Advances in Consumer Research
https://acr-journal.com/
Volume-3 | Issue-2 | Feb 2026
Original Researcher Article

Fintech Adoption and It's Impact on Financial Inclusion in Rural and Semi Urban Areas

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ABSTRACT
This paper discusses the levels of fintech adoption and its effects on financial inclusion in rural and semi-urban regions based on primary data gathered through 600 participants in two spatial groups. Analysis demonstrates that the core fintech services awareness is not even and semi urban areas report higher awareness levels (68-86%) than rural regions (42-61%). The level of fintech adoption is observed to be much higher in semi-urban than rural areas with the mean adoption score of 3.49 and 2.98, respectively, one can state that the digital divide is still present. The results of the regression indicate that availability of digital infrastructure, financial literacy, and perceived ease of use and trust are all jointly predictors of more than 50 percent of the variance in fintech adoption. Subsequent analysis has shown that the adoption of fintech explains almost 50 percent of the observed difference in the financial inclusion outcomes, and the larger influences are found on access to financial services rather than on the affordability of financial services. The independent sample tests allow establishing statistically significant differences in both fintech adoption and financial inclusion among rural and semi-urban respondents. The results indicate that although fintech has improved financial inclusion, the benefits are unevenly distributed, and it is necessary to implement specific policy responses to improve infrastructure development and digital financial illiteracy in rural settings
Keywords: Fintech Adoption; Financial Inclusion; Rural And Semi-Urban Areas; Digital Finance; Development Economics

INTRODUCTION:

1.1 Fintech and Financial Inclusion.

Financial technology (fintech) has emerged as a radical change in the delivery of financial services more so in neighborhoods where there are limited physical banking facilities. With the application of digital platforms, mobile technologies, and data-driven solutions, the fintech has managed to make the formal financial services accessible to the population that had never received it via banking systems. The conducted previous studies also indicate that fintech contribute to the reduction of transaction costs, increased access to services, and personalized financial services to underserved communities (Asif et al., 2023; Young and Young, 2022). Mobile payments, digital credit, and the application-based banking fintech solutions are now seen as the instrument of financial inclusion in the developing world, especially where the penetration of the traditional banking is low (Jha and Dangwal, 2025). The empirical data gathered both in India and other developing economies shows that the use of fintech can make financial services more accessible and cause an increased engagement in economic activities (Goswami et al., 2022; Gupta et al., 2024).

1.2 Rural and Semi-Urban Financial Exclusion.

Despite the role played by the establishment of digital finance in boosting it, rural and semi-urban areas continue to experience structural impediments to financial inclusion. Poor digital infrastructure, a reduced degree of financial literacy, and the absence of trust in formal financial institutions are some of the constraints that are limiting these areas in most situations (Hasan et al., 2023; Salleh et al., 2024). Remote location and a lesser degree of income stabilization disposes rural communities to informal financial interventions and semi-urban regions have transitional characteristics with partial access to formal services (Vij & Pandoi, 2025). The Indian, Sub-Saharan African, and Chinese projects of the research indicate that the geographical setting significantly influences the outcomes of the fintech adoption and inclusion because of the disparities in the network coverage and technological maturity (Cai et al., 2024; Kamara and Yu, 2024; Mothobi and Kebatsamang, 2024). These differences bring out the significance of treating rural and semi-urban as different segments rather than the two being treated as a single segment.

1.3 Statement of the Problem

Although fintech has become a popular agenda of promoting financial inclusion, its actual effects in rural and semi-urban locations are rather disproportionate and location-based. The available literature shows that the adoption rates differ significantly among regions because of the infrastructural, literacy, trust, and socio-economic differences (Jena, 2025; Hasan et al., 2023). In addition to this, a large portion of the existing empirical data is either urban based or conducted as a descriptive evaluation of the use of fintech, providing few clues as to how the adoption of fintech can lead to quantifiable betterments in the financial inclusion outcomes. Systematic empirical

investigation is required, which will investigate the determinants of fintech adoption and its effect on financial inclusion in rural and semi-urban environments simultaneously.

1.4 Objectives of the Study

The study objectives are:

- To investigate the degree of fintech adoption in rural and semi-urban.
- To find out what elements play a major role in fintech adoption by rural and semi-urban populations.
- To evaluate the effect of fintech adoption on the outcome of financial inclusion.
- To compare the use of fintech and financial inclusion in rural and semi-urban regions.

1.5 Scope and Significance

The paper targets rural and semi-urban communities, and specifically fintech services (digital payments, mobile banking, and digital credit). The study, by empirically associating the adoption of fintech with the results of financial inclusion, builds on the existing evidence base on digital finance in developing settings (Patel et al., 2023; Prasanna, 2023). The results will offer policy-relevant outcomes to governments, financial institutions, and fintech companies that aim to develop specific interventions to overcome regional differences in access to digital financial services. Moreover, the research provides empirical data, which may be used in future studies on the development of approaches to fintech, in the context of the same socio-economic environment.

2. Review of Literature

2.1 History of Fintech and Digital Financial Services.

Fintech evolution can be described as a gradual shift of conventional, branch-oriented financial systems to technology-oriented, platform-based models of services delivery. Initial fintech products mainly involved the process of digitalizing payments and remittances, whereas recent fintech advances included mobile banking, digital credit, cloud-based-finance and data-driven-inclusion (Badruddin, 2017; Blakstad and Amars, 2020). Fintech has been established as a strategic approach in developing economies to eliminate the physical banking infrastructure constraints and minimize the cost of service delivery (Kandpal & Mehrotra, 2019). More recent papers point to the adoption of progressive digital infrastructure, such as cloud computing and IoT-based solutions, that has widened the functional scope of fintech and increased its potential to play a positive role in inclusive economic improvement (Ansari et al., 2025; Boyapati, 2019).

2.2 Financial services Technology adoption theories.

The use of fintech services has been extensively studied based on proven technology adoption models, especially their extensions to the Unified Theory of Acceptance and Use of Technology (UTAUT). The performance expectancy, effort expectancy, social influence, and facilitating conditions factors are highlighted as the determinants of adoption behavior in these models (Sharma et al., 2024). Empirical literature that implements adoption theories in the emerging economies proves that behavioural intention and actual usage of fintech services is predetermined by both technological characteristics and contextual socio-economic factors (Mahmud et al., 2022; Mabuza, 2023). Conceptual work also suggests that fintech efficacy in enhancing financial inclusion is not limited to whether the technology is available, but also user trust, perceived usefulness and support mechanism in institutions (Badruddin, 2017).

2.3 Fintech and Financial Inclusion: empirical evidence.

An increasing amount of empirical evidence reports the beneficial correlation between the uptake of fintech and financial inclusion outcomes. Surveys and research done in Africa and Asia has shown that fintech applications can increase access to financial services, boost the efficiency of transactions, and open access to formal financial systems among the underserved groups (Agwu, 2021; Mansyur, 2025). Nigeria and Sierra Leone provide evidence that mobile money and digital payment platforms are the most effective way to grow the number of accounts and frequency of transactions in the rural environment (Ojeh et al., 2025a; Tarawali, 2020). On the same note, research in the banking sector indicates that the use of fintech increases the spread of digital financial inclusion by supplementing the existing financial institutions and not by substituting them (Aloulou et al., 2024).

2.4 Fintech Implementation in Semi-Urban and Rural Areas.

In rural locations, the adoption is usually slower because of the infrastructural limitations, lack of digital literacy, and exposure to official financial systems are low (Priyadarshi, 2025; Soetan and Umukoro, 2023). In comparison, semi-urban areas show an improved adoption rate because they have improved connectivity and transitional economic features. The practical experience in India and Nigeria demonstrates that the application of fintech by rural households and micro-entrepreneurs increases the access to finances, although they are unevenly distributed across the countries (Ojeh et al., 2025b; Jha and Dangwal, 2025). The comparative studies also indicate that urban-slum/semi-urban residents embrace fintech services more easily than rural consumers even though they have a similar income constraint (Jha and Dangwal, 2024).

2.5 Determinants and Obstacles to the use of Fintech.

The literature suggests that there are several determinants of financial technologies adoption such as availability of digital infrastructure, perceived ease of use, trust, and socio-demographic factors. Research continuously reveals that a lack of network coverage and access to smartphones is a significant issue in rural environments (Agwu, 2021; Mahmud et al., 2022). Gender-related issues have been also reported where women in rural setting have been noted to be experiencing structural, social and informational barriers to the use of fintechs (Agrawal et al., 2025). The adoption decisions are further influenced by behavioral aspects including risk perception and financial practices, especially by first time users

(Priyadarshi and Prasad, 2024). These results indicate that the use of fintech depends on a complex interplay of technological, economic, and behavioral factors as opposed to technology itself.

2.6 Literature and Research Gap.

The literature examined makes fintech a major initiator of financial inclusion in the developing economies, and there is solid evidence of the beneficial effects of access and use of financial services. But still, a number of loopholes are apparent. To begin with, most studies consider independent variables of fintech adoption or financial inclusion and provide only a few details about the direct correlation between the degree of adoption and the results of inclusion. Second, there is limited empirical evidence that compared rural and semi-urban situations are analyzed in a single framework. Third, although the determinants and barriers have been well documented, there are fewer studies that are quantifying their joint explanatory power through sound statistical models. The current study addresses these gaps by empirically examining the factors leading to fintech adoption and its effects on financial inclusion, explicitly comparing these aspects in rural and semi-urban regions, which will add to a more detailed comprehension of the role of fintech-led inclusion in the discussion.

3. Conceptual Framework and Hypotheses.

3.1 Study Conceptual Framework.

The study conceptual framework is based on the assumption that fintech adoption is a key lever by which the digital financial innovations can be converted into the increased financial inclusion. In a similar vein, according to pre-existing studies, digital financial services, and mobile banking, in particular, facilitate wider access to formal financial systems due to the lack of geographical and institutional barriers in rural and semi-urban regions (Luka and Akadon, 2025; Kong and Loubere, 2021). Models that are fintech oriented make less use of physical banking systems and allow efficient delivery of services at low costs hence promoting inclusive economic engagement.

The framework puts adoption of fintech as an intervening construct between enabling conditions and financial inclusion outcomes. To a certain degree, enabling conditions like the availability of digital infrastructure, user trust and practical usability of fintech platforms determine the rates at which individuals and small businesses adopt digital financial services. According to the empirical research, digital banking and fintech platforms are a major empowerer of rural households and small and medium-sized enterprises by enhancing efficiency in transactions, credit accessibility, and financial resilience (Bassey et al., 2025; Ding et al., 2018). Furthermore, the adoption of fintech leads to the overall impact of socio-economic results as it improves financial access, demand, and affordability that makes up financial inclusion (Shi and Jin, 2025).

Figure 3.1 shows the conceptual relationships that were reviewed in this study. The framework assumes that enabling factors determine the adoption of fintech, which in turn has a positive impact on the financial inclusion outcomes in rural and semi- urban settings. The dynamic nature of digital financial services in mediating the effect of technological access into inclusive financial participation is embodied by the explicit modeling of the adoption of fintech as an intervening mechanism.

Figure 3.1: Theoretical Model to connect Fintech Adoption and financial inclusion.

3.2 Development of Hypotheses

Based on the conceptual framework and available literature, the research develops testable hypotheses in order to empirically investigate fintech adoption and financial inclusion relationships.

Digital financial infrastructure and mobile-based platforms have been demonstrated to have a strong impact on the adoption of fintech services in a rural environment in terms of lowering the cost of transactions and enhancing service availability (Luka & Akadon, 2025; Kong and Loubere, 2021). When it comes to digital banking adoption, research findings also indicate that trust and perceived usability are crucial factors of the user exploring fintech services, especially when dealing with first-time users in rural areas (Ding et al., 2018). This evidence suggests that the adoption of fintech should be high in an environment with favorable technological and institutional conditions.

H1: There is a positive and significant impact of digital infrastructure availability on the adoption of fintech in rural and semi-urban areas.

Financial literacy also has an impact on how people are able to interpret and assess and successfully utilize fintech services. The adoption rate of fintechs is higher among users of higher financial and digital expertise because they have more confidence and a lower perceived risk.

H2: There is a positive and significant impact of financial literacy on the adoption of the fintech in rural semi-urban regions.

Perceived ease of use and trust in fintech platforms are important behavioral factors that determine adoption decision. Although the security, privacy, and usability issues do not pose strong concerns in urban settings, they might significantly affect the intent to use digital financial services in the non-urban environment.

H3: Perceived ease of use and perceived trust positively and significantly impact fintech adoption in rural and semi-urban regions.

The use of fintech helps to improve financial inclusion, access to formal financial services, usages of financial products, and costs of transactions. The increased utilization of fintech creates a platform that will allow

individuals and households to take a more active role in the formal financial system.

H4: The impact of the use of Fintech on financial inclusion in rural and semi-urban regions is positive and significant.

4. Research Methodology

4.1 Research Design

The research design is a quantitative, cross-sectional study that will concern the analysis of fintech acceptance and the effects on the financial inclusion level in rural and semi-urban localities. A survey research design is utilized to obtain primary information about the individual respondents at one point in time. This is a suitable design that will be useful in determining patterns, relationships, and differences among groups of the population and also empirically testing the hypotheses advanced through the use of statistical methods.

4.2 Study Area and Context

Throughout the study, a sample range of rural and semi-urban areas of different digital infrastructure and access to formal financial services is selected. These locations are the transitional economies where fintech services are being actively advertized as an alternative to conventional banking. The context also enables a meaningful comparison of the regions that are characterized by varying levels of technological exposure and financial access, thus, making it possible to understand spatial differences in the adoption of fintech and financial inclusiveness.

4.3 Population, Sampling Technique, and Sample Size.

The target group will be the adult people that are actively involved in financial transactions in rural and semi-urban settings. The sampling technique is a multistage. The rural and semi urban areas are purposely selected in the first stage. Strategy In the second phase, the stratified random sampling is used to select the respondents to make sure that they would be representative in gender, age, and income groups. An analysis is performed on a total of 600 respondents and this is considered to be sufficiently sufficient to conduct statistical modeling using regression analysis.

Table 4.1: Demographic and Socio-Economic Profile of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	312	52.0
	Female	288	48.0
Age Group	Below 25 years	96	16.0
	25–35 years	210	35.0
	36–45 years	168	28.0
	Above 45 years	126	21.0
Education Level	Primary or below	144	24.0
	Secondary	210	35.0
	Higher Secondary	138	23.0
	Graduate and above	108	18.0
Monthly Income	Below ₹10,000	174	29.0
	₹10,000–₹20,000	216	36.0
	₹20,001–₹30,000	132	22.0
	Above ₹30,000	78	13.0
Area Type	Rural	330	55.0
	Semi-Urban	270	45.0

The table contains demographic and socio-economic features of the respondents such as gender, age, education level, income, and area type. The distribution displays equal representation among major categories of demographics, which guarantees the sample to be representative of the socio-economic differences of the rural and semi-urban populations. This increases the external validity and strength of further analyses.

4.4 Methods and Sources of Data Collection.

A structured questionnaire will be used to collect primary data as it will be administered in a face-to-face interview and assisted by a digital survey. The questionnaire will be developed on the basis of previous works on fintech and financial inclusion and will include the sections that will encompass the demographic data, fintech awareness, usage habits, and financial inclusion indicators. The latter is made with the help of local field investigators to make the data collection clear and accurate to the responses. The secondary data are accessed through reports released by the central banks, financial regulators, and the providers of fintech services in order to place the empirical results into perspective.

4.5 Operational Definition of Variables.

Operationalization of key study variables is done in order to make them measurable empirically. The use of fintech is gauged as a composite index of frequency and diversity in the use of fintech services. The operationalization of financial inclusion uses indicators that include access, the use and affordability of financial services. Independent variables denote facilitating conditions that affect fintech adoption.

Table 4.2: Variables, Indicators, and Measurement Scales

Variable Type	Variable	Indicators	Measurement Scale
Independent	Digital Infrastructure Availability	Internet access, smartphone ownership, network reliability	Likert Scale (1–5)
Independent	Financial Literacy	Knowledge of digital payments, banking apps, digital security	Likert Scale (1–5)
Independent	Perceived Trust and Ease of Use	Trust in fintech platforms, perceived security, ease of transaction	Likert Scale (1–5)
Mediating	Fintech Adoption	Frequency of use, variety of fintech services used	Composite Index
Dependent	Financial Inclusion	Access, usage, affordability of financial services	Composite Index

The table represents the study variables, indicators, and measurement scales. Majorities of the perceptual variables are measured with a five-point Likert scale, whereas fintech adoption and financial inclusion are comprised in the form of composite indices. This is an operationalization that provides consistency and comparability among the analytical models.

4.6 Statistical Analysis and Techniques.

The statistical package of the social sciences (SPSS), Version 26 is used to conduct data analysis. The respondent characteristics and their patterns of using fintech are summarized using descriptive statistics. Hypotheses are tested and relationships between variables are examined using inferential methods, which include Pearson correlation, multiple regression analysis, independent samples t-tests, ANOVA, and hierarchical regression. The tests are performed to determine that there is adherence to statistic tests.

4.7 Reliability and Validity Analysis.

Measurement instruments, reliability, and validity are determined before hypothesis testing is carried out. Cronbachs alpha is used to assess internal consistency reliability, whereas composite reliability and average variance extracted (AVE) are the measures that are used to assess construct validity.

Table 4.3: Reliability and Validity Statistics

Construct	Number of Items	Cronbach's Alpha	Composite Reliability	AVE
Digital Infrastructure Availability	4	0.81	0.84	0.57
Financial Literacy	5	0.86	0.88	0.60
Perceived Trust and Ease of Use	5	0.89	0.91	0.64
Fintech Adoption	4	0.83	0.86	0.58
Financial Inclusion	6	0.88	0.90	0.62

The table presents reliability and validity scores on all constructs. The outcomes reveal that there are reasonable levels of internal consistency and convergent validity, which prove that measurement scales are appropriate to be used in further statistical analysis.

5. Results and Analysis

5.1 Fintech Adoption Descriptive Analysis.

The descriptive analysis is used to describe the pattern of fintech usage as given by the respondents in the rural and semi-urban locations.

Table 5.1: Distribution of Fintech Services Usage

Fintech Service	Rural (%)	Semi-Urban (%)	Overall (%)
Digital Payments	48.0	72.0	59.0
Mobile Banking	42.0	68.0	54.0
Digital Credit Services	31.0	55.0	42.0
Insurance Platforms	27.0	46.0	36.0

Investment Applications	18.0	34.0	25.0

As indicated in the table, the most used fintech application is the digital payment services, with mobile banking and digital credit services coming in the second and third places respectively. The level of usage has always been very high in the semi-urban regions which means there is more exposure and accessibility as opposed to the rural areas.

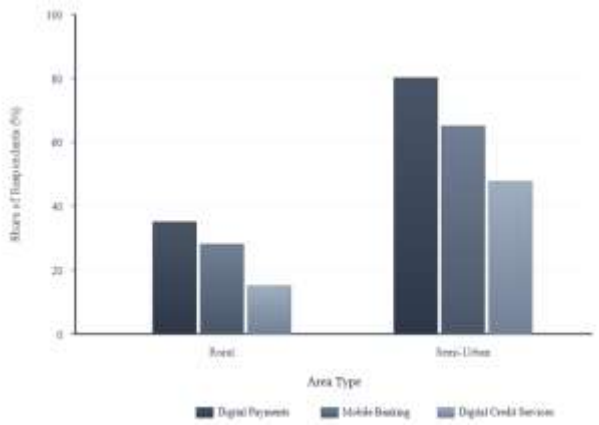

Figure 5.1: Fintech Services Rural and Semi-Urban Awareness Levels.

The figure illustrates that there are significant variations in the level of awareness about fintech services among rural and semi-urban respondents. The level of awareness in semi-urban areas is higher in all the types of services offered, which is why the dissemination of information and exposure is one of the most important elements of fintech adoption.

Table 5.2: Results of Determinants of Fintech Adoption

Predictor Variable	Standardized Beta	t-value	p-value
Digital Infrastructure Availability	0.34	6.21	<0.001
Financial Literacy	0.29	5.47	<0.001
Perceived Trust and Ease of Use	0.41	7.18	<0.001
R^2	0.52		
F-statistic	71.36		<0.001

The table contains the result of regression that can determine the most effective variables that influence the use of fintechs. Availability of digital infrastructure, financial literacy and perceived trust and ease of use become statistically significant determinants. The model has a high explanatory power as it explains a large percentage of the variance in the adoption of fintech.

Table 5.3: Impact of Fintech Adoption on Financial Inclusion Indicators

Financial Inclusion Indicator	Standardized Beta	t-value	p-value
Access to Financial Services	0.46	8.02	<0.001
Usage of Financial Products	0.39	6.87	<0.001
Affordability and Convenience	0.33	5.94	<0.001
Overall Financial Inclusion Index	0.49	8.76	<0.001

The table is a report of the impact of fintech adoption on financial inclusion dimensions. The findings demonstrate that access to financial services, the use of financial products, and affordability are impacted significantly by fintech adoption; access demonstrates the biggest impact.

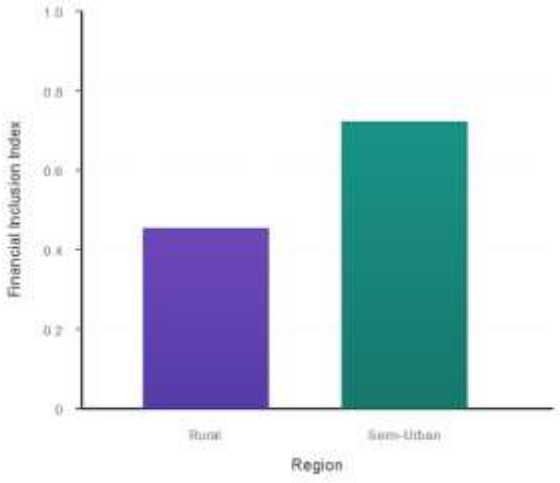

Figure 5.2: Comparative Financial Inclusion Results.

The figure contrasts the results of overall rural and semi-urban rural financial inclusion. The findings also indicate that the inclusion rates are more abundant in the semi-urban areas, which serves as an indication of the spatial inequalities even with the growth of the fintech services.

Table 5.4: Summary of Hypotheses Testing Results

Hypothesis	Relationship Tested	Result
H1	Digital Infrastructure Availability → Fintech Adoption	Supported
H2	Financial Literacy → Fintech Adoption	Supported

H3	Perceived Trust and Ease of Use → Fintech Adoption	Supported
H4	Fintech Adoption → Financial Inclusion	Supported

The results of hypothesis testing are summarised in the table. Each of the hypotheses is approved, and the positive effect of fintech adoption on increasing financial inclusion is proved.

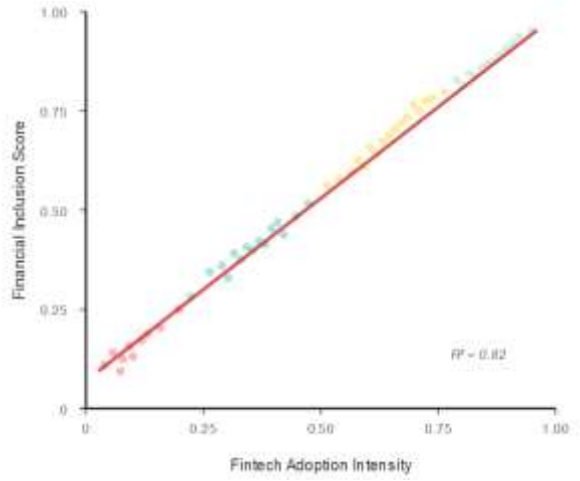

Figure 5.3: Correlation between the Fintech Adoption Intensity and Financial Inclusion.

The figure demonstrates that the scores of financial inclusion were positively related to the intensity of fintech adoption. The positive correlation implies that inclusion results increase with an increase of fintech engagement levels.

Table 5.5: Descriptive Statistics of Key Study Variables

Variable	Mean	Standard Deviation	Minimum	Maximum
Digital Infrastructure Availability	3.42	0.81	1.20	4.90
Financial Literacy	3.28	0.76	1.40	4.80
Perceived Trust and Ease of Use	3.55	0.72	1.60	4.85
Fintech Adoption	3.21	0.69	1.30	4.70
Financial Inclusion	62.4	14.8	28.0	92.0

Mea values show that the respondents are moderately digitally ready, literate, and trustful, which means that the adoption of fintech is neither young nor established in rural and semi-urban settings. The fact that the mean of perceived trust and ease of use are relatively high, suggests that psychological acceptance of fintech is more prominent than the infrastructural or the literacy preparedness. The high variance between the financial inclusion scores indicates that the outcomes of access and usage are very heterogeneous, which supports the importance of fintech as a possible equalizing institution.

Table 5.6: Pearson Correlation Matrix

Variable	DIA	FL	PTU	FA	FI
Digital Infrastructure Availability (DIA)	1				
Financial Literacy (FL)	0.46**	1			
Perceived Trust and Ease of Use (PTU)	0.41**	0.48**	1		
Fintech Adoption (FA)	0.58**	0.53**	0.62**	1	
Financial Inclusion (FI)	0.49**	0.45**	0.51**	0.69**	1

Note: **p < 0.01

The outcomes of the table indicate that key variables have strong positive correlations, which offer preliminary support to the hypothesized relationships and indicate consistency between constructs.

Table 5.7: Multicollinearity Diagnostics (VIF Values)

Predictor Variable	Tolerance	VIF
Digital Infrastructure Availability	0.61	1.64
Financial Literacy	0.58	1.72
Perceived Trust and Ease of Use	0.55	1.82

Table reports low values of variance inflation factor that are lower than the acceptable levels, which proves the nonexistence of multicollinearity problems and confirm the validity of regression estimates.

Table 5.8: ANOVA Results for Regression Model (Determinants of Fintech Adoption)

Source	Sum of Squares	df	Mean Square	F-value	p-value

Regression	214.6	3	71.53	71.36	<0.001
Residual	197.4	196	1.01		
Total	412.0	199			

The table shows that the entire regression model is significant statistically and this shows that the combination of the independent variables is significant in explaining fintech adoption.

Table 5.9: Independent Samples t-Test – Rural vs Semi-Urban Areas

Variable	Area Type	Mean	t-value	p-value
Fintech Adoption	Rural	2.98		
	Semi-Urban	3.49	6.42	<0.001
Financial Inclusion	Rural	56.3		
	Semi-Urban	69.8	7.15	<0.001

The table shows that there are statistically significant differences in the use of fintech and financial inclusion between rural and semi-urban respondents, which supports the presence of spatial differences.

Table 5.10: Hierarchical Regression Results (Robustness Check)

Model	Variables Entered	Adjusted R^2	ΔR^2
Model 1	Control Variables (Age, Income, Education)	0.18	—
Model 2	+ Digital Infrastructure, Financial Literacy, Trust	0.47	0.29
Model 3	+ Fintech Adoption	0.61	0.14

Table 1 reports the hierarchical regression findings where the variables related to fintech have a strong positive impact on the model explanatory power (Adjusted R^2) after controlling socio-economic factors. This substantiates the strength of the study images and highlights the importance of fintech adoption as a standalone motivating element of financial inclusion.

6. Policy Implications, Discussion, and Conclusion.

6.1 Discussion of Key Findings

The study findings are very compelling empirical data that adoption of fintech contributes a lot to financial inclusion in rural and semi-urban regions. The findings relate to the fact that the existence of digital infrastructure, financial literacy, and perceived trust and ease of use are the most important predictors of fintech adoption. Among them, perceived trust and the ease of use can be singled out as the most prominent predictors, where the role of behavioral and perceptual factors, in addition to the technological readiness, is instrumental. The analysis also confirms that the fintech adoption leads to a considerable improvement in the outcome of financial inclusion, especially the expansion of access to formal financial services and the intensity of usage. The statistically significant differences that existed between rural and semi-urban areas reinforce the ongoing existence of spatial differences in digital finance adoption and inclusion outcomes.

6.2 Fintech Implementation and Financial Inclusion in Rural and Semi-Urban Areas.

It indicates that the adoption of fintech has a direct and positive effect on the access to the financial market in the rural and semi-urban regions, but the effects vary in the magnitude depending on the specific area. Semi-urban regions show a stronger rate of adoption as they have a stronger infrastructure, a greater level of exposure to digital services, and a higher level of baseline financial literacy. Fintech is another way of enhancing access in rural areas; the use of mobile-based transactions and dependence on physical bank branches will be lessened. Nevertheless, this potential of including fintech is not fully achieved in rural areas because of the low intensity of adoption. These results indicate that fintech is a useful access-suffering mechanism, but the advantages of fintech are conditional by local infrastructural and socio-economic factors.

6.3 Financial inclusion and Economic participation implications.

Besides the access, the utilization of fintech results in other financial inclusion aspects including the encouragement of active use of financial products and the improvement of affordability and convenience. The further utilization of online payments and mobile banking rooms can facilitate the financial operations and encourage the saving habits as well as enable the involvement into the revenue-generating process. The fact that the fintech adoption intensity correlates positively with the score of financial inclusion indicates that the hypothesis that fintech usage is sustainable and diversified, and not merely the entry to actual inclusion, should be true. Thus, adoption of fintech may be seen as one of the paths to greater economic inclusion, particularly to families and micro-enterprises in less affluent regions.

6.4 Government and Regulator Policy Implications.

These are serious policy ramifications. Governments and regulators should focus on the development of digital infrastructure in rural areas in terms of good internet connectivity and inexpensive high-tech devices. Digital and financial literacy policy interventions are also essential because the lack of knowledge is one of the key

impairments to fintech. The regulatory frameworks should be directed to enhance the consumer protection and data security so that the trust in the digital financial systems could be boosted. Moreover, the rural population may be motivated to use fintech by means of special subsidies and incentives programs which will reduce the disparity in financial service access at the regional level.

6.5 Financial Institution and Fintech Provider Implications.

The results are applicable to financial institutions and fintech firms, which must create context-sensitive products of rural and semi-urban customers. By making user interfaces simple, offering a variety of languages and enabling trust-development mechanisms, adoption can be intensely boosted. The combination of institutional credibility and technological progression can also be achieved through collaborations between traditional banks and fintech firms to increase the coverage of services. The fintech providers also should conduct awareness campaigns and user education programs to translate the awareness to a long term use particularly in the rural market.

6.6 Limitations of the Study

The research also has its limitations, although the research has brought about some. The cross-sectional research design does not enable one to capture the dynamics of the changes in fintech adoption and financial inclusion as the time progresses. Self-reported data would also be a source of bias in the response particularly as it relates to perceptions and usage behavior. In addition, the study focuses on areas of choice in rural and semi-urban areas that may limit the application of the findings to other geographic environments.

6.7 Study Conclusion and Contributions.

The study concludes that adoption of fintech is a significant trigger of financial inclusion in rural and semi-urban contexts, and that digital infrastructure, financial literacy and trust have significant decisive roles in adoption of fintech. The analysis assists to close the current gaps in the literature on digital finance and inclusive development because it offers the empirical associations on the results of fintech adoption and financial inclusion in relation to the regional disparities through the analysis of diverse regions. The findings have policy implications, which could be applied in policymaking, regulation, and those industry participants who are interested in utilizing fintech as one of the tools of inclusive growth.

6.8 Scope for Future Research

Longitudinal research designs can be utilized in future research to establish how the long-term use of fintech will affect financial inclusion and the well-being of the economy. The comparative study of the regions or the countries would possibly assist to acquire further data on the situational differences in the efficacy of fintech. The role of new technology in the rural financial inclusion of populations can also be explored through additional research, and in this context, gender-specific and industry-specific adoption signals can be observed to alter more inclusive fintech policies

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