

Financial Inclusion in Developing Economies: The Influence of Accessibility, Awareness, and Usability

Prakriti Singh, *Maharishi University of Information Technology (MUIT), Lucknow, Uttar Pradesh*

Arun Sharma, *Maharishi University of Information Technology (MUIT), Lucknow, Uttar Pradesh*

Raushan Kumar, *Amity University, Haryana*

ABSTRACT

The present study evaluates the relationships among financial awareness (FAW), usability (U), accessibility (AC) and financial inclusion (FI) using structural equation modeling (SEM). The study examines how financial awareness and usability contribute to strengthening financial inclusion. The primary data were collected from respondents through structured questionnaire and the hypotheses were tested with the help of Smart Partial Least Squares (SmartPLS). The measurement analysis like cronbach's alpha (CA), composite reliability (CR), and average variance extracted (AVE) values satisfy the threshold levels. The structural results indicates that AC positively influences FAW and U. Usability was found a positive impact on financial inclusion while financial awareness positively affects both usability and financial inclusion. Additionally, there is indirect relationship between accessibility and financial inclusion revealing that awareness plays an important role between accessibility and financial inclusion. The study suggests that policymakers, and financial institutions need to focus on user friendly financial products and services that will increase financial awareness among people to enhancing sustainable financial inclusion

Keywords: Financial Inclusion, Financial Awareness, SmartPLS.

INTRODUCTION

Global financial crisis of 2008 is one of the major catalysts that accelerate financial inclusion in the world (Antwi et al., 2024). The objective of the meeting of G20 Leaders' Summit in Pittsburgh was to accelerate rational financial inclusion for fostering financial access for the unbanked and marginalized people and strengthen the financing strategy for successful small and medium companies (SMEs)(GPFI, 2009). The main motive behind this is to provide affordable financial products and services to the marginalized sections of the society. It is also included in the 2030 agenda of United Nations Sustainable Goals as to alleviate poverty(Kaltenborn, 2017).The scope of the sustainable development goals is to provide food security, accessible infrastructure, inequality and sustainability. These are the factors that will need for inclusive sustainability for reducing socioeconomic barriers for fostering sustainable development. Financial Institutions in India had implemented customer service points, business correspondents and internet services to improve technological advancements. The improvement in technological advancements empowers various stakeholders like governments, and financial facilitators for providing social security schemes to the needy people. (Lenka& Sharma, 2017)suggested that technology is the only way to reach among the

large sections of the society. Past studies have suggested that the digital technology has positive impact to the non-digital economies (Behl et al., 2015; Muralidharan et al., 2016). The digital technology inclusion has potential to improve financial inclusion through umbrella of financial products and services. There are various drivers of financial inclusion that is a key for building robust financial infrastructure. It includes accessibility, awareness, and usage. According to past studies financial awareness and poverty are the barriers of financial inclusion. Financial awareness depends upon financial literacy and further it assists in increasing financial awareness and financial efficiency (Lusardi et al., 2017). Sharma, (2016) highlighted that accessibility, affordability and availability are the main drivers of financial inclusion. Altunbas et al., (2007) asserted that financial access is the key driver of social exclusion. Basu, (2006) discovered that 70% of rural marginal farmers were without bank accounts, and 87% were without access to credit. This increase the problems among the stakeholders that financial inclusivity is a fundamental milestone for sustainable growth. In the present time, research on financial inclusion emphasizes the difficulties faced by financially excluded people and firms, especially among marginalized sections of the societies, adults, women, and small to medium entrepreneurs across the developing nations (Koomson & Danquah, 2021). Presently in the globalized world, many policymakers, economists, and financial experts across the nations see financial inclusion as vital element for economic growth to alleviate poverty and it is one of the sustainable development goals (Mhlanga, 2021). The recent development in the financial inclusion has increased the practice of financial inclusion.

The policy of the governments about digital India initiative and the people inclination towards technology adoption have increased a surge in digital financial services in India (Vyas & Jain, 2021). In India, 42 percent of the population engages in digital transactions in low- and middle-income countries, and despite over 80 percent of the people have bank accounts globally (Bank, 2025). The recent government initiatives like UPI, Payment bank, and BHIM are revolutionizing the management of finances for individuals and enterprises, significantly enhancing financial inclusion (Asif et al., 2023). Similarly digital technology has also increased the perceived risk and security concern among the users. Users face identity theft, privacy concerns, and security vulnerabilities. So, among all these problems, the significance of awareness and literacy about financial inclusion is needed, and encompassing understanding of digital products and their uses. Consequently, our research is examining the relationship between drivers of financial inclusion and in financial inclusion growth. Several academicians examining the relationship have proposed a robust correlation between accessibility, awareness, usability and digital technologies to financial inclusion (Bahri et al., 2018). Klapper & Panos, (2011) assert that financial inclusion facilitates loan accessibility, promotes investment facilitation, and encourages the entry of new enterprises, and hence stimulates economic growth. This study aims to offer relevant insights that might inform the formulation of strategies to improve financial inclusion by analyzing these essential components. This study seeks to enhance our understanding of financial inclusion while providing favorable recommendations for industry stakeholders and policymakers.

Thus, our research is focusing about the different drivers of financial inclusion that will helpful in financial inclusion. The different drivers are accessibility, awareness, usability, and

digital technologies to financial inclusion. Very few studies on financial inclusion have focused on the comprehensive factors and drivers related to financial inclusion.

The research paper divided in the sections are organized as follows: Section 2 does a review of literature, provides theoretical foundations, and empirical literature. Section 3 includes the methodology of the research. Section 4 presents the discussion of the results and findings and elucidates their consequences. Section 5 encompasses the conclusion, implications and limitations of the study.

LITERATURE REVIEW

Theoretical literature of financial inclusion:

The theoretical foundation of financial inclusion is one of the important drivers for economic growth. Financial inclusion is a process of providing access to financial products and services to all financially deprived people and organization at a fair, and reasonable cost (Chakravarty & Pal, 2013). It also means providing timely and easy availability and affordability of financial services and products to financial deprived people (Agarwal, 2010). It increases innovation and efficiency in investment output in the financial sector, hence economic growth by means of its financial services, which also facilitates capital formation in the nation. It is influenced by several key drivers such as accessibility, financial awareness, and usability. Accessibility is defined from the theory of diffusion of innovations proposed by (Rogers et al., 2014). The theory suggests that the fintech services adopted by the society when they have sufficient information about them. Financial awareness is backed by theory of human capital that is developed by (Becker, 1993). The theory reveals that awareness and knowledge improve individuals' ability for making rational financial decisions. Singh (2021) found that lack of awareness hinders in formal financial system. Another driver usability linked to Technology Acceptance Model developed by (Davis, 1987). It proposes that ease of use and usefulness determine adoption. (Zhang et al., 2018) found that usability improves adoption. Further financial inclusion is supported by inclusive growth theory that outlines economic growth should be broad-based across sectors and of large parts of the labor force (Ngepah, 2017). It explains that inclusive growth should benefit marginalized sections of society with the help of equal accessibility of services. Financial inclusion is central to this approach to this theory as it provides marginalized populations to contribute and benefit from growth. The Pradhan Mantri Jan Dhan Yojana (PMJDY), launched in 2014, with the aim to provide basic saving account for each and every household (Goyal, 2016). So, that over 500 million accounts have been opened as of 2024, showing how access to banking is linked with inclusive growth (Singh & Naik, 2018). Another theory is financial intermediation theory that outlines how banks reduce information asymmetries between savers and borrowers and transaction costs. It improves capital access and efficiency. For example, Kenya's M-Pesa mobile money system launched in 2007, operates as an informal intermediary enabling users to move money, save, and even obtain credit and insurance, hence promoting financial inclusion outside conventional institutions (Jack, 2014).

EMPIRICAL LITERATURE

Role of Usability to Financial Inclusion:

The role of financial inclusion and economic growth depend upon the usability of financial services. Usability means usage of financial products and services; accessibility means approachability of financial institution and barriers include affordability and trust regarding financial institution. Cámara & Tuesta (2014) highlighted these three drivers of financial inclusion such as usability, accessibility and barrier. (Beck et al., 2007) stated that usability plays an important role in enabling customers' role in facilitating payments. Another author (Allen et al., 2014) illustrates that financial inclusion improves through usage of deposit accounts. Banks provided zero balance accounts, mobile banking, ATMs, and cost-effective technology that played an important role in achieving growth of an economy (Pandey et al., 2022). Inegbedion et al., (2020) used a previously validated assessment tool to examine the customers' attitudes towards online purchasing in Nigeria and they found that perceived usability significantly affects their attitudes towards internet purchasing in Nigeria. For instance, fintech-based financial inclusion depends not only on access to services but also on users' behavioral intention, service trust, and usability of digital platforms. Hence therefore, many studies suggest that accessibility significantly contributes to financial inclusion; however, it may not guarantee effective inclusion because of usability of financial services.

Role of Accessibility to Financial Inclusion:

The role of accessibility in financial inclusion is more about convenience and easy use of financial services. Access to finance is a hurdle in terms of growth and development. It includes both the eligibility to access financial services and the feasibility, such as geographical proximity, of reaching the service provider (Beverly et al., 2008). It may have also impacted the achievements of sustainable development goals. Arora & Kumar (2022) presented a multi-dimensional index of financial inclusion of different districts of Haryana. They found that access to finance helps individuals for taking rational decision of financial expenditure. Kuri & Laha (2011) identified about integrating the marginalized segments of society into the formal financial system. It includes access to formal financial services at the appropriate time, at a fair cost, and in sufficient quantity. Paramasivan & Ganeshkumar, (2013) illustrates that financial inclusion is to provide access to formal financial services and ensuring their usage by all. Financial exclusion, or inability to access such services, is said to hinder economic progress and make it harder for people to live a normal life in modern times. It strongly correlates with social exclusion (Altunbas et al., 2007). McKernan (2008) explained that although accessibility improves the level of financial inclusion but it alone may not be sufficient as other factors such as affordability, awareness, literacy and usability may significantly influence the level of financial inclusion.

Role of Awareness to Financial Inclusion:

Financial inclusion is not only influenced by accessibility but also it is influenced by financial awareness and other socio-economic conditions. It can play a vital role in fostering the cause of financial inclusion, especially in situation where literacy, and general awareness remain low. The study by (Al-Okaily et al., 2023) states that usage of financial services moderates by

individuals' intention to use, while there are many barriers such as lack of awareness, and non-user-friendly systems may limit adoption of financial services. According to (Atkinson & Messy, 2013), financial awareness includes measuring about different financial products and services. The OECD includes in its financial literacy surveys the product awareness measures. According to Bhushan, (2014) the lack of proper financial awareness can hurdle the proper and rational use of availability of financial products and services. Underutilization of financial product and services is also due to lack of information about financial product and services (Banerjee et al., 2020). Although (Kumar & Pathak, 2022) illustrated that financial awareness is one of the important factors for adopting financial product and services. Hence lack of financial awareness leads the barrier of financial inclusion.

METHODOLOGY

Research Process

This research paper follows descriptive research design and the quantitative research method. The researcher conducted the survey method to collect data through online and offline.

Sample and data collection

The present study measures the impact of accessibility, usability, awareness and digital technology on financial inclusion. The respondents less than 25 to above 55 age group. The Total 700 survey questionnaire distributed through online and offline. The survey of 400 responses got in return and only 253 respondents completed the survey and fit for the study. The researchers used a non-probability convenience sampling strategy to obtain the sample. Only respondents actively using banking or digital financial platforms were included in the study.

Measurements

The variables and the items were adapted from the previous study (Kumar Vaid et al., 2020; Nugraha et al., 2022; Singh, 2021; Zhang et al., 2018). The variables used in the current study are Accessibility, Usability, Financial Awareness as independent variables and Financial Inclusion as dependent variable. The 5-point Likert- Scale (Strongly Disagree=1 to strongly Agree = 5) used and used a structured questionnaire. The researcher has used the Partial least squaring structural equation modeling (PLS-SEM) for the data analysis. The PLS-SEM results will be discussed in further sections.

RESULTS AND DISCUSSION

Demographic details

The demographic details indicates that the sample is mainly focused with youth and nearly equal gender distribution with females constituting 50.2% followed by the males 49.8%. The majority of the respondents belongs to the age group below 25 years (66.4%) and 26-35 years age group constituting 24.1%. As the maximum respondents are below 25 years age groups, so in terms of marital status, 77.9% of the populations are unmarried. The education profile indicates that most of the respondents (44.7%) are graduates followed by the post-graduates (26.1%). The employment status, indicates that the majority of the participants are students

(62.8%), followed by private employees (22.5%), suggesting that the study is primarily student-centric. Hence, the demographic details shows that the study is mainly among young educated individuals.

Assessment of measurement model

The PLS-SEM help us to estimates the path model and hypothesis testing. The measurement model yield result based on Convergent Validity (CV) and Discriminant Validity (DV). The CV yield result can be confirmed by Composite Reliability (CR), Average Variance Extract (AVE) and Factor Loading (FL). The CR value threshold ($> .70$), AVE (> 0.50) and FL (> 0.708) and the results yield the value above the threshold(Hair et al., 2017) . The results were shown in the below table 1 and table 2. The CR value include the values of Cronbach's Alpha (CA), rho_a, and rho-c. The values of Cronbach's Alpha (CA), rho_a, and rho-c are above .700. The AVE values are above 0.500 which is meeting the threshold limit. The FL value should be above 0.702 and table 2 states that all the FL value are above the 0.702 FL limit so, the CV results are satisfactory (Hair et al., 2017) .

Table 1: Construct reliability and validity

	CA	CR (rho_a)	CR (rho_c)	AVE
AC	0.838	0.849	0.892	0.675
FAW	0.879	0.883	0.913	0.679
FI	0.900	0.902	0.926	0.714
U	0.868	0.873	0.910	0.717

Table 2: Factor Loading

	AC	FAW	FI	U
AC1	0.821			
AC2	0.880			
AC3	0.850			
AC4	0.727			
FAW1		0.848		
FAW2		0.787		
FAW3		0.706		
FAW4		0.888		
FAW5		0.878		
FI10			0.839	
FI2			0.880	
FI3			0.826	
FI5			0.826	
FI6			0.854	
U1				0.782
U2				0.891
U3				0.870
U4				0.840

The Discriminant value is analyzed by the HTMT Ratio. The values should be less than 0.80 considered very good but till 0.90 accepted (Hair et al., 2017). The HTMT Ratio details are provided below table 3.

Table 3: HTMT Ratio

	AC	FAW	FI	U
AC				
FAW	0.744			
FI	0.664	0.896		
U	0.812	0.844	0.791	

The values of HTMT Ratio are under the threshold limit and the results of CV and DV results are satisfactory. It confirms the measurement model is satisfactory.

Assessment of Structural Model

It includes the result of collinearity inner model, Coefficient of Determination R Square (R^2), Q Square (q^2), and hypothesis testing. The value of the inner model is less than 3.000 threshold but the accepted values is up to 5.000 (Hair et al., 2017). The R^2 value for FAW 41.1%, U 63.2, and FI 66.6 results the values shows the good R^2 value as R^2 value considered 0.02-0.12 as Weak, 0.13-0.25 as Moderate, and 0.26 and above Good (Hair et al., 2017). The Q square value is FAW 27.2%, FI 46.5%, and U 44.0 %. The results of q^2 show the good results as 0.02 (small), 0.015 (moderate), and 0.035 (large) (Hair et al., 2017). Now the route coefficient explains the hypothesis connection between variables (Hair et al., 2017). The results for the path relations are shown in the below Figure 1 and Table 4 shown the structural model results.

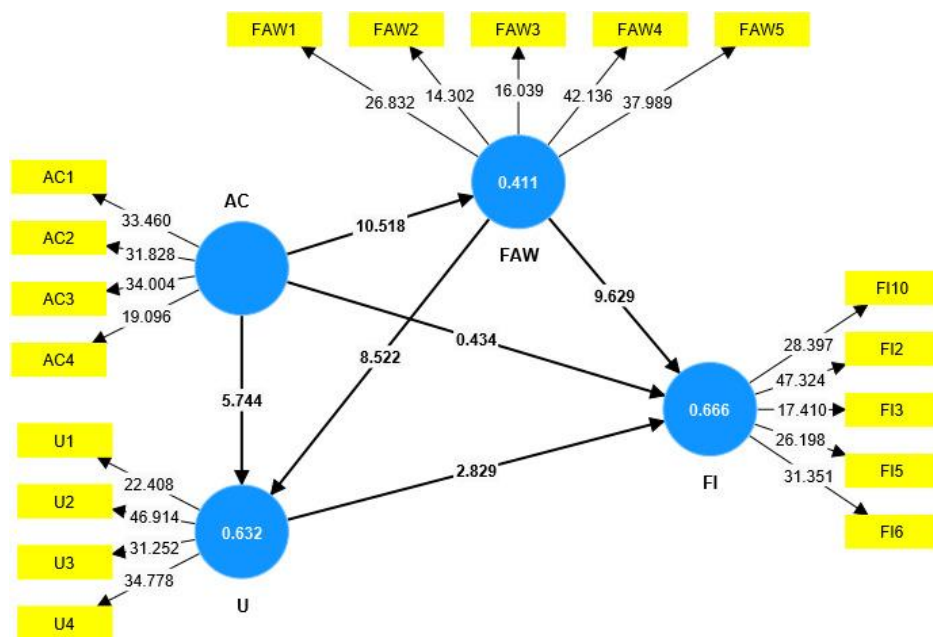


Figure 1: Bootstrapping results

Table 4: Structural Model Results

Hypothesis	Relationship	Std Beta	T statistics	P values	Decision
H1	AC -> FAW	0.641	10.518	0.000	Accepted
H2	AC -> FI	0.031	0.434	0.664	Not Accepted
H3	AC -> U	0.369	5.744	0.000	Accepted
H4	FAW -> FI	0.612	9.629	0.000	Accepted
H5	FAW -> U	0.506	8.522	0.000	Accepted
H6	U -> FI	0.226	2.829	0.005	Accepted

Source: Author Compilation

The statistical significance of the path coefficient was evaluated using bootstrapping (re-sampling = 5000). The path coefficient indicates how the hypothesized relationship between variables is established (Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, 2017). All hypothesis accepted except H2 (AC -> FI) AC with FI. The results are provided in the table 4.

DISCUSSION

The findings of the research paper provide the relationship between Accessibility, Financial Awareness, Usability and Financial Inclusion. The past studies highlights that the financial inclusion among rural populations is influenced by the accessibility of financial infrastructure and awareness of financial products (Kumar Vaid et al., 2020). Similarly, Singh (2021) analyses demand-side barriers of financial inclusion. The author states that people are financially excluded due to lack of documentation, fear of debt and awareness about financial product and services. The results also states that there is significant relationship between accessibility and awareness suggests that accessibility plays an important role in enhancing people awareness and understanding. The study also suggests that the accessibility improves usability of financial services and products among the people reveals that people with greater accessibility more likely to demonstrate higher usability. The findings highlights that the accessibility as a foundational factor as it can directly strengthen awareness and usability. Another finding indicates that high beta coefficients reveals that financial awareness is one of the major indicators of financial inclusion, suggesting that financial awareness positively influences the people intentions and behavioral outcomes. The findings also support the past studies done by (Atkinson & Messy, 2013; Sahoo et al., 2017). Although the no direct relationship between accessibility and financial inclusion, it shows that accessibility cannot directly influence financial inclusion as it depends upon the other factor such as financial awareness and usability (Nugraha et al., 2022). Hence, the findings highlights that the financial inclusion influence indirectly through utilization mechanisms and awareness. Overall, the research study suggests that financial awareness and usability play as important factors in influencing financial inclusion and accessibility affects indirectly to inclusion. The findings of discussion support that the theoretical and empirical proposed model.

CONCLUSION

Financial inclusion is gaining much attention after the launching of PMJDY in India. The government of India serious towards bringing marginalized sections of the people under the financial inclusion. A major portion of the people is still vulnerable towards the wide range of

financial services. So, financial inclusion initiatives are making significant contribution towards the mission to achieve the level of financial inclusion.

The research study evaluates the relationships among Accessibility (AC), Financial Awareness (FAW), Usability (U) and Financial Inclusion (FI). The findings indicate that accessibility positively influences financial awareness and usability suggesting that awareness and usability are important factors in increasing users' engagement with digital technologies and services. The study further identified that financial awareness plays a central role in promoting usability and financial inclusion. Additionally, Usability (U) plays a significant role in the usage of financial services that contributes directly to increasing inclusion outcomes. However, there is an indirect relationship between accessibility (AC) and financial inclusion (FI), suggesting that accessibility will improve with the support of awareness. Overall, the research concludes that financial awareness (FAW) and Usability (U) are the key drivers that mediate and strengthen financial inclusion and promote people's participation in the formal finance.

IMPLICATIONS

The research study reveals the important theoretical and practical implications for the policymakers, researchers, and institutions. The study also contributes to the theoretical view of financial inclusion and fintech adoption by combining awareness, usability and accessibility in the unified framework. It provides the importance about awareness and usability as a driver that facilitates financial inclusion. With a practical view, the study suggests that financial institutions and policymakers should need to implement financial literacy and awareness campaign and knowledge in a prioritized basis for improving inclusion outcomes. There is a need to organize campaigns, mobile banking training and literacy programs for better understanding of financial products and services and increasing willingness to adopt and utilization of financial technologies. The findings are mainly relevant for rural and low-income populations where people are lagging in awareness and limited accessibility. Hence, policymakers need to adopt digital financial strategies that integrate awareness with practical mechanisms support to provide broader adoption of financial services. Overall, the study reveals that the continuous awareness and utilization of financial services will improve sustainable financial inclusion.

LIMITATIONS

The research study has also certain limitations that could not be completely eliminated. First, the study was performed with a limited sample size and mainly among young populations that may restrict the generalizability of the findings with other populations. Second, respondents have changes among perceptions and behavior over time. So, the data of the study were collected at a single point in time. Third, the study is dependent upon the limited constructs, while there is a need to include other factors such as trust, perceived usefulness, technology readiness and risk. Finally, the study focused with a specific context and the findings may change across different demographic groups, and regions. The future scope of study may use with diverse with large samples and additional moderating and mediating variables for deeper understanding.

REFERENCES

1. Agarwal, A. (2010). Financial inclusion: Challenges & opportunities. .Skoch Summit, 5-6. [https://ijmer.s3.amazonaws.com/pdf/volume14/volume14-issue1\(3\)/18.pdf](https://ijmer.s3.amazonaws.com/pdf/volume14/volume14-issue1(3)/18.pdf)
2. Allen, F. ,Carletti, E. , Cull, R. , Qian, J. Q. , Senbet, L. , & Valenzuela, P. (2014). The African financial development and financial inclusion gaps. *Journal of African Economies*, , 23(5), 614-642. <https://doi.org/10.1093/jae/eju015>
3. Al-Okaily, M., Alqudah, H., Al-Qudah, A. A., Al-Qadi, N. S., Elrehail, H., & Al-Okaily, A. (2023). Does financial awareness increase the acceptance rate for financial inclusion? An empirical examination in the era of digital transformation. *Kybernetes*, 52(11), 4876–4896. <https://doi.org/10.1108/K-08-2021-0710>
4. Altunbas, Y. , Carbo, S. , Gardener, E. P. , & Molyneux, P. (2007). Examining the relationships between capital, risk and efficiency in European banking. . *European Financial Management*, 13(1), 49-70. <https://doi.org/10.1111/j.1468-036X.2006.00285.x>
5. Antwi, F., Kong, Y., & Gyimah, K. N. (2024). Financial inclusion, competition and financial stability: New evidence from developing economies. *Heliyon*, 10(13), 1–13. <https://doi.org/10.1016/j.heliyon.2024.e33723>
6. Arora, N., & Kumar, N. (2022). Extent of Financial Inclusion in Haryana: A District-level Analysis. *Vision*. <https://doi.org/10.1177/09722629221096023>
7. Asif, M., Khan, M. N., Tiwari, S., Wani, S. K., & Alam, F. (2023). The Impact of Fintech and Digital Financial Services on Financial Inclusion in India. *Journal of Risk and Financial Management*, 16(2). <https://doi.org/10.3390/jrfm16020122>
8. Atkinson, A. ,& Messy, F. A. (2013). Promoting financial inclusion through financial education: OECD/INFE evidence, policies and practice. <https://doi.org/10.1787/5k3xz6m88smp-en>
9. Bahri, E. N. A., Nor, A. H. S. , Sarmidi, T. , & Mohd Nor, N. H. (2018). Nonlinear relationship between financial development and economic growth: Evidence from post global financial crisis panel data. *J. Ekon. Malays.* , 15–30. <https://doi.org/10.17576/JEM-2018-5201-2>
10. Banerjee, A. N. , Kumar, K., & Philip, D. (2020). Unaware of Being Unaware and Financial Non-Participation. . SSRN, 3201881. <https://doi.org/10.2139/ssrn.3201881>
11. Bank, W. (2025). Mobile-Phone Technology Powers Saving Surge in Developing Economies. <https://www.worldbank.org/en/news/press-release/2025/07/16/mobile-phone-technology-powers-saving-surge-in-developing-economies>
12. Basu, P. (2006). Improving Access to Finance for India's Rural Poor. <https://openknowledge.worldbank.org/server/api/core/bitstreams/d92e2c60-c355-5b28-8d93-e8531995615d/content>
13. Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. *Journal of Economic Growth*, 12(1), 27–49. <https://doi.org/10.1007/S10887-007-9010-6>
14. Becker, G. S. . (1993). Human capital : a theoretical and empirical analysis, with special reference to education. The University of Chicago Press.
15. Behl, A. , Singh, A., & Vashishtha, M. (2015). Road to sustainable financial inclusion: diffusion of smart card technology”, . *Annual Research Journal of Symbiosis Centre for Management Studies*, 3(1), 118-134.
16. Beverly, S. ,Sherraden, M. , Cramer, R. , Williams Shanks, T. , Nam, Y. , & Zhan, M. (2008). Determinants of asset holdings. . *Asset Building and Low-Income Families*, , 89-151.
17. Bhushan, P. (2014). Insights into awareness level and Investment Behaviour of salaried individuals towards Financial Products. *International Journal of Engineering, Business and Enterprise Applications* , 8(1), 53–57. <https://scispace.com/pdf/insights-into-awareness-level-and-investment-behaviour-of-1u3t742ac7.pdf>
18. Cámara, N. ,&Tuesta, D. (2014). Measuring financial inclusion: A multidimensional index. . *BBVA Research Paper*,14(26), 1-56.
19. Chakravarty, S. R., & Pal, R. (2013). Financial inclusion in India: An axiomatic approach. *Journal of Policy Modeling*, 35(5), 813–837. <https://doi.org/10.1016/j.jpolmod.2012.12.007>
20. Davis, F. (1987). User Acceptance of Information Systems: The Technology Acceptance Model. <https://hdl.handle.net/2027.42/35547>
21. Goyal, M. (2016). Pradhan Mantri Jan Dhan Yojana: A Step Towards Financial Inclusion. In *Pacific Business Review International* (Vol. 8, Number 9). www.pmjdy.gon.in

22. GPFI. (2009). G20 Financial Inclusion Action Plan Financial Inclusion Experts Group.
23. Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Thousand Oaks. In Sage. SAGE Publications Inc.
24. Hair, J. F., Hult, G. T., Ringle, C., & Sarstedt, M. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). In Sage (Second Edi). SAGE Publications, Inc. Printed.
25. Inegbedion, H., Osifo, S. J., Eze, S. C., Ayeni, A., & Akintimehin, O. (2020). Exposure to and usage of e-banking channels Implications for bank customers' awareness and attitude to e-banking in Nigeria. <https://doi.org/10.1108/JSTPM-02-2019-0024>
26. Jack, W. ,& S. T. (2014). Risk sharing and transactions costs: Evidence from Kenya's mobile money revolution. *American Economic Review*, 104(1), 183-223. <https://doi.org/10.1257/aer.104.1.183>
27. Kaltenborn, M. (2017). Overcoming Extreme Poverty by Social Protection Floors – Approaches to Closing the Right to Social Security Gap. *Law and Development Review*, 10(2). <https://doi.org/10.1515/ldr-2017-0014>
28. Klapper, L., & Panos, G. A. (2011). Financial literacy and retirement planning: the Russian case*. *Journal of Pension Economics & Finance*, 10(4), 599–618. <https://doi.org/10.1017/S1474747211000503>
29. Koomson, I. ,& Danquah, M. (2021). Financial inclusion and energy poverty: Empirical evidence from Ghana. *Energy Economics*, 94. <https://doi.org/10.1016/j.eneco.2020.105085>
30. Kumar, R., & Pathak, D. C. (2022). Financial awareness: a bridge to financial inclusion. *Development in Practice*, 32(7), 968–980. <https://doi.org/10.1080/09614524.2022.2028731>
31. Kumar Vaid, Y., Singh, V., & Sethi, M. (2020). Determinants of Successful Financial Inclusion in Low-Income Rural Population. *The Indian Economic Journal*, 68(1), 82–100. <https://doi.org/10.1177/0019466220962057>
32. Kuri, P. K. ,& Laha, A. (2011). Financial inclusion and human development in India: An inter-state analysis. . *Indian Journal of Human Development*, 5(1), 61-77. <https://doi.org/10.1177/0973703020110103>
33. Lenka, S. K., & Sharma, R. (2017). Does financial inclusion spur economic growth in India? , . *The Journal of Developing Areas*, 51(3), 215-228. <https://doi.org/10.1353/jda.2017.0069>
34. Lusardi, A. , Michaud, P.-C. , & Mitchell, O. S. (2017). Optimal financial knowledge and wealth inequality. . *J. Politi. Econ.*, 125, 431–477. <https://doi.org/10.1080/23311975.2026.2654923>
35. McKernan, S.-M. (2008). Asset Building and Low-Income Families. The Urban Institute.
36. Mhlanga, D. (2021). Financial inclusion in emerging economies: The application of machine learning and artificial intelligence in credit risk assessment. *International Journal of Financial Studies*, 9(3). <https://doi.org/10.3390/ijfs9030039>
37. Muralidharan, K. , Niehaus, P., & Sukhtankar, S. (2016). Building state capacity: evidence from biometric smartcards in India”. *American Economic Review*, 106(10), 2895-2929. <https://doi.org/10.1257/aer.20141346>
38. Ngepah, N. (2017). A review of theories and evidence of inclusive growth: an economic perspective for Africa. *Current Opinion in Environmental Sustainability*, 24, 52–57. <https://doi.org/10.1016/j.cosust.2017.01.008>
39. Nugraha, D. P., Setiawan, B., Nathan, R. J., & Fekete-Farkas, M. (2022). Fintech Adoption Drivers for Innovation for SMEs in Indonesia. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(4). <https://doi.org/10.3390/joitmc8040208>
40. Pandey, A. , Kiran, R. , & Sharma, R. K. (2022). Investigating the impact of financial inclusion drivers, financial literacy and financial initiatives in fostering sustainable growth in North India. . *Sustainability*, 14(17). <https://doi.org/10.3390/su141711061>
41. Paramasivan, C., & Ganeshkumar, V. (2013). Overview of Financial Inclusion in India. *International Journal of Management and Development Studies* , 2(3), 45–49. <https://doi.org/10.53983/IJMDS.V2I3.27>
42. Rogers, E. M., SINGHAL, A., & QUINLAN, M. M. (2014). An Integrated Approach to Communication Theory and Research (D. W. Stacks & M. B. Salwen, Eds.). Routledge. <https://doi.org/10.4324/9780203887011>
43. Sahoo, A. K., Pradhan, B. B., & Sahu, N. C. (2017). Determinants of Financial Inclusion in Tribal Districts of Odisha: An Empirical Investigation. *Social Change*, 47(1), 45–64. <https://doi.org/10.1177/0049085716683072>

44. Sharma, D. (2016). Nexus between financial inclusion and economic growth: Evidence from the emerging Indian economy. . J. Financ. Econ. Policy , 8, 13–36. <https://doi.org/10.1108/JFEP-01-2015-0004>
45. Singh, A. (2021). Exploring demand-side barriers to credit uptake and financial inclusion. International Journal of Social Economics, 48(6), 898–913. <https://doi.org/10.1108/IJSE-04-2020-0234/FULL/PDF>
46. Singh, C., & Naik, G. (2018). Financial inclusion after PMJDY: a case study of Gubbi Taluk, Tumkur. [https://doi.org/Singh, Charan and Naik, Gopal, Financial Inclusion After PMJDY: A Case Study of Gubbi Taluk, Tumkur \(March 28, 2018\). IIM Bangalore Research Paper No. 568, Available at SSRN: https://ssrn.com/abstract=3151257 or http://dx.doi.org/10.2139/ssrn.3151257](https://doi.org/Singh, Charan and Naik, Gopal, Financial Inclusion After PMJDY: A Case Study of Gubbi Taluk, Tumkur (March 28, 2018). IIM Bangalore Research Paper No. 568, Available at SSRN: https://ssrn.com/abstract=3151257 or http://dx.doi.org/10.2139/ssrn.3151257)
47. Vyas, V., & Jain, P. (2021). Role of digital economy and technology adoption for financial inclusion in India. Indian Growth and Development Review, 14(3), 302–324. <https://doi.org/10.1108/IGDR-01-2020-0009/FULL/PDF>
48. Zhang, T., Lu, C., & Kizildag, M. (2018). Banking “on-the-go”: examining consumers’ adoption of mobile banking services. International Journal of Quality and Service Sciences, 10(3), 279–295. <https://doi.org/10.1108/IJQSS-07-2017-0067>