



Social and behavioural influences on financial inclusion: Insights from a regional study



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ABSTRACT

Article History

Received: 17 September 2024

Revised: 5 June 2025

Accepted: 26 June 2025

Published: 23 July 2025

Keywords

Behavioral biases
Financial inclusion
SEM
Social network
Social norms
Social trust
Subjective norms.

JEL Classification:

D03; O16; C38; Z13; Z13; D91.

The research explores financial inclusion through a novel demand-side perspective, combining behavioral and societal elements to study their impact on financial inclusion, especially in underdeveloped economic areas. The primary data for the study was obtained from 1,050 participants. The research used Structural Equation Modeling (SEM) to analyze financial inclusion in relation to behavioral biases, social norms, social networks (financial and social), social trust, and subjective norms. The findings indicate that subjective norms are the most significant factor for financial inclusion, followed by social networks, social norms, and behavioral biases. The higher-order model offers a clearer understanding, highlighting the positive impact of behavioral biases and social factors on financial inclusion. The research demonstrates that behavioral and social elements strongly determine the outcomes of financial inclusion. Financial inclusion strategies need to focus on local socio-behavioral dynamics because subjective and social norms prove to be essential drivers. The research provides useful guidance for both policymakers and financial service providers. Understanding behavioral and social factors in financial inclusion enables the development of specific and culturally appropriate strategies to build inclusive financial systems in underserved areas.

Contribution/ Originality: The present research offers an exclusive approach based on a demand-side perspective on financial inclusion. It assesses the overall impact of societal and behavioral aspects on financial inclusion in the specific scenario of socially and economically disadvantaged regions of the country.

1. INTRODUCTION

Financial inclusion is pivotal for fostering inclusive growth, a priority increasingly emphasized by policymakers and scholars alike. Its role in reducing income inequality among marginalized populations is well-documented (Kling, Pesqué-Cela, Tian, & Luo, 2022).

Various schemes, such as PM Suraksha Bima Yojana, PM Jan Dhan Yojana, and Atal Pension Yojana, have been implemented in India to promote financial inclusion. As of September 2022, India's banking sector comprised 137 operational banks, including 43 Regional Rural Banks (RRBs). The banking network is extensive, with 1,53,037 branches, approximately 63 percent of which are located in rural and semi-urban areas. Additionally, the growth of technology-driven alternative service points is notable. By December 31, 2022, there were 2,17,092 Automated Teller

Machines and 7.55 million Point of Sale terminals in operation. Furthermore, the financial infrastructure included 81.1 million credit cards and a substantial 939 million debit cards in circulation (Kembai, 2023). By August 2024, bank accounts under PMJDY have already exceeded 500 million.

Despite these advancements, a significant part of the population is unable to utilize banking services. Still, financial exclusion persists as a major challenge. Merely owning an account in a bank does not equate to genuine financial inclusion. The World Bank (2017) reported that "forty-eight percent of total account holders in India have inactive bank accounts that have not seen any transactions in the last 12 months."

Few studies, such as Cheng (2010) and Booth and Katic (2013), have focused on behavioral aspects to assess a part of financial inclusion indirectly. Similar types of studies on societal aspects of financial inclusion are also available, such as Patacchini and Rainone (2014); Chai, Chen, Huang, and Ye (2019); Di Napoli, Dolce, and Arcidiacono (2019), and Scarampi, AlBashar, and Burjorjee (2020). However, none of the studies have comprehensively covered both aspects in the context of financial inclusion, particularly in India. This study aims to investigate financial inclusion among individuals and propose a working model that offers a broad understanding of the phenomenon from a demand-side perspective. This study adopts an approach focusing on behavioral and societal perspectives of financial inclusion, areas that have received limited attention in the existing literature. The subsequent sections of the paper include a review of the existing literature, followed by methodology and discussion. Finally, the study presents conclusions and implications.

2. REVIEW OF LITERATURE

The key aim of this research is to evaluate the behavioral and societal factors associated with financial inclusion. This section examines the existing literature to gain a comprehensive understanding of previous research on these aspects.

Firstly, the existing research related to the behavioral aspects of financial inclusion is reviewed. Although studies on behavioral biases have provided foundational insights, significant gaps remain. Kahneman and Tversky (1977) examined how people assess probabilities and predict values, noting the complexity of these tasks. To simplify them, individuals use a limited set of heuristic principles, which, while useful, can lead to systematic errors. The authors identified three common heuristics: representativeness, availability, and anchoring bias. Thaler (1999) emphasized the significant role of mental accounting bias, describing it as "the cognitive operations individuals use to organize, evaluate, and track financial activities". He identified three key components of mental accounting: how people perceive and evaluate financial outcomes, allocate expenses to specific mental accounts, and review these accounts. Deck, Lee, Reyes, and Rosen (2008) evaluated attitudes for risk using the procedure of Holt and Laury (2002) and the game show "Deal or No Deal," also incorporating personality questionnaires. They aimed to explain variations in risk attitudes based on personality traits. Al-Ajmi (2008) studied the determinants of risk tolerance in Bahrain, finding that men showed higher risk tolerance than women and that education and wealth positively influenced risk tolerance, while financial commitments and age had a negative impact. Cheng (2010) provided a multidisciplinary perspective on consciousness and unconsciousness, suggesting that integrating both can enhance financial decision-making by mitigating behavioral biases. Annim, Arun, and Kostov (2012) examined various financial behaviors in South Africa, highlighting differences in financial perceptions and behaviors affecting the usage and access of financial services. Booth and Katic (2013) studied cognitive skills and gender influences on risk preferences, finding that gender had a significant impact, with young women more willing to take risks. Walia and Kiran (2012) explored factors shaping risk perceptions among Punjabi mutual fund investors, identifying age-related differences. Bashir, Rasheed, Raftar, Fatima, and Maqsood (2013) examined behavioral biases in financial decision-making, finding that biases such as overconfidence and confirmation significantly influenced decisions.

More recently, Mindra and Moya (2017) examined the role of financial self-efficacy in boosting financial inclusion for poor individuals in Uganda. The study found a significant association among financial attitude, financial literacy,

self-efficacy, and financial inclusion. Since the study is based on Uganda, the results may not be generalizable. Thomas and Subhashree (2020) studied the factors influencing the usage of services by banks and other financial institutions for the poor population. The study identified attitude, perceived behavioral control, and subjective norms as important dimensions.

Panchasara and Sharma (2019) assessed various behavioral theories concerning financial inclusion. The study concluded that the Theory of Planned Behavior is predominantly useful in explaining financial behavior. The study by Birkenmaier and Fu (2019) examined the linkages between financial access and financial management behavior. Nine elements of consumer finance were identified that influence financial behavior.

The following are studies on the societal aspects of financial inclusion. As behavioral aspects are vital, societal factors are also decisive but remain underexplored. Patacchini and Rainone (2014) evaluated the importance of social interactions in adopting financial products, finding that strong social ties significantly influence financial decisions. Chai et al. (2019) studied the social networks' effect on financial exclusion in China. It was observed that social networks boost participation in informal financial markets, particularly in urban areas. The findings may not be applicable in rural areas. The Institute for Reproductive Health (2019) suggested instruments for gauging social norms and their impact on behavior, emphasizing the need to challenge harmful norms positively. Di Napoli et al. (2019) pioneered community trust to indicate community engagement and opportunities. It was found that community trust promotes community engagement. Scarampi et al. (2020) assessed the impact of social norms on the financial inclusion of women in Turkey. The study recognized the norms that limit their financial autonomy. The study by Bongomin, Ntayi, and Malinga (2020) examined the mediating role played by social networks amid financial inclusion and financial literacy for the low-income group in rural regions of Uganda. It was found that the mediating role of social networks is significant. Lontchi, Yang, and Su (2022) assessed the association between financial literacy, financial inclusion, social capital, in addition to sustainable development. The study was conducted in Cameroon. It was revealed that financial literacy mediates this connection. Gollwitzer, Martel, Heinecke, and Bargh (2024) observed that deviancy aversion promotes social norms. The study involved 2,390 participants and demonstrated that deviancy aversion predicts negative responses to violations of norms. The results of these studies are significant, but the mechanisms of social influences such as social networks and social norms, particularly in India's caste- and community-based context, remain unexplored.

Few studies, like Cheng (2010) on behavioral aspects and Patacchini and Rainone (2014) on societal dimensions, have examined financial inclusion in some way or in different contexts. However, there remains a scarcity of comprehensive studies considering both behavioral and societal factors of financial inclusion, particularly in India. Therefore, this study aims to bridge this gap by offering a model that synthesizes behavioral and societal perspectives, emphasizing the exclusive dimensions of financial exclusion in backward regions of India.

3. RESEARCH METHODOLOGY

The rationale of this research is to assess the impact of behavioral and societal dimensions on financial inclusion. Nuh District (Mewat) was selected for the primary survey. It is one of the most financially excluded districts in India, according to CRISIL's Inclusix score (CRISIL, 2018). A report by NITI Aayog as well confirms that Nuh is one of the poorest districts in various socio-economic aspects (NITI Aayog, 2018).

“Nuh (Mewat) covers 1,860 square kilometers and has a population of nearly 1.1 million, with 39.99% living below the poverty line” (Kumar, 2023). Agriculture, heavily dependent on rainfall with limited canal irrigation, is the primary occupation. The Meos, the predominant ethnic group, are mainly farmers, but the district's crop yield per hectare is relatively low compared to other districts in Haryana. Animal husbandry, especially dairy farming, serves as a secondary income source. However, due to heavy debt, farmers often sell milk at reduced prices to lenders, diminishing their overall income. Sheep and goat rearing are common near the Aravalli Hills, and the poultry population in Nuh is significantly smaller compared to other districts in Haryana.

A multistage sampling technique was adopted for this study. Initially, the cluster sampling technique was applied to divide the Nuh District into five tehsils. Subsequently, quota sampling was used to collect proportionate samples from each tehsil, selecting at least four villages from each tehsil. Finally, 21 villages and 50 respondents from each village were selected.

For the multivariate analysis technique of PLS-SEM used to develop the hypothesized research model, as suggested by Hair, Ringle, and Sarstedt (2011), "the minimum sample size should be equal to the larger of ten times the largest number of formative indicators used to measure one construct or ten times the largest number of structural paths directed at a particular construct." Therefore, a sample size of more than 300 is sufficient. In this study, the sample size is 1,050.

The study employs structural equation modeling (SEM) using Smart PLS for evaluating models composed of latent variables, following the recommendations of Henseler, Ringle, and Sarstedt (2016). This approach is chosen for its effectiveness in assessing models with latent variables and its widespread acceptance in social science and business research.

The study includes 12 primary constructs or latent variables: Behavioral Biases, Social Trust, Social Norms, Social Network-Societal, Social Network-Financial, Subjective Norms, Financial Access, Financial Quality, Financial Usage-Loan, Financial Usage-Payment, Financial Usage-Saving, and Financial Usage-Others. A five-point Likert scale was used to measure the mentioned constructs. The constructs included 55 items. For the higher-order model, there are three constructs: Behavioral Biases, Social Factors, and Financial Inclusion.

4. RESULTS AND DISCUSSION

Prior to hypothesis testing, the common method bias in the data must be assessed. Thereafter, the various specifications of the outer model must be examined, including convergent validity, internal consistency, and discriminant validity. After confirming the absence of multicollinearity, the structural model is evaluated.

4.1. Model 1

The measurement model includes the evaluation of convergent validity, internal consistency, and discriminant validity of the outer models. These outer models include six first-order constructs in this study. Traditionally, Cronbach's alpha is used for internal consistency; however, a more suitable measure is Composite Reliability (CR), as it addresses some limitations of Cronbach's alpha (Hair, Sarstedt, Matthews, & Ringle, 2016). For the present research, internal consistency is evaluated using both methods. Table 1 illustrates that each first-order construct exceeded the acceptable thresholds of 0.60 (Ursachi, Horodnic, & Grecu, 2015) and 0.70 (Hair Jr, Matthews, Matthews, & Sarstedt, 2017). Thus, internal consistency of the constructs in the model is established.

Table 1. Internal consistency assessment.

Constructs	Cronbach's alpha	Composite reliability (CR)	AVE
Behavioral biases (B)	0.561	0.755	0.513
Social norms (SN)	0.912	0.931	0.693
Subjective norms (SuN)	0.905	0.925	0.639
Social trust (ST)	0.888	0.923	0.749
Social network: Financial (SNF)	0.857	0.891	0.542
Social network: Social (SNS)	0.783	0.859	0.605
Financial access (FA)	0.839	0.886	0.611
Financial quality (FQ)	0.790	0.864	0.614
Financial usage: Saving (FUS)	0.791	0.865	0.683
Financial usage: Payment (FUP)	0.762	0.855	0.667
Financial usage: Loan (FUL)	0.736	0.850	0.655
Financial usage: Others (FUO)	0.775	0.856	0.598

Average Variance Extracted (AVE) in addition to Composite Reliability (CR) are used to gauge convergent validity for the mentioned constructs. As per Table 1, the CR values are above 0.70, and the AVE values are above 0.50, fulfilling the criteria suggested by Hair Jr et al. (2017). The results verify the convergent validity.

By discriminant validity, we understand "the extent to which a measure is adequately distinguishable from related constructs within the nomological net" (Dinev & Hart, 2004).

Table 2. Discriminant validity.

Variables	B	FUL	FUO	FUS	FUP	FA	FQ	SN	SNF	SNS	ST	SuN
B	0.716											
FUL	0.126	0.810										
FUO	0.196	0.253	0.774									
FUS	0.028	0.361	0.041	0.827								
FUP	0.153	0.230	0.446	0.195	0.816							
FA	0.031	0.043	0.387	0.089	0.480	0.782						
FQ	0.084	0.190	0.405	0.183	0.370	0.472	0.783					
SN	0.233	0.070	0.199	0.186	0.085	0.040	0.237	0.832				
SNF	0.015	0.111	0.337	0.009	0.324	0.382	0.399	0.014	0.736			
SNS	-0.021	0.338	0.093	0.261	0.061	-0.036	0.272	0.231	0.120	0.778		
ST	0.142	0.081	0.217	0.159	0.075	0.094	0.229	0.547	0.096	0.172	0.865	
SuN	0.077	0.187	0.315	0.129	0.262	0.266	0.382	0.235	0.432	0.227	0.257	0.800

For computing the discriminant validity among the constructs, the Fornell-Larcker criterion is applied. This method necessitates that "the square root of the Average Variance Extracted (AVE) for each construct be greater than its correlations with other constructs" (Hair et al., 2016). From Table 2, it is evident that the square root of the AVEs for the constructs located on the diagonal exceeds their correlations with other constructs, confirming discriminant validity.

Table 3. Multi-collinearity test.

Items	VIF	Items	VIF	Items	VIF
B11	1.169	FU2	1.405	SNF6	1.805
B18	1.179	FU3	1.928	SNF7	1.656
B25	1.137	FU4	1.650	SNS1	1.720
FA2	1.463	FU5	1.392	SNS3	1.300
FA3	1.902	FU7	1.689	SNS4	1.710
FA4	2.604	FU8	1.995	SNS7	1.655
FA5	2.155	FU9	1.547	ST2	2.049
FA6	1.592	SN1	1.949	ST3	2.366
FQ10	1.458	SN2	2.536	ST4	2.615
FQ7	1.677	SN3	2.240	ST5	2.506
FQ8	1.808	SN4	2.246	SuN1	1.531
FQ9	1.767	SN5	2.758	SuN2	2.150
FU11	1.341	SN6	2.676	SuN3	2.293
FU12	1.252	SNF1	1.597	SuN4	2.477
FU15	1.791	SNF2	1.937	SuN5	2.686
FU16	1.738	SNF3	1.875	SuN6	2.662
FU17	1.917	SNF4	2.225	SuN7	2.097
FU18	2.214	SNF5	1.355	-	-

Previous to examining the structural model, it is vital to measure multicollinearity among the items. "High correlations among indicators can create methodological and interpretational issues" (Hair et al., 2016). In order to compute multicollinearity, the Variance Inflation Factor (VIF) values are computed. As it is perceptible from Table 3 that all values of VIF are less than the threshold limit (5), thereby confirming the absence of multicollinearity (Hair Jr & Lukas, 2014).

4.1.1. Structural Model Assessment

The structural model is assessed by evaluating the significance of the coefficients of the paths. This process includes testing the formulated hypotheses through the bootstrapping technique involving 5,000 subsamples, as recommended by Hair Jr, Howard, and Nitzl (2020).

The hypothesized model, illustrating the core elements of the study, is depicted in Figure 1. It illustrates the impacts of Behavioral Biases, Social Trust, Social Norms, Social Network-Societal, Social Network-Financial, and Subjective Norms on Financial Access, Financial Quality, Financial Usage-Loan, Financial Usage-Payment, Financial Usage-Saving, and Financial Usage-Others. In the structural model presented in Figure 1, circles represent constructs (or variables), and boxes represent items (or indicators) associated with these constructs. Arrows connecting circles indicate the beta coefficients among constructs, while arrows connecting boxes to circles represent the outer loadings for items on their associated constructs.

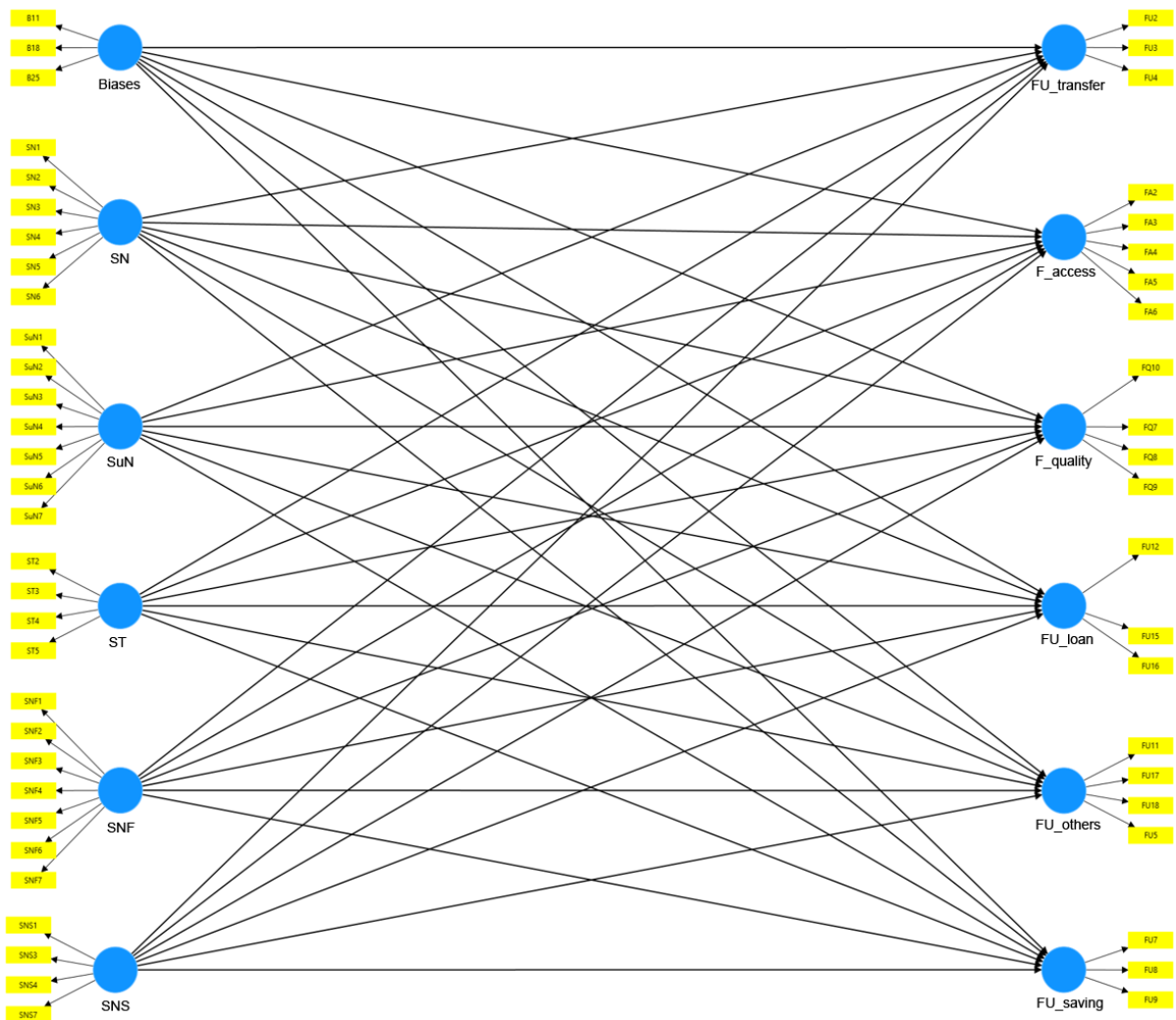


Figure 1. Structural model assessment.

4.1.2. Hypothesis Testing

H_0 : There is a statistically significant association between behavioral biases and dimensions of financial inclusion.

Table 4 shows that the hypotheses H01.1, H01.2, and H01.4 are accepted, indicating that behavioral biases have a statistically positive influence on Financial Usage-Loan ($p=0.00$), Financial Usage-Others ($p=0.00$), and Financial Usage-Payment ($p=0.00$). It implies that individuals who are biased have a higher probability of engaging in payment

or transfer of money, taking loans, and availing other services from formal financial institutions. The results differ from the findings of previous studies, such as [Annim et al. \(2012\)](#) and [Birkenmaier and Fu \(2019\)](#).

H₀₂: There is a statistically significant association between Social Norms and Dimensions of Financial Inclusion.

Table 4 indicates that the hypotheses H02.2, H02.3, and H02.6 are accepted, suggesting that social norms significantly influence Financial Usage - Others ($p=0.037$), Financial Usage - Saving ($p=0.023$), and Financial Quality ($p=0.001$). [Scarampi et al. \(2020\)](#) also found a positive influence of social norms.

H₀₃: There is a statistically significant connection between Social Network Finance and Dimensions of Financial Inclusion.

Table 4 indicates that the hypotheses H03.2, H03.4, H03.5, and H03.6 are accepted, demonstrating that social network finance has a significant positive influence on Financial Usage-Others ($p=0.000$), Financial Usage-Payment ($p=0.000$), Financial Access ($p=0.000$), and Financial Quality ($p=0.000$).

H₀₄: There is a statistically significant association between Social Network Social and Dimensions of Financial Inclusion.

Table 4 shows that the hypotheses H04.1, H04.3, H04.5, and H04.6 are accepted, indicating that social networks have a significant positive influence on Financial Usage-Loan ($p=0.000$), Financial Usage-Saving ($p=0.000$), and Financial Quality ($p=0.000$). However, there is a significant negative influence on Financial Access ($\beta=-0.115$, $p=0.001$). Findings of [Patacchini and Rainone \(2014\)](#) and [Chai et al. \(2019\)](#) also confirm the results.

H₀₅: There is a statistically significant linkage between Social Trust and Dimensions of Financial Inclusion.

Table 4 indicates that the hypothesis H05.2 is accepted, revealing that social trust has a significant positive influence on Financial Usage-Others ($p=0.006$) only. Conversely, hypotheses H05.1, H05.3, H05.4, H05.5, and H05.6 are rejected. The results are contradictory to those of [Onodugo, Onodugo, Ogbo, Okwo, and Ogbaekirigwe \(2021\)](#), which found social trust to be a vital factor in most cases.

H₀₆: There is a statistically significant association between Subjective Norms and the Dimensions of Financial Inclusion.

Table 4 indicates that the hypotheses H06.1, H06.2, H06.4, H06.5, and H06.6 are accepted, suggesting that Subjective Norms have a significant and positive impact on Financial Usage-Loan ($p=0.009$), Financial Usage-Others ($p=0.000$), Financial Usage-Payment ($p=0.000$), Financial Access ($p=0.000$), and Financial Quality ($p=0.000$). Only hypothesis H06.3 is not accepted, indicating that there is no significant impact of Subjective Norms on Financial Usage-Saving ($\beta=0.065$, $p=0.123$).

The results regarding the impact of subjective norms on financial inclusion are similar to the findings of previous studies, such as [Thomas and Subhashree \(2020\)](#), which also revealed a positive impact of subjective norms.

4.1.3. Coefficient of Determination and Effect Size

The coefficient of determination, denoted by R^2 , has been ascertained. $R^2 = 0.179$ indicates that only 17.90 percent of the variance in financial access is explained by behavioral bias, social norms, subjective norms, social trust, social network financial, and social norms social. Similarly, 28.3 %, 13.2 %, 19.9 %, 8.8 %, and 14.3 % of the variances in financial quality, financial access-loan, financial access-others, financial access-saving, and financial access-payment, respectively, are explained by the same variables.

Subsequently, the effect size denoted by f^2 was ascertained to examine the variation in R^2 when an exogenous indicator is separated to run the model. The recommended limits for examining f^2 are 0.02 (small effects), 0.15 (moderate effects), and 0.35 (large effects) ([Cohen, 1988](#)). The f^2 values for financial access (0.116) indicate a small effect in explaining social network financial. Similarly, regarding financial quality, social network financial (0.115) exerted a low effect, while social network-social (0.024) and subjective norms (0.030) indicated low effects. Furthermore, the f^2 values for financial usage - loan (0.097) show a small effect in explaining social network-social. The results revealed that the f^2 effect size is 0.026 (low) for behavioral biases, 0.068 (low) for social network financial, and 0.021 (low) for subjective norms on financial usage-others. Similarly, it was also found that the f^2 effect size is 0.046 (low) for social network social on financial usage-saving. Additionally, regarding financial usage-payment, behavioral biases (0.02) and social network financial (0.066) exerted low effects.

Table 4. Structural model assessment.

Hypotheses	Path	Beta	S.E.	T values	P values	Results
H01.1	Biases ->FU_Loan	0.139	0.034	4.119	0.000	Accepted
H01.2	Biases ->FU_Others	0.150	0.029	5.186	0.000	Accepted
H01.3	Biases ->FU_Saving	-0.001	0.029	0.026	0.979	Rejected
H01.4	Biases ->FU_Payment	0.134	0.035	3.858	0.000	Accepted
H01.5	Biases ->F_Access	0.005	0.036	0.145	0.885	Rejected
H01.6	Biases ->F_Quality	0.035	0.028	1.260	0.208	Rejected
H02.1	SN ->FU_Loan	-0.071	0.036	1.950	0.051	Rejected
H02.2	SN ->FU_Others	0.076	0.037	2.089	0.037	Accepted
H02.3	SN ->FU_Saving	0.087	0.038	2.269	0.023	Accepted
H02.4	SN ->FU_Payment	0.030	0.036	0.826	0.409	Rejected
H02.5	SN ->F_Access	0.005	0.039	0.130	0.897	Rejected
H02.6	SN ->F_Quality	0.114	0.033	3.434	0.001	Accepted
H03.1	SNF ->FU_Loan	0.024	0.036	0.670	0.503	Rejected
H03.2	SNF ->FU_Others	0.260	0.033	7.886	0.000	Accepted
H03.3	SNF ->FU_Saving	-0.052	0.039	1.328	0.184	Rejected
H03.4	SNF ->FU_Payment	0.266	0.031	8.587	0.000	Accepted
H03.5	SNF ->F_Access	0.333	0.035	9.588	0.000	Accepted
H03.6	SNF ->F_Quality	0.297	0.036	8.205	0.000	Accepted
H04.1	SNS ->FU_Loan	0.328	0.032	10.104	0.000	Accepted
H04.2	SNS ->FU_Others	-0.002	0.032	0.066	0.947	Rejected
H04.3	SNS ->FU_Saving	0.221	0.030	7.431	0.000	Accepted
H04.4	SNS ->FU_Payment	-0.002	0.057	0.037	0.971	Rejected
H04.5	SNS ->F_Access	-0.115	0.033	3.480	0.001	Accepted
H04.6	SNS ->F_Quality	0.161	0.027	5.868	0.000	Accepted
H05.1	ST ->FU_Loan	0.014	0.035	0.408	0.684	Rejected
H05.2	ST ->FU_Others	0.091	0.033	2.737	0.006	Accepted
H05.3	ST ->FU_Saving	0.063	0.039	1.591	0.112	Rejected
H05.4	ST ->FU_Payment	-0.020	0.032	0.637	0.524	Rejected
H05.5	ST ->F_Access	0.044	0.035	1.252	0.211	Rejected
H05.6	ST ->F_Quality	0.061	0.032	1.934	0.053	Rejected
H06.1	SuN ->FU_Loan	0.104	0.039	2.624	0.009	Accepted
H06.2	SuN ->FU_Others	0.150	0.034	4.375	0.000	Accepted
H06.3	SuN ->FU_Saving	0.065	0.042	1.542	0.123	Rejected
H06.4	SuN ->FU_Payment	0.135	0.036	3.741	0.000	Accepted
H06.5	SuN ->F_Access	0.136	0.035	3.870	0.000	Accepted
H06.6	SuN ->F_Quality	0.172	0.040	4.284	0.000	Accepted

Note: SN=Social norms, SuN=Subjective norms, ST=Social trust, SNF= Social network financial, SNS=Social network social.

4.1.4. Predictive Relevance and Model Fit Assessment

The Stone-Geisser's Q^2 is used to examine the model's predictive relevance. Table 5 reveals that the Q^2 values are more than zero (Hair, Ringle, & Sarstedt, 2013) for financial access (0.158) and financial quality (0.259). Similarly, the Q^2 values are 0.133 for financial usage-loan, 0.185 for financial usage-others, 0.129 for financial usage-payment and 0.079 for financial usage-saving. Finally, it is crucial to evaluate the goodness of fit of the model using the standardized root mean square residual (SRMR). The value in the present study was 0.068, which is less than the prescribed value of 0.08, indicating good explanatory power of the model (Henseler et al., 2016; Hu & Bentler, 1999).

Table 5. Predictive relevance.

Variables	Q^2 predict
FA	0.158
FQ	0.259
FU-loan	0.133
FU-others	0.185
FU-payment	0.129
FU-saving	0.079

4.2. Model 2

4.2.1. Validating Higher Order Constructs

When evaluating higher-order models, the same evaluation criteria used for PLS-SEM analysis generally apply; however, for higher-order constructs, it is necessary to consider two additional measurement models: the models for the lower-order components and the model for the higher-order construct as a whole (Chin, 2009). The measurement model for the lower-order components has already been validated in the initial path model. Here, the measurement model for the higher-order construct as a whole is validated.

In the present research, Financial Inclusion is considered as a higher-order construct based on six lower-order constructs: financial access, financial quality, financial usage-payment, financial usage-loan, financial usage-saving, and financial usage-others, as revealed by Table 6.

Similarly, Social Factor is another higher-order construct in the study, based on five lower-order constructs: Social Norms (SN), Subjective Norms (SuN), Social Trust (ST), Social Network-Financial (SNF), and Social Network-Social (SNS). Table 6 further shows outer weight, outer loadings, and VIF values of LOC.

Table 6. Higher-order construct (HOC) measurement model.

HOC	LOC	Outer weight	T statistics	P values	Outer loadings	VIF
Financial inclusion	FA	0.045	0.520	0.603	0.543	1.592
	FQ	0.644	11.006	0.000	0.883	1.453
	FU-payment	0.054	0.773	0.440	0.524	1.501
	FU-loan	0.204	2.783	0.005	0.449	1.229
	FU-saving	0.057	0.872	0.383	0.271	1.163
	FU-others	0.372	6.302	0.000	0.729	1.437
Social factor	SN	0.184	3.250	0.001	0.432	1.502
	SuN	0.373	6.145	0.000	0.759	1.360
	ST	0.144	2.708	0.007	0.448	1.465
	SNF	0.550	7.270	0.000	0.771	1.251
	SNS	0.285	3.113	0.002	0.525	1.113

4.2.2. Structural Model Assessment of HOCs (Hypotheses Testing)

H₁: There is a significant influence of behavioral biases on financial inclusion.

The results reveal that behavioral biases have a significant influence on financial inclusion ($p=0.000$). Therefore, H₁ is supported.

H₂: There is a significant influence of social factors on financial inclusion.

Table 7 reveals that social factors have a significant influence on financial inclusion ($p = 0.000$). Hence, H₂ is also supported.

The results summarized above are presented in Table 7 and Figure 2.

Table 7. Higher-order construct (HOC) structural model.

Paths	Beta	T statistics	P values
BIASES -> FI	0.109	4.135	0.000
SF -> FI	0.557	24.420	0.000

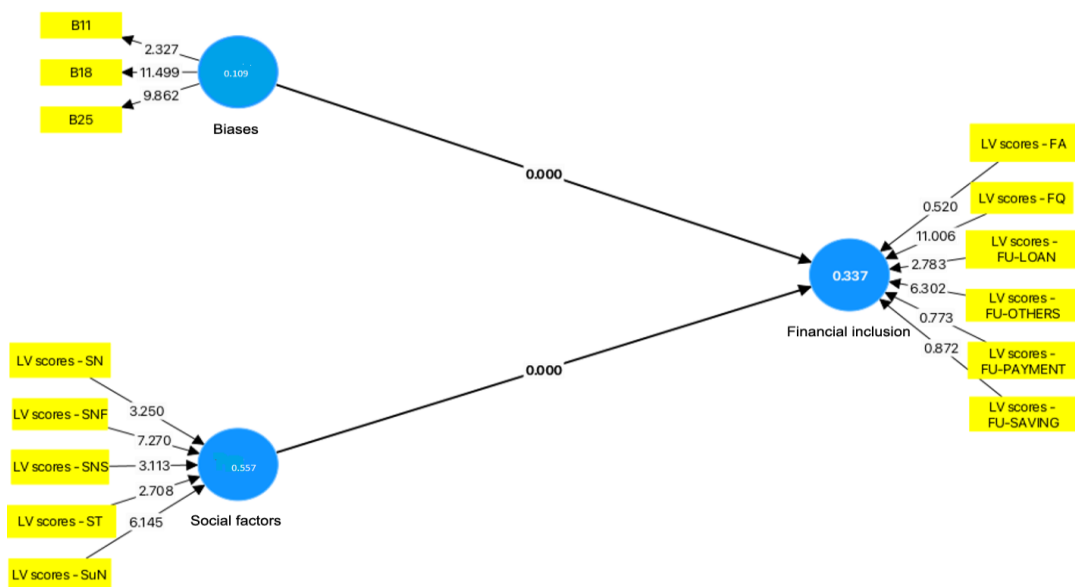


Figure 2. HOC structural model.

5. CONCLUSION AND IMPLICATIONS

The role of financial inclusion is crucial for inclusive growth. This study investigates the factors influencing financial inclusion based on primary data, focusing on the effects of societal and behavioral aspects on its various dimensions. Specifically, it assesses the impacts of behavioral biases, social trust, social norms, social network-societal, social network-financial, and subjective norms on financial access, financial quality, financial usage (loan, payment, saving, others), using structural equation modeling (SEM).

Behavioral biases influence financial behaviors related to loans, bank transactions, and other financial services. Social norms affect financial behaviors related to savings, other financial services, and perceptions of bank services. Social networks related to financial aspects impact all dimensions of financial inclusion except for behaviors related to savings and loans. Social networks related to societal aspects influence all dimensions except bank transactions and other financial services. Social trust has minimal impact on most dimensions of financial inclusion. Subjective norms affect all dimensions except for financial behaviors related to savings. Therefore, subjective norms are the most critical factor for financial inclusion, followed by social networks (both societal and financial), social norms, and behavioral biases. Social trust is the least significant factor. The higher-order model provides a clearer picture, demonstrating a positive impact of behavioral biases and social factors on financial inclusion. The findings contradict results of the studies, such as Onodugo et al. (2021); Annim et al. (2012) and Birkenmaier and Fu (2019) but are similar to the results of Thomas and Subhashree (2020) and Scarampi et al. (2020).

The findings of the study have implications for policymakers as well as financial service providers in designing and implementing more effective strategies and customized products for financial inclusion. Insights based on social factors are essential for formulating strategies, while those based on behavioral biases are crucial for designing new products. Financial institutions can consider common biases when planning new products to support loan and payment services while finding innovative ways to counteract low savings rates among biased individuals. If policies and programs are aligned with prevailing social norms, they are more likely to significantly enhance financial inclusion by leveraging societal adherence. Financial education and outreach initiatives that utilize social networks are likely to be more effective in promoting financial inclusion across diverse communities. Leveraging social norms and networks involves actively engaging community leaders and social networks to raise awareness about the importance of financial inclusion and the benefits associated with various financial products.

The survey for the study is limited to the Nuh (Mewat) district of Haryana, India, which may restrict the generalizability of the findings to other regions. Future research could expand to different geographic areas and use longitudinal data to validate and refine the proposed model.

Funding: This research is supported by Prince Sattam bin Abdulaziz University, Saudi Arabia (Grant number: PSAU/2025/R/1446).

Institutional Review Board Statement: Not applicable.

Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Data Availability Statement: Upon a reasonable request, the supporting data of this study can be provided by the corresponding author.

Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

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