FROM BANKING INNOVATION TO MEANINGFUL FINANCIAL INCLUSION: THE MEDIATING ROLE OF FINANCIAL EMPOWERMENT AND THE MODERATING ROLE OF FINANCIAL RESILIENCE AMONG RURAL HOUSEHOLDS IN COASTAL KARNATAKA

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ABSTRACT

This research aims to investigate the relationship between banking innovations and financial inclusion in Coastal Karnataka's rural population while exploring the role of financial empowerment and resilience (as mediating and moderating influences, respectively). Although there has been a push to increase access to financial institutions for those who live in rural areas, many members of these communities have not been able to access or effectively use the products provided by these institutions. Through this framework, this research will assess the extent to which banking innovations have enabled meaningful levels of financial inclusion.

To examine this relationship, a cross-sectional, quantitative research design was used. A survey consisting of a structured questionnaire was administered to all participants in coastal Karnataka's rural areas, resulting in 291 valid responses. The survey contained items related to demographics and measurement items (the accessibility of digital banking, the availability of assisted banking, financial empowerment, and financial resilience) and financial inclusion. Descriptive statistics and structural equation model were used to calculate analysis of the relationships between the study variables.

According to the results of this study, innovative banking products and services have a significant impact on an individual's level of financial inclusion. Financial empowerment serves as a mediating factor indicating that an individual's level of financial knowledge and capacity is important for converting access to financial products and services into actual financial inclusion. Financial resilience also contributes to this relationship by influencing the extent to which an individual can maintain regular financial participation. Therefore, these findings will help financial institutions and policymakers develop approaches that increase the access to, enhance the ability to utilize, and promote the long-term sustainability of financial resources.

KEYWORDS: *Banking Innovation, Financial Inclusion, Financial Empowerment, Financial Resilience, Rural Households, Digital Banking Accessibility, Assisted Banking Support*

1. INTRODUCTION

Financial inclusion is becoming an increasingly important part of inclusive economic development for many developing countries across the globe, where many individuals still have little or no access to formal financial institutions. Therefore, despite substantial policy and other efforts to promote access to financial services by rural communities of the world, such communities continue to encounter access barriers due to insufficient banking infrastructure, a lack of adequate financial literacy, and technological barriers; while some banking innovations have been introduced throughout the past several years (e.g., the use of digital financial services, agent-assisted banking), these innovations are generally viewed as being successful at promoting access and reducing transaction costs (Beck et al., 2018; Philippon, 2016), so that increased access to financial services may not necessarily lead to their effective use, especially in rural areas where the capability gaps exist.

Financial empowerment is required because it provides the motivation, confidence, knowledge and skills for people to be able to interact with the various forms of financial systems (World Bank Group, 2023). Studies indicate that people who are financially empowered were also more likely to adopt and successfully utilize formal methods of finance (Van Rooij, M., Lusardi, A., & Alessie, R. 2011). In addition to financial empowerment, the ability of households to withstand financial shocks and continue to be able to operate over time is considered important. Some studies have found that resilience to financial shocks supports the sustainability of financial inclusion by enabling households to continue to participate in financial services (Demirgüç-Kunt et al., 2018).
This current study will examine the role of banking innovation on rural households' financial inclusion in Coastal Karnataka, including analyses of the mediating effect of financial empowerment as well as the moderating effect(s) of financial resilience.

2. LITERATURE REVIEW

The recognition of financial inclusion as a major factor in social and economic justice by creating jobs and reducing poverty is well documented as a contributor to economic development and poverty reduction, especially for those people living in rural areas or underserved locations. Financial inclusion goes beyond just having access to financial services; it includes having the ability to use a financial service effectively (i.e., being able to access fair and affordable financial products and/or services such as saving, borrowing, insurance, and electronically paying) for everyone (Serrao et al., 2021). Asli Demirguc-Kunt et al. (2018) have clearly demonstrated in their research that increasing financial inclusion can lead to a reduction in poverty and increased economic growth opportunities by allowing households to smooth out their consumption; invest in education; take advantage of when they need to take a risk; and the financial systems in which the rural poor live are hindered by poor financial education and knowledge, poor infrastructure, and a low level of trust in formal and informal financial systems which are all barriers to participating fully in the financial system (Ozili, 2021). Banking innovation can play an important role in addressing these challenges for rural populations by enhancing the reach and effectiveness of financial services provided through various delivery methods such as digital banking, mobile financial services, and branchless banking (Lee & Shin, 2018).

According to Leora Klapper (2017), Digital financial services (DFS) will support financial inclusion because they simplify access to accounts and make it easier to conduct transactions safely. Assisted banking models (e.g., business correspondents) also serve a significant purpose in bridging the digital divide through providing tailored assistance and developing trust with rural consumers. The combination of digital banking and assisted banking innovations will lead to increased adoption rates and improved use of financial services by rural residents (Suri & Jack, 2016).

The idea of financial empowerment has recently become more prominent as a key link between having access to financial services and being truly included. Financial empowerment is the ability of individuals to make informed decisions about their finances, manage resources effectively, and prepare for their future financial needs (Collins D., Morduch J., Rutherford S. & Ruthven O., 2009). Simply having access does not guarantee improved financial outcomes unless individuals have the necessary information, skills and/or confidence. Annamaria Lusardi and Mitchell's argument (2014) is that financial empowerment encompasses financial literacy and capability, and is therefore an important determinant of financial behaviour. Empirical studies prove that financially empowered individuals are much more likely to save, invest and become entrepreneurs; thus improving their socio-economic well-being (Grohmann et al., 2018).

In the last several years, researchers have begun to understand how important a person's ability to financially withstand shocks, manage risks, and recover from loss is for achieving financial inclusion. Research by Morgan & Long (2020) found that having access to traditional forms of banking (for example, via a savings account), especially digital payments, increase an individual's or household's financial resilience by providing mechanisms for managing risks and smoothing out consumption (Peng & Liu, 2024).

Researchers have historically worked with the constructs of banking innovations, financial empowerment, financial resilience, and financial inclusion, separately from one another. However, there has yet to be significant research that combines all four into one comprehensive study using both mediating and moderating effects, especially in rural areas/countries. Overall, there are few studies that provide region-specific empirical evidence, especially in Coastal Karnataka. The current study will contribute to filling this gap by examining the effect of banking innovation on financial inclusion through the constructs of financial empowerment and the affecting role of financial resilience.

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3. THEORETICAL FRAMEWORK

The present study is grounded in two key theoretical perspectives, namely the Financial Capability Theory and the Diffusion of Innovation Theory, both of which provide a strong foundation for understanding the relationships among banking innovation, financial empowerment, financial resilience, and financial inclusion.

Financial Capability Theory emphasizes that access to financial services alone is insufficient to achieve meaningful financial inclusion; rather, individuals must possess the knowledge, skills, attitudes, and confidence to effectively utilize these services. According to Sun, S., Chen, Y. C., Ansong, D., Huang, J., & Sherraden, M. S. (2022).), financial capability is a combination of financial literacy and access to appropriate financial products, enabling individuals to make informed decisions and improve their financial well-being. This theory aligns closely with the mediating role of financial empowerment in the present study, as empowerment reflects individuals' ability to manage finances, plan for the future, and respond to financial challenges. Empirical evidence suggests that higher levels of financial capability lead to increased participation in formal financial systems, improved savings behavior, and enhanced economic outcomes (Lusardi & Mitchell, 2014). In addition to providing tools and education to help a person in managing an economic shock or uncertainty (Xiao & O'Neill, 2016), financial capability contributes to the ability for a person to develop financial resilience. Because of the theory of financial capability, banking innovations can improve the lives of people through the financial empowerment that occurs when individuals gain access to the tools to manage their finances.

The Diffusion of Innovation Theory (Rogers, 2003) supports and provides additional insight into how new technologies and innovations (such as digital banking and assisted banking models) are adopted and spread across social systems. Factors that contribute to the adoption of new technologies or an innovation include perceived usefulness, ease of use, compatibility, and social influence. In rural areas where the adoption of technologies could be slow, assisted banking will play an important role in facilitating the process of diffusion of an innovation through the reduction of uncertainty and, therefore, increased trust in the adoption of the new technology (Davis, F. D. 1989). As a form of financial resilience, in this instance, the way in which households utilize financial innovations during times of unrest will be determined by their level of ability (Morgan and Long, 2020).

Together, these two theories provide an overall basis from which to understand financial empowerment as a mediator (or belief structure) and financial resilience as a moderator between banking innovations created through developing these capabilities and achieving financial inclusion, through understanding the process by which financial capabilities are developed; how those capabilities are used by households to successfully adopt and utilize banking innovations; how banking innovations can improve the financial empowerment of those households with the necessary financial capabilities; as well as how banks can create an environment conducive for household financial inclusion.

4. CONCEPTUAL MODEL

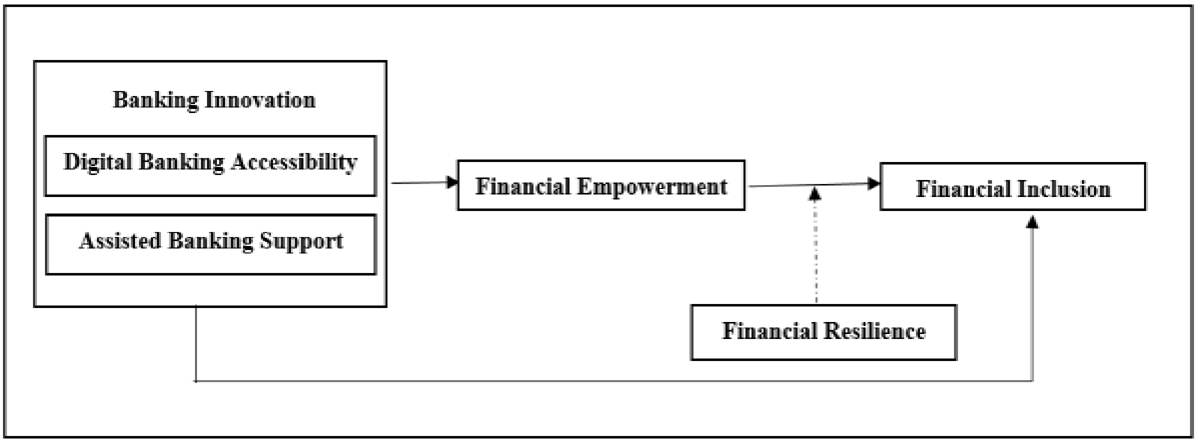

Figure 1 Conceptual Model

Source: Compiled by the Author

5. HYPOTHESIS

Digital banking accessibility has transformed how financial services are delivered in rural communities, allowing for innovative methods of delivering those services. Digital platforms have reduced costs associated with banking transactions, increased convenience and made it easier for individuals living in rural areas to access formal banking services. For example, Klapper (2017) states: "Digital Finance facilitates access to formal sources of finance and thus enables individuals to make better decisions regarding their finances." By creating an environment where individuals living in rural areas have access to digital banking technologies, individuals will likely become more financial literate, confident and in control of their finances. Additionally, empirical findings demonstrate users' ability to increase financial capabilities and feelings of empowerment through increased access to digital financial products (Ozili, 2021). Therefore, we can assume that digital banking accessibility will positively impact users' financial empowerment.

H1: Digital banking accessibility has a significant positive effect on financial empowerment.
Banking assistance is essential to the success of financial inclusion for people who struggle to understand how to use digital technologies to manage their finances. Barriers to using digital systems often include fear and a lack of skills, so many agrarian households have difficulty accessing financial products like banking services because they lack trust and technical know-how in dealing with these systems. The use of banking assistance approaches, such as banking correspondents or banking agents, helps mitigate this access to financial services by providing assistance in completing financial transactions and improving users' confidence in their ability to use the services. According to Suri and Jack (2016), financial services that incorporate human assistance increase users' confidence and subsequently increase their use of formal financial institutions. As a result, bank assistance contributes towards the development of financial empowerment through increasing the ability of a consumer to effectively utilize the services offered by financial institutions.

H2: Assisted banking support has a significant positive effect on financial empowerment.
Financial empowerment is defined as the ability of individuals to make informed financial decisions, manage their finances, and use financial products and services to enhance their economic well-being. It is central to the conversion of access into meaningful financial inclusion. Lusardi & Mitchell (2014) assert that people who possess financial knowledge and capability will increase their likelihood of using formal financial institutions and will become more efficient in their use of financial products. Grohmann et al. (2018) found this to be true across many countries; people with greater levels of financial capability were more likely to achieve the objectives they desire about using financial products and services. Consequently, people with high levels of financial empowerment are more likely to achieve financial inclusion.

H3: Financial empowerment has a significant positive effect on financial inclusion.
Accessible digital banking not only enables empowerment but has the potential to directly affect an individual's ability to access formal financial services. Demirgüç-Kunt et al. (2018) show a steady rise in global account ownership and service usage through digitally based financial inclusion. Digital banking is reducing the geographical and infrastructural barriers in rural areas, making it possible for households in these regions to fully participate in the formal financial sector. As a result, digital banking accessibility will have a direct positive impact on financial inclusion.

H4: Digital banking accessibility has a significant positive effect on financial inclusion.
The use of assisted banking is contributing to the facilitation of financial inclusion through making financial services accessible to people who would not normally have the required skill set to operate in a digital environment. The use of assisted banking creates trust, reduces perceived risk and creates better usability through using assisted mechanisms, all of which are necessary for adoption within rural areas. Authoritative studies show a significant relationship between the implementation of trusted human-assisted mechanisms and the increase in financial service usage and inclusion within marginalised communities (Ozili, 2021). As a result, assisted banking support is anticipated to also positively influence financial inclusion.

H5: Assisted banking support has a significant positive effect on financial inclusion.
As banking innovations improve access to financial services, it is important for individuals to have the ability to actually use them in a meaningful way. The role of financial empowerment in this relationship serves as a mediator. Access to services alone is not enough to ensure individuals are able to achieve their desired outcome. Financial empowerment provides individuals with the ability to effectively use financial services, thus bridging the gap between access and inclusion (Sun et al., 2022; Xiao & O'Neill, 2016).

H6: Financial empowerment mediates the relationship between digital banking accessibility and financial inclusion.
The assistance provided through assisted forms of banking is also viewed as being mediated by financial empowerment through the assistance and service provided. Through assistance, users receive increased

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knowledge about how to interact with financial systems, which ultimately enhances their level of inclusion. Studies support the findings that programs providing assistance greatly improve both financial capability and inclusion (Grohmann et al., 2018). Therefore, financial empowerment is predicted to mediate the relationship between financial assistance and inclusion as well.

H7: Financial empowerment mediates the relationship between assisted banking support and financial inclusion.
Financial resilience describes how well a household can weather economic upheaval and adjust to changing economic conditions, and therefore, it is critical in determining how effectively a person can use financial resources and services. Morgan and Long (2020) state that people who are financially resilient are better at managing risk and using financial services effectively, suggesting that financial empowerment may affect financial inclusion differently based on levels of financial resilience: those with greater resilience may be able to apply their knowledge and skills regarding finance into actual financial inclusion.

H8: Financial resilience significantly moderates the relationship between financial empowerment and financial inclusion, such that the relationship is stronger when financial resilience is high.
Additionally, the extent of financial resilience also affects whether or not there is a moderating mediation effect of banking innovation on financial inclusion through financial empowerment. When a person has financial resilience, that person has a greater ability to successfully use financial services and sustain financial well-being through economic shocks; according to Preacher et al. (2007), moderated mediation relating to an indirect relationship will depend on a moderating variable's strength of influence over the indirect relationship. In this case, financial resilience increases the mediation effect of banking innovation on financial inclusion through financial empowerment.

H9: Financial resilience moderates the indirect relationship between banking innovation and financial inclusion through financial empowerment, such that the mediated effect is stronger at higher levels of financial resilience.

6. METHODOLOGY

To explore how banking innovation affects financial inclusion among rural households from Coastal Karnataka, the current study employs a quantitative and cross-sectional research design. Primary data was gathered from respondents residing in rural areas via a structured questionnaire. This resulted in a total of 291 valid responses being collected for analysis. A non-probability sampling method was used to reach respondents due to constraints on access to rural areas. Respondents answered two sections of the questionnaire, with one section capturing stakeholder demographic variables and the other capturing the constructs of the research study; these include Digital Banking Accessibility, Assisted Banking Support, Financial Empowerment, Financial Resilience, and Financial Inclusion. For data analysis, descriptive statistical and structural equations techniques were used to examine the relationships between variables and confirm the research model established in this study.

Table 1: Demographic Profile

Demographic Variable	Category	%	Demographic Variable	Category	%
Age	18-29 years	27.5	**Monthly Income Level**	Below ₹10000	13.1
	30-39 years	21.6		₹10001–₹20000	27.8
	40-49 years	24.7		₹20001–₹30000	38.1
	Above 50 years	26.1		₹30001–₹40000	16.8
Gender	Male	50.9		₹40001 and above	4.1
	Female	46.0	**Marital Status**	Unmarried	32.0
	Other	3.1		Married	57.7
Education	No formal Education	5.5		Widowed	6.9
	Primary Education	13.4		Divorced / Separated	3.4
	Secondary Education (SSLC)	33.0	**Occupation**	Agriculture / Farming	42.6
	PUC	27.5		Self-employed	57.4
	Degree and above	20.6			

Source: Primary Survey

Demographic of the respondents are provided in Table 1. As shown in the table, the overall distribution is fairly evenly divided between the different age groupings, with most of respondents in the 18–29 year (27.5%) and 50+ year age groups (26.1%). Therefore, it appears this study has captured input from both younger and older members

of the rural population, providing important information for better understanding differences in both banking behaviour and technology adoption.
The number of male (50.9%) and female (46.0%) respondents is almost equal and suggests that the sample is unbiased toward one specific gender; thus, it is representative of a diverse sample. In addition, there are 3.1% of respondents in the ‘other’ category, which adds to the sample’s inclusivity.

In terms of education level, the majority of respondents have received some level of formal education, with 33.0% of respondents having completed secondary level education and 27.5% of respondents having achieved a PUC. Only 5.5% of respondents have reported that they have not received any formal education. Given this largely positive outcome, most respondents indicate that they possess at least a basic level of education, which may help them understand and use banking products and services. However, given that the lowest percentage of respondents have completed a higher education degree (20.6%), it can be said that advanced financial literacy may still be low within the population.

As per the income distribution information, respondents have the most money in the ₹20001 to ₹30000 category (38.1% of respondents), followed by those in the ₹10001 to ₹20000 category (27.8%). Most respondents therefore represent the low- to middle-income groups. Income level is imperative to access and the use of financial services. The marital status of respondents showed that 57.7% of respondents had married spouses, indicating a greater financial responsibility and need to make use of financial services (i.e., savings, credit, insurance).

Regarding occupational jobs, 57.4% of respondents were self-employed and 42.6% engaged in agriculture; this reflects the informal nature of the rural economy where informal employment and agriculture-based livelihoods dominate the economy. Overall, the demographic profile of the sample suggests it is typical of a rural population and consists of people who are education, have low- to mid-income, and depend on informal or semi-formal occupations; all are highly relevant for studying financial inclusion and the use of bank innovations.

The information about the main concepts measured in research is contained in Table 2, which includes their descriptive statistics. The average score for all of the constructs is above 3.6, which means that most people agreed that they had a moderate to a high amount of agreement about each of these constructs (banking innovation, empowerment, resilience and inclusion).

The Mean for Digital Banking Accessibility (M=3.7050) indicates that rural communities generally consider digital banking services to be relatively available; therefore, it can be inferred that there is some level of awareness of and infrastructure available in rural areas to support the use of digital banking. Also, the Average for Assisted Banking Support (M=3.7020) indicates that there is enough banking support (e.g. banking agents or other forms of assistance) available to help bridge the divide between people who use technology to access their finances and the people who do not.

The Mean for Financial Empowerment (M=3.6941) demonstrates that respondents in rural communities have an average level of financial capability; they are fairly able to manage their finances and to make informed financial decisions. This slightly lower mean than the other constructs indicates that there is still some work needed to increase financial knowledge and confidence levels among rural households.

According to Financial Resilience Mean - "A well mean of 3.7038 shows a reasonable ability of respondents to deal with unexpected and uncertain finances. This is an important component to determine the capability of persons using financial institutions effectively over times of economic stress". As well Financial Inclusion Mean - "A mean of 3.7035 is indicative of moderate inclusion of respondents into financial systems. Although there appears to be access and usage of financial products and services, therefore based on results of this data, inclusion does not appear to be fully comprehensive or meaningful to all parties".

Variations between the standard deviation of each construct is low compared with others indicating there is consistency amongst responses, providing a sense of similarity between all persons surveyed. In summary descriptive statistics permit a conclusion that rural households have positive perceptions regarding financial innovation and inclusion, therefore there is potential to develop persons' financial empowerment and further develop persons' inclusion outcomes.

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Table 2: Descriptive Statistics

Constructs	Mean	Std. Deviation
Digital Banking Accessibility	3.705	.35616
Assisted Banking Support	3.702	.35248
Financial Empowerment	3.694	.29760
Financial Resilience	3.704	.35314
Financial Inclusion	3.703	.26467

Source: Primary Survey

7. RESULTS

7.1 Structural Model Assessment

Using Structural Equation Modelling (SEM), a statistical method used to analyse complicated relations between latent and measured variables. SEM can also analyse different dependent (outcomes) and independent (explanatory) variables by combining factor analysis with regression for completing both analyses simultaneously on a set of data. SEM is useful to assess the direct, indirect, and total effects among the variables, hence providing an overall evaluation of the proposed theoretical model within the current study.

The current research uses SEM analysis for the relationship between Digital Banking Accessible, Assisted Banking Support, Empowerment, Financial Resilience, and Financial Inclusion while testing a proposed conceptual framework for all five financial items.

7.2 Path Analysis

The results presented in Table 3 provide evidence for the reliability and validity of constructs. The results demonstrate satisfactory internal consistency (i.e., robust reliability) for each construct (e.g., Digital Banking Accessibility, 0.968; Assisted Banking Support, 0.965; Financial Empowerment, 0.954; Financial Resilience, 0.968; Financial Inclusion, 0.943), as all constructs have Cronbach's alpha values above the recommended minimum threshold of 0.70. In addition, all of the constructs also have Composite Reliability (CR) values that are greater than 0.70; thus, confirming the measurement model's reliability. Also, the mean responses of the constructs being greater than the median of the scale (i.e., mean > 3.0) indicate that respondents viewed the constructs as being 'at least moderately to positively' perceived.

Among the constructs, Digital Banking Accessibility (M = 3.705) and Financial Resilience (M = 3.704) both had higher mean responses than the other constructs; Financial Empowerment '(M = 3.694) had the lowest, yet still above average, of the four constructs' means of perception.

Furthermore, due to all constructs having Average Variance Extracted (AVE) values greater than the minimum threshold of 0.50, the constructs are convergently valid (AVE = range 0.714 - 0.818). The AVE values are the amount of variance explained by each indicator for its respective construct, therefore constructs explain a large part of the variance in their respective indicators.
Overall, the measurement model is considered to be reliable and valid, thus the measurement model is suitable for structural model analysis.

Table 3: Reliability and Validity Results

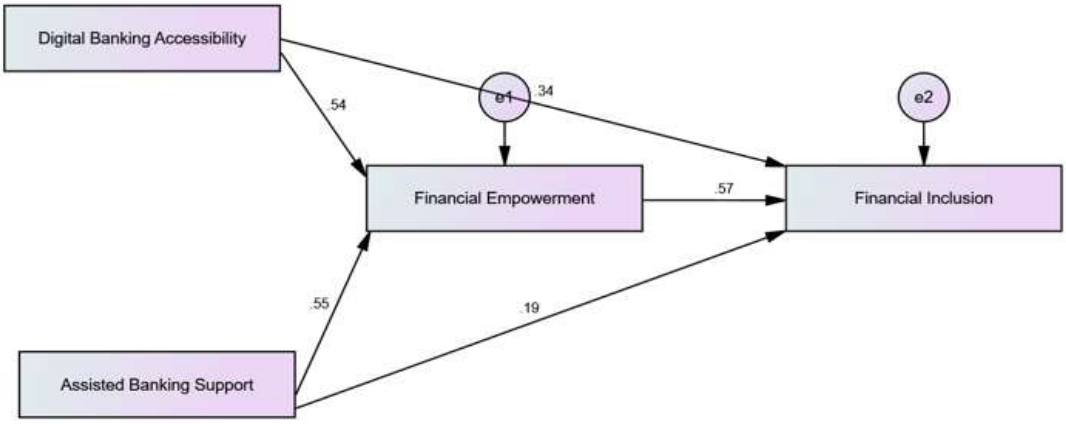
Construct	Mean	Cronbach's Alpha	CR	AVE
Digital Banking Accessibility	3.705	0.968	0.973	0.816
Assisted Banking Support	3.702	0.965	0.97	0.804
Financial Empowerment	3.694	0.954	0.962	0.758
Financial Resilience	3.704	0.968	0.973	0.818
Financial Inclusion	3.703	0.943	0.952	0.714

Source: *Output of primary data using AMOS/SPSS*
Note: CR = Composite Reliability; AVE = Average Variance Extracted

7.3 Mediation Analysis

The aim of this research is to look into the financial empowerment's role as a mediator between digital bank accessibility (DBA) and assisted banking support (ABS) as they relate to financial inclusion (FI). In a manner similar to what was illustrated in Table 4 in the previous section, DBA and ABS are shown to be directly correlated with FI. When examining the effects of how DBA affects FI, the total effect (0.723) was found to be higher than the direct affect (0.380). This suggests that mediation exists. Likewise, the total effect of ABS on FI (0.636) was found to be greater than the direct effect (0.244). Again, this supports that mediation exists as well.

The most that Financial Empowerment mediation will influence DBA versus FI and ABS versus FI, respectively, are 0.343 and 0.392. Due to the presence of partial mediation for financial empowerment, proceeding with financial inclusion will occur via DBA/ABS to achieve FI. In summary, banking innovations are not just directly related to financial inclusion; rather, they also indirectly benefit financial inclusion via financially empowered customers.



Source: *Output of primary data using AMOS*

Figure 2: The Mediating Role of Financial Empowerment in the Relationship between Digital Banking Accessibility, Assisted Banking Support and Financial Inclusion

Table 4: Mediating Effects of Financial Empowerment

Relationship	Total Effect	Direct Effect	Relationship	Mediating Effect
DBA → FI	0.723	0.380	DBA → FE → FI	0.343
ABS → FI	0.636	0.244	ABS → FE → FI	0.392

Source: Output computed using AMOS

Note: DBA = Digital Banking Accessibility; ABS = Assisted Banking Support; FE = Financial Empowerment; FI = Financial Inclusion

7.4 moderated Effect

The present research evaluated the moderating function of financial resilience regarding the relationship of financial empowerment to financial inclusion. Financial empowerment contributes positively to the level of financial inclusion; however, the relationship between the variables is dependent on the availability of financial resilience.

As can be seen from Table 5, the influence of financial empowerment on the level of financial inclusion at low levels of financial resilience was substantial ($\beta = 0.421$). At the moderate level of financial resilience, the positive influence was even greater ($\beta = 0.603$), demonstrating that those with a moderate level of financial resilience exhibit the ability to convert financial empowerment into financial inclusion. The relationship between financial empowerment and financial inclusion decreased ($\beta = 0.487$) at the high level of financial resilience; however, this relationship remained of statistical significance. The reduction in effect sizes at high levels of financial resilience would indicate that while financial resilience supports financial inclusion activities, too great an emphasis on financial resilience may reduce the influence of financial empowerment on financial inclusion.

These findings indicate that, while financial empowerment supports financial inclusion activities, financial resilience also has a significant moderating effect on the influence of financial empowerment and financial inclusion by varying the degree of relationship strength among the variables at each level of financial resilience. As a result, financial resilience is a critical moderating factor in the relationship of financial empowerment to financial inclusion.

Table 5: Moderating effect of Financial Resilience

Moderator	Level	β (Std.)	S.E.	t-value	p-value	Decision
Financial Resilience	Low	0.421	0.082	5.134	<0.001	Supported
	Moderate	0.603	0.067	9.000	<0.001	Supported
	High	0.487	0.089	5.472	<0.001	Supported

Source: *Output of primary data using AMOS*

Note: FE = Financial Empowerment; FI = Financial Inclusion

8. DISCUSSION

The results of the research conducted in this study examine several factors impacting rural household financial inclusion within Coastal Karnataka. The main determinant of increased financial inclusion was determined to be banking innovation, specifically the availability of digital banking services and the support of assisted banking services, which is consistent with Rogers' Diffusion of Innovation Theory (Rogers, 2003). Accessibility to banking services in rural areas enables individuals to access banking services more easily, particularly via assisted means, resulting in increased adoption and usage of said banking services (Suri & Jack, 2016); however, access to banking services is not enough to produce meaningful financial inclusion as a whole. The theory of financial capability asserts that individuals must also be financially capable, in addition to having access, in order to convert banking innovation into more significant levels of financial inclusion. Data analyses conducted verified that banking innovation has a direct positive correlation with financial inclusion through individuals' abilities to have financial capability that is fundamentally important (Sun et al (2022). Prior studies have illustrated strong evidence that financial capability is an important predictor of how well an individual's level of financial inclusion (Xiao & O'Neill, 2016; Grohmann et al., 2018). As a result, the principle of empowerment serves as the element that transforms banking access into actual use and benefits received from the banking services.

This research demonstrates that access to digital banking and receiving assistance in banking both have a positive impact on empowering people financially; however, providing assistance via guided intervention has a greater impact on financial empowerment in rural communities than providing access to digital banking will have. Because rural dwellers may experience both technology and informational barriers, providing assistance accelerates the adoption of new technology (Rogers, 2003) through education and creation of certainty.

The moderating effect of financial resilience indicates that individuals who can withstand unexpected financial crises will also be able to convert financial empowerment into financial inclusion. By providing individuals with financial resilience, banks can assist them with using financial services effectively and also create long term financial security (Morgan & Long, 2020). The findings of this study demonstrate that banks must innovate by providing digital banking solutions supported by financial empowerment and resiliency to successfully achieve sustainable and meaningful financial inclusion.

9. CONCLUSION

The research presented here sheds light on the contribution of banking developments to the long-term financial inclusion of rural households living in Coastal Karnataka. Evidence from this study shows that banking innovations like access to digital banking and access to assisted banking have a significant impact on increasing access to financial services in these areas. However, it also suggests that having access does not lead to financial inclusion without having the capability to use that access effectively.

A significant contribution of this work is that financial empowerment is a critical mediating variable. Evidence from this study indicates that when rural households acquire financial skills, knowledge and confidence, they are more likely to convert their access to financial services into actual usage of those services. Therefore, the conclusion is that financial inclusion means not only providing people with access to financial services, but also allowing them to engage meaningfully with the financial system.

Additionally, financial resilience has been found to be an important moderation of being able to sustain long-term interactions with finance service providers, as well as other positive aspects associated with finance service use through managing financial uncertainty.

Overall, the study indicated that the combination of banking innovation with financial empowerment and financial resilience leads to improved levels of financial inclusion that are both meaningful and sustainable. The results will assist policymakers and financial institutions by providing insight into developing inclusive strategies for expanding access and improving users' financial capability to achieve long-term financial stability in rural areas.

10. IMPLICATIONS

The research presents important implications for policy makers, finance institutions, and parties interested in further developing rural areas through improved access to finance. The findings of this case study demonstrate that banking innovation is critical for improving access; however, the financial infrastructure in these areas needs to be enhanced. Furthermore, simply having access to financial services does not guarantee its usage by individuals; therefore, providing individuals with the ability to be financially empowered, which means having the knowledge, skills, and confidence to effectively utilize financial services, is vitally important. In addition, implementing educational programs regarding financial literacy, increasing awareness of financial services through various forms of outreach, and providing rural populations with product offerings that are user friendly will aid in achieving this goal. Assisted banking support is also very important in rural financial inclusion as having a relationship with an individual (local agent or correspondent) will assist to create a trusting relationship and provide direction for individuals who wish to utilize digital financial services, thereby reducing the uncertainty associated with utilizing digital financial service. Lastly, the presence of financial resilience will further demonstrate the need for initiatives supporting savings, micro-insurance, and income stabilization for individuals who experience shocks; thereby supporting the individual to continue to engage in the banking system. Therefore, a comprehensive approach focusing on access, empowerment and resilience will be the most effective way to ensure sustainable rural financial inclusion.

REFERENCES

1. *Beck, T., Senbet, L., & Simbanegavi, W. (2018). Financial inclusion and innovation in Africa: An overview. Journal of African Economies, 27(suppl_1), i3–i11.*
2. *Collins, D., Morduch, J., Rutherford, S., & Ruthven, O. (2009). Portfolios of the poor: how the world's poor live on $2 a day. Princeton University Press.*
3. *Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS quarterly, 13(3), 319-340.*
4. *Demirguc-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2018). The Global Findex Database 2017: Measuring financial inclusion and the fintech revolution. World Bank Publications.*
5. *Grohmann, A., Klühs, T., & Menkhoff, L. (2018). Does financial literacy improve financial inclusion? Cross country evidence. World Development, 111, 84-96.*
6. *Klapper, L., El-Zoghbi, M., & Hess, J. (2017). Financial inclusion and development. CGAP Working Paper.*
7. *Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. Business horizons, 61(1), 35-46.*
8. *Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. Journal of economic literature, 52(1), 5-44.*
9. *Morgan, P. J., & Long, T. Q. (2020). Financial literacy, financial inclusion, and savings behavior in Laos. Journal of Asian economics, 68, 101197.*
10. *Ozili, P. K. (2021, October). Financial inclusion research around the world: A review. In Forum for social economics (Vol. 50, No. 4, pp. 457-479). Routledge.*
11. *Peng, G., & Liu, F. (2024). Digital inclusive finance and the resilience of households involved in financial markets. Finance Research Letters, 69, 106288.*
12. *Philippon, T. (2016). The fintech opportunity. National Bureau of Economic Research Working Paper No. 22476.*
13. *Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Moderated mediation analysis. Multivariate Behavioral Research, 42(1), 185–227.*
14. *Rogers, E. M. (2003). Diffusion of innovations (5th ed.). Free Press.*
15. *Serrao, M., Sequeira, A., & Varambally, K. V. M. (2021). Impact of financial inclusion on the socio-economic status of rural and urban households of vulnerable sections in Karnataka.*
16. *Sun, S., Chen, Y. C., Ansong, D., Huang, J., & Sherraden, M. S. (2022). Household financial capability and economic hardship: An empirical examination of the financial capability framework. Journal of family and economic issues, 43(4), 716-729.*
17. *Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. Science, 354(6317), 1288-1292.*
18. *Van Rooij, M., Lusardi, A., & Alessie, R. (2011). Financial literacy and stock market participation. Journal of Financial economics, 101(2), 449-472.*
19. *World Bank Group. (2023).* Financial inclusion: Lessons from World Bank Group experience (2014–2022). *Independent Evaluation Group.*
20. *Xiao, J. J., & O'Neill, B. (2016). Consumer financial education and financial capability. International Journal of Consumer Studies, 40(6), 712–721.*