direct and indirect relationships at the same time, taking into account measurement error (Byrne, 2016; Kline, 2016). The mediating role of behavioral intention was discussed in terms of significance of indirect effects according to established mediation testing procedures (Preacher & Hayes, 2008).

Given the self-reported and cross-sectional nature of the data, possible common method bias was addressed with both procedural and statistical remedies. Procedurally the anonymity was guaranteed, and item wording was carefully designed to minimize evaluation apprehension. Statistically, Harman's single factor test was performed and the test results indicated that there was not a single factor which explained most of the variance, in this case, common method bias was not likely to be a serious issue (Podsakoff et al., 2003; Fuller et al., 2016). The research followed standard ethical guidelines for social science research. Participation was voluntary, informed consent was obtained, and respondents were informed of the academic purpose of the study. No personally identifiable information was obtained and data were only used for research purposes.

4. RESULTS

This section discusses the empirical results derived from the analysis of the integrated Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB) framework. The empirical results are organized to first test the measurement model using Confirmatory Factor Analysis (CFA) and then test the structural model using Structural Equation Modeling (SEM) to examine the proposed structural relationships.

4.1 Measurement Model Assessment

Confirmatory Factor Analysis (CFA) was conducted using the AMOS software to assess the reliability, convergent validity, and discriminant validity of the seven latent constructs: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude (ATT), Subjective Norm (SN), Perceived Behavioral Control (PBC), Digital Financial Behavioral Intention (DFBI), and Digital Financial Inclusion (DFI). The results showed that all the standardized factor loadings were significant at $p < 0.001$ and exceeded the minimum threshold of 0.60. The Composite Reliability (CR) ranged from 0.805 to 0.922, which exceeded the minimum acceptable level of 0.70. The Average Variance Extracted (AVE) ranged from 0.509 to 0.748, which exceeded the minimum acceptable level of 0.50. The results are shown in Table 1.

Table 1. Confirmatory Factor Analysis: Measurement Model Loadings, Reliability, and Convergent Validity

Construct	Item	Standardized Loading (λ)	CR	AVE
Perceived Usefulness (PU)	PU1	0.646***	0.868	0.625
	PU2	0.816***		
	PU3	0.860***		
	PU4	0.822***		
Perceived Ease of Use (PEOU)	PEOU1	0.795***	0.854	0.594
	PEOU2	0.769***		
	PEOU3	0.771***		

	PEOU4	0.746***		
Attitude (ATT)	ATT1	0.810***	0.856	0.598
	ATT2	0.837***		
	ATT3	0.751***		
	ATT4	0.687***		
Subjective Norm (SN)	SN1	0.893***	0.922	0.748
	SN2	0.843***		
	SN3	0.846***		
	SN4	0.876***		
Perceived Behavioral Control (PBC)	PBC1	0.674***	0.805	0.509
	PBC2	0.697***		
	PBC3	0.784***		
	PBC4	0.694***		
Digital Financial Behavioral Intention (DFBI)	DFBI1	0.804***	0.884	0.657
	DFBI2	0.845***		
	DFBI3	0.863***		
	DFBI4	0.723***		
Digital Financial Inclusion (DFI)	DFI1	0.777***	0.857	0.545
	DFI2	0.704***		
	DFI3	0.705***		
	DFI4	0.745***		
	DFI5	0.756***		

Note: ***$p < .001$; CR = Composite Reliability; AVE = Average Variance Extracted.

The discriminant validity was tested using the Fornell-Larcker criterion. As shown in Table 2, the square root of the average variance extracted for each construct is greater than its correlation with all other constructs, which confirms that each construct is distinct. It is worth noting that although the correlation between Digital Financial Behavioral Intention and Digital Financial Inclusion was moderate, the square roots of the average variance extracted for both constructs were greater than the correlation between them, thus meeting the requirements of discriminant validity.

Table 2. Discriminant Validity: Fornell–Larcker Criterion

Construct	DFBI	PU	PEOU	ATT	SN	PBC	DFI
DFBI	**0.811**						
PU	0.234	**0.790**					
PEOU	0.305	0.249	**0.770**				
ATT	0.303	0.571	0.128	**0.773**			
SN	0.318	0.253	0.273	0.205	**0.865**		
PBC	0.364	0.266	0.231	0.266	0.255	**0.714**	
DFI	0.436	0.346	0.285	0.357	0.374	0.323	**0.738**

Note: Diagonal values represent √AVE.

The fit of the measurement model was found to be excellent. The chi-square to degrees of freedom ratio (χ^2/df) was 1.684, which is well within the recommended limit of 3.0. The absolute fit indices revealed the goodness of fit of the model (GFI = 0.914; AGFI = 0.905; RMR = 0.044). The incremental fit indices further reinforced the goodness of fit of the model (CFI = 0.963; TLI = 0.958; IFI = 0.963). The RMSEA of 0.039, along with the PCLOSE of 1.000, further revealed that the model fits closely to the population data.

4.2 Structural Model Results

4.2.1 Direct Relationships

Structural Equation Modeling was employed to.test the proposed relationships between the constructs of TAM and TPB and their influence on Digital Financial Behavioral Intention and Digital Financial Inclusion. The structural model had an acceptable overall fit. The chi-square ratio (χ^2/df = 3.041) reached acceptable levels, and the goodness-of-fit measures were satisfactory (GFI = 0.912; AGFI = 0.905). Although the incremental fit indices like CFI (0.882) slightly violated the optimal level of 0.90, they still remained at the marginally acceptable level for complex behavioral models. The RMSEA of 0.069 further reinforced the acceptable fit of the model.

Table 3: Structural Path Estimates and Hypothesis Testing (SEM)

Hypothesis	Structural Path	β	C.R.	p-value	Result
H1	PU → DFBI	0.199	4.667	***	Supported
H2	PEOU → DFBI	0.267	6.264	***	Supported
H3	ATT → DFBI	0.165	3.869	***	Supported
H4	SN → DFBI	0.141	3.315	***	Supported
H5	PBC → DFBI	0.155	3.637	***	Supported
H6	PEOU → DFI	−0.058	−1.905	0.057	Not Supported
H7	PU → DFI	0.068	2.248	0.025	Supported
H8	ATT → DFI	0.063	2.101	0.036	Supported
H9	SN → DFI	0.100	3.362	***	Supported
H10	PBC → DFI	0.066	2.228	0.026	Supported
H11	DFBI → DFI	0.735	22.644	***	Supported

The standardized path coefficients and test of hypotheses are shown in Table 3. All the antecedents from the TAM and TPB models—Perceived Usefulness, Perceived Ease of Use, Attitude, Subjective Norm, and Perceived Behavioral Control—had statistically significant positive influences on Digital Financial Behavioral Intention (p < .001). Of these, Perceived Ease of Use had the strongest influence (β = 0.267), followed by Perceived Usefulness (β = 0.199), suggesting that usability and perceived performance value are both pivotal in influencing the intention to use digital financial services. For direct influences on Digital Financial Inclusion, Perceived Usefulness (β = 0.068), Attitude (β = 0.063), Subjective Norm (β = 0.100), and Perceived Behavioral Control (β = 0.066) showed statistically significant positive influences. However, the direct path from Perceived Ease of Use to Digital Financial Inclusion was not significant, suggesting that ease of use does not have a direct outcome in inclusion. More importantly, Digital Financial Behavioral Intention was found to be a strong

predictor of Digital Financial Inclusion ($\beta = 0.735$, $p < .001$), emphasizing the pivotal role of intention as the most proximal predictor of inclusive financial behavior. The model explained 18.2% of the variance in Digital Financial Behavioral Intention and 61.4% of the variance in Digital Financial Inclusion, suggesting that the integrated TAM-TPB framework has a strong explanatory role.

4.2.2 Mediation Analysis

To examine whether Digital Financial Behavioral Intention mediates the relationships between TAM–TPB constructs and Digital Financial Inclusion, a bootstrapping procedure with bias-corrected confidence intervals was employed. The standardized direct, indirect, and total effects are presented in Table 4.

Table 4: Mediation Effects of Digital Financial Behavioral Intention

Predictor	Direct Effect	Indirect Effect	Total Effect	Mediation Type
PU → DFI	0.068	0.146***	0.214	Partial
PEOU → DFI	−0.058	0.196***	0.138	Full
ATT → DFI	0.063	0.121**	0.184	Partial
SN → DFI	0.100	0.104**	0.204	Partial
PBC → DFI	0.066	0.114***	0.180	Partial

Note: Bootstrapping with bias-corrected confidence intervals; **$p < .01$, ***$p < .001$.

The results show that Digital Financial Behavioral Intention is a full mediator for the relationship between Perceived Ease of Use and Digital Financial Inclusion. Although the direct relationship between Perceived Ease of Use and inclusion was not significant, the indirect relationship was positive and significant, showing that Perceived Ease of Use only influences inclusion through the intention formation process. For Perceived Usefulness, Attitude, Subjective Norm, and Perceived Behavioral Control, partial mediation was found. These variables showed significant direct relationships with Digital Financial Inclusion and indirect relationships with Digital Financial Behavioral Intention. Of the total effects, Perceived Usefulness ($\beta = 0.214$) and Subjective Norm ($\beta = 0.204$) were found to be the strongest predictors of inclusion, emphasizing the importance of both value and social factors in influencing digital financial inclusion.

5. CONCLUSION

The goal of this research was to identify the factors that influence digital financial inclusion by applying Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB) to the rural areas and semi-urban areas in India. Through the application of a Structural Equation Modelling methodology, this work provides evidence-based methods of how technology perception, social influence, and behaviour intentions interact with each other in the development of financial inclusiveness in Emerging Economies. The results help to shape both theory and policy in particular, in environments with limited infrastructure and different skill levels by various types of users.

5.1 Discussion

The study reveals overwhelmingly empirical evidence to support for the Integrated TAM-TPB theoretical framework to better understand digital financial behaviour intention and inclusion outcomes. The findings confirm TAM's influence of Perceived Usefulness and Perceived Ease Of Use, both of which highly impact Behavioural Intention. Ease Of Use has the greatest influence on Behavioural Intention formation. For new users and users transitioning from cash to digital finance in rural/semi-urban contexts, it is important to have simple and user-friendly digital financial platforms to enable user uptake. However, the study found that Ease Of Use does not have a direct influence on Digital Financial Inclusion, indicating that Ease Of Use alone does not guarantee sustained digital financial engagement or meaningful digital financial inclusion over time.

In relation to the TPB, the results of this study indicate that User Attitude, Subjective Norm, and Perceived Behavioural Control have a statistically significant predictive effect on Behavioural Intention for the use of Digital Finance. Users' User Attitudes towards Digital Finance; the Subjective Norm the degree to which users receive social support for using Digital Finance from their family members, peers, and their communities; and the high degree of self-efficacy and confidence a user has in their ability to navigate and obtain access to digital financial services (i.e., technology) are all critical success factors that inform a user's Development of Digital Financial Behavioural Intention, particularly in digitally marginalised communities.

Behavioural Intention to engage in Digital Financial Activities is the single most powerful predictor of Digital Financial Inclusion as it represents the immediate precursor to the user's actual behaviour. The Mediated Analysis revealed that Behavioural Intention fully mediates the relationship between perceived Ease Of Use and partially mediates the relationships between perceived Usefulness, User Attitude, Subjective Norm, and Perceived Behavioural Control. While Cognitive and Social factors are highly influential in developing a User's Readiness and Motivation to use Digital Finance, the influence of these factors on the development of Digital Financial Inclusion is realised primarily through intentionality. Collectively, the results suggest that Digital Financial Inclusion is affected by users' values, social support, and psychological readiness. These findings build on the existing Digital Financial Literature and help to better understand Digital Financial Inclusion as an actual behaviour based on Behavioural Intention and not as a direct result of the System Design(s).

5.2 Theoretical Implications

This research makes important contributions to the theory. The first contribution The combination of Technology Acceptance Model (TAM) and Theory of Planned Behaviour (TPB) creates a better theoretical and evidence-based framework for understanding financial inclusion behaviour in emerging economies. Neither framework alone fully explains complexity of financial inclusion behaviour for individuals. By combining these frameworks, this research demonstrates that technology acceptance and individuals' behavioural intentions combine to create a better understanding of how an individual's perceptions of technology will result in inclusive financial outcomes. Secondly, the findings of this research add to the TAM literature by demonstrating that perceived ease of use (PEOU) is primarily a function of

behavioural intention and does not directly impact financial inclusion behaviour. Findings of this research challenge the assumptions of researchers in the field of technology adoption that are often made regarding usability. The findings of this research indicate that PEOU is an important factor in the formation of behavioural intentions. In the context of low resource environments, which are typically associated with technology, the use of the PEOU construct in technology adoption research indicates that usability is important, but does not guarantee sustained system use. Thirdly, this research provides further support for the TPB literature by demonstrating that Subjective Norms (SN) and Perceived Behavioural Control (PBC) are relevant constructs in digital finance. The finding that SN has a strong impact on financial decision-making supports the idea that financial decisions are a collective and relational behaviour in rural and semi urban societies. The finding that PBC is significant in digital finance supports the concept of Psychological Empowerment and Perceived Competence as significant psychological constructs that influence behaviour in technology mediation. Last, this research supports the role of Digital Financial Behavioural Intention (DFBI) as the critical mediating mechanism between Perception and Action, reinforcing the notion that intention is a key link between perception and action. Thus, the research demonstrates the validity of Intent-Based Models that seek to explain complex socio-technical behaviours, including financial inclusion and provides a solid foundation for future research in digital development and fintech.

5.3 Practical Implications

Policymakers, financial institutions, and developers of digital platforms can draw a number of actionable insights from these findings. The first is that in order to promote digital financial inclusion (DFI), it is important to include planned activities in addition to the deployment of digital financial infrastructure. Training, awareness, and user onboarding initiatives should focus on the tangible benefits of digital finance and the ability to provide secure, transparent, and convenient access to financial services. Focusing on these benefits will help reinforce the belief in the usefulness of digital finance. Secondly, as system usability continues to improve, there should also be new and creative ways to influence people to adopt digital finance. By providing communities with the opportunity to use digital finance through involvement with community leaders, peer-to-peer relationships, and access to local networks, subjective norms can be strengthened and digital financial behaviour made more legitimate. For example, social proof can play a very important role in persuading those who are not interested in using digital financial services. Third, in order to sustain financial inclusion, enhancing perceived behavioural control is critical. Policymakers and providers of digital financial services should invest in building users' confidence through providing digital literacy training, developing localised language interfaces, providing assisted digital services, and implementing grievance redressal processes. Building users' skills and providing them with the resources to manage their own digital financial transactions will significantly increase their level of long-term engagement with DFI. Lastly, when developing programmes for expanding financial inclusion into digital finance, it is very important to acknowledge that the intention to use digital finance is developed before a person will include themselves in the financial system. Therefore, efforts to expand access to digital finance should focus on psychological readiness and behavioural motivation, as well as on the technology design aspects of digital finance. By

aligning system features with cognitive, social, and control beliefs of prospective users, stakeholders can create more inclusive and sustainable digital financial ecosystems.

5.4 Limitations and Future Research

While this study makes both theoretical and empirical contributions, it has a number of limitations that present opportunities for future research. The first limitation is that the cross-sectional research design does not allow for determining causality and it does not allow for capturing the changes in how individuals use Digital Financial Behaviour over the time. Future studies may choose to implement a longitudinal or panel design so that the evolution of individuals' views, intentions and the results of inclusion into Digital Financials can be measured as people continue to become familiar with Digital Financials. The second limitation of the current study is that the data were collected in rural and semi-urban areas of Maharashtra and Ahmedabad. The sample selection may limit the extent to which the findings may be generalized to other geographic, cultural or institutional contexts. Future studies should replicate the proposed model in different states, countries, or in rural-urban comparisons to increase external validity. The third limitation of the study is the reliance on self-reported measures, which are subject to social desirability or recall biases, even with procedural and statistical controls for common method bias. In the future, research should include more objective usage data, transaction records, and/or mixed-method approaches to triangulate behavioural results. Although the combined TAM-TPB framework explains a considerable amount of variance in digital financial inclusion, this model can be further enhanced by incorporating additional factors and variables such as trust; risk perception; digital literacy; knowledge about regulations; and infrastructure quality. Future researchers are encouraged to build upon this model by utilising contextual moderating variables, or alternative theoretical models to provide a more complete understanding of digital financial inclusion dynamics in emerging economies.

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