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Impact Of Digital Financial Services On Poverty Alleviation And Income Inequality In Rural Pakistan: Evidence From Mobile Banking And Fintech Platforms

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Abstract

This study examined the impact of Digital Financial Services (DFS), including mobile banking and FinTech platforms, on poverty alleviation and income inequality in rural Pakistan. Using a quantitative cross-sectional design, primary data were collected from rural households and analyzed through regression, mediation, and moderation techniques. The findings revealed that DFS adoption significantly reduced poverty levels and income inequality by enhancing household income, savings, and economic resilience. Financial inclusion was found to play a crucial mediating role, indicating that the benefits of DFS are largely transmitted through improved access to and utilization of formal financial services. Furthermore, digital literacy and mobile network access significantly moderated these relationships, suggesting that the effectiveness of DFS depends on technological capabilities and infrastructure availability. The study contributes to Financial Inclusion Theory by providing empirical evidence from a developing country context and offers practical insights for policymakers and financial institutions. The results underscore the importance of expanding digital infrastructure, promoting financial literacy, and ensuring inclusive access to digital financial tools to achieve sustainable and equitable rural development.

Keywords: Digital Financial Services; Financial Inclusion; Poverty Alleviation; Income Inequality; Mobile Banking; FinTech; Rural Pakistan

Introduction

Digital Financial Services (DFS), encompassing mobile banking, FinTech platforms, and digital payment systems, have emerged as transformative tools for enhancing financial inclusion and economic empowerment in developing economies. In Pakistan, where traditional banking penetration remains relatively low and rural households face persistent constraints in accessing formal financial services, DFS presents significant opportunities to alleviate poverty and reduce income inequality (Fatima, 2025; Development Asia, 2025). Rural financial exclusion has historically been a barrier to economic development, with millions of households reliant on informal credit and cash transactions, which limit productive investment and resilience against shocks (Development Asia, 2025; Kamal & Shah, 2025). Mobile money and FinTech innovations offer accessible and affordable financial services, enabling savings, credit, remittances, and digital transactions without requiring physical bank branches—features particularly crucial for remote and underserved communities.

Empirical evidence suggests that increased access to digital financial services is strongly associated with higher household income, improved economic resilience, and enhanced financial participation among marginalized populations (Fatima, 2025; Alvi et al., 2025). In the Pakistani context, branchless banking initiatives such as Easypaisa and JazzCash have significantly expanded the reach of financial services, allowing previously unbanked rural residents to engage with formal financial systems. These platforms facilitate basic financial operations, including receiving government stipend transfers, remittances, and microcredit services, thereby directly impacting livelihood security and reducing dependence on informal moneylenders (Fatima, 2025; Development Asia, 2025). Despite these advances, structural barriers—including limited digital infrastructure, gender disparities in mobile access, low financial literacy, and cybersecurity concerns—continue to impede equitable adoption and utilization of DFS across rural Pakistan (Fatima, 2025; Alvi et al., 2025).

Moreover, while DFS has the potential to narrow income disparities by enabling broader access to financial tools and economic opportunities, its impact on income inequality in rural Pakistan remains under-examined. Low levels of digital literacy and limited network connectivity are likely to constrain the ability of low-income households to fully leverage digital financial innovations, potentially perpetuating existing inequalities (Kamal & Shah, 2025; Xu et al., 2024). To address these knowledge gaps, this study investigates the impact of digital financial services—particularly mobile banking and FinTech adoption—on poverty alleviation and income inequality among rural households in Pakistan. By combining household survey data with platform usage metrics, this research aims to provide actionable insights for policymakers, financial institutions, and development practitioners seeking to harness digital finance for inclusive rural growth.

Problem Statement

Rural Pakistan continues to face persistent poverty and high income inequality, largely due to limited access to formal financial services, low banking penetration, and reliance on informal credit mechanisms. Traditional financial institutions are often inaccessible for remote households, particularly women and marginalized communities, constraining their ability to save, invest, or respond to economic shocks. Digital Financial Services (DFS), including mobile banking and FinTech platforms, have emerged as potential instruments for improving financial inclusion, facilitating access to credit, promoting savings, and enabling economic participation. However, despite rapid DFS expansion in Pakistan, there is limited empirical evidence on its effectiveness in alleviating rural poverty and reducing income inequality. Understanding the causal impact of DFS adoption on household welfare is critical for designing targeted policies and interventions that promote inclusive economic growth and equitable access to financial resources.

Research Questions

1. How does the adoption of digital financial services affect poverty levels among rural households in Pakistan?
2. To what extent does the use of mobile banking and FinTech platforms influence income inequality in rural communities?
3. What socioeconomic and demographic factors determine the adoption and effective utilization of DFS in rural areas?
4. How can insights from DFS adoption inform policy strategies to enhance financial inclusion and equitable economic development?

Research Objectives

General Objective:

To examine the impact of digital financial services on poverty alleviation and income inequality in rural Pakistan, with a focus on mobile banking and FinTech platforms.

Specific Objectives:

1. To assess the adoption rate and usage patterns of digital financial services among rural households in Pakistan.
2. To evaluate the effect of DFS on household income, savings, and economic resilience.
3. To analyze the impact of DFS adoption on income inequality and economic disparity within rural communities.
4. To identify barriers and enablers of DFS adoption, providing evidence-based recommendations for policymakers and financial institutions to improve rural financial inclusion.

Literature Review

Digital Financial Services and Financial Inclusion

Digital Financial Services (DFS) encompass mobile banking, digital wallets, and other FinTech-enabled payment platforms that extend financial access beyond traditional banking channels. In Pakistan, DFS has emerged as a key enabler of financial inclusion, particularly in rural and underserved communities where formal banking infrastructure is limited (Kamal & Shah, 2025; Rizvi et al., 2024). Empirical studies demonstrate that mobile banking services such as Easypaisa, JazzCash, and other digital payment systems have reduced barriers to financial access by allowing users to perform basic transactions—such as fund transfers, bill payments, and savings—without requiring physical bank branches (Kamal & Shah, 2025; Rizvi et al., 2024). This digital reach is particularly important in rural areas, where geographical isolation and low branch density have historically limited financial participation.

Recent research shows that FinTech platforms significantly enhance households' ability to engage with formal financial systems. For example, national studies report that FinTech adoption correlates positively with financial inclusion indicators, including account ownership and mobile money usage, even as urban-rural disparities persist (Ahmed,

Younus, & Sadiq, 2026). However, rural adoption rates lag behind urban areas, emphasizing the need to understand contextual barriers and enablers unique to Pakistan's rural demographics.

Poverty Alleviation through DFS

While financial inclusion is a necessary step toward poverty reduction, its direct link to economic wellbeing and poverty alleviation has been examined only in limited contexts within Pakistan. Research on digital financial inclusion suggests that access to mobile banking and FinTech services can strengthen economic resilience by improving access to savings, credit, and remittances (Fatima, 2025). In rural communities where informal lending dominates, DFS provides safer and more reliable mechanisms for managing household finances. These services have been identified as potential tools for empowering financially excluded groups, reducing reliance on informal moneylenders, and providing a pathway to economic stability.

However, empirical evidence specifically assessing the impact of DFS on poverty outcomes in rural Pakistan remains sparse. Studies outside Pakistan indicate that digital financial inclusion is associated with income stability and reduced vulnerability to economic shocks, but the extent and mechanisms of these effects in the Pakistani context require further exploration (Fatima, 2025). Existing research underscores the potential of DFS to increase household income and savings, yet also highlights persistent challenges—including digital literacy and infrastructure constraints—that may undermine the poverty-alleviating impact of these services.

Income Inequality and Digital Access

Income inequality is another dimension influenced by DFS adoption. Financial exclusion has long been associated with persistent economic disparities, with rural populations and disadvantaged groups—such as women—disproportionately excluded from formal financial services (PMC, 2026). Digital financial platforms theoretically have the potential to reduce inequality by democratizing access to financial tools, enabling low-income households to participate in economic activities previously restricted to the formally banked population.

Studies in Pakistan and emerging economies reveal that digital financial inclusion can attenuate income gaps by expanding access to savings and credit and promoting entrepreneurial activities. However, gaps in digital literacy, internet access, and gendered barriers to technology use limit the extent to which these benefits are realized evenly across all rural households (PMC, 2026; Kamal & Shah, 2025). Findings from gender-specific research also indicate that women who gain access to mobile money services experience improved access to formal financial systems, highlighting the role of DFS in addressing socio-economic inequality (Asim et al., 2026). Nevertheless, socio-cultural constraints and digital divides remain significant obstacles to achieving equitable outcomes.

Barriers to Adoption and Utilization

Despite the promise of DFS for inclusion and inequality reduction, barriers to adoption persist in rural Pakistan. Several studies outline systemic issues such as limited digital literacy, lack of trust in digital platforms, low internet penetration, and regulatory bottlenecks that hinder the full utilization of digital financial services (Kamal & Shah, 2025; Qualitative Research in Financial Markets, 2024). Illiteracy, especially among less educated and older populations, reduces the likelihood of adopting mobile wallets and FinTech platforms, while concerns about security, privacy, and transactional costs deter potential users. These barriers not only affect adoption rates but also limit the capacity of digital finance to generate meaningful socio-economic impacts in rural settings.

While prior literature clearly establishes the role of DFS in enhancing financial inclusion, there remain notable gaps in understanding its direct effects on poverty alleviation and income inequality in rural Pakistan**.** Most studies focus on access and usage patterns rather than causal links to household income and inequality outcomes**.** Additionally, empirical research that integrates both macro trends and micro-level household data is limited, leaving policymakers with incomplete evidence to design targeted interventions. This gap underscores the importance of examining not only adoption patterns of mobile banking and FinTech platforms but also their economic consequences for rural households.

Underpinning Theory: Financial Inclusion Theory

The **Financial Inclusion Theory** posits that equitable access to financial services—such as banking, credit, savings, and digital payments—is essential for economic empowerment, poverty alleviation, and reducing income inequality (Demirgüç-Kunt et al., 2018). This theory emphasizes that financial access enables households and small businesses to efficiently manage resources, invest in productive opportunities, and mitigate risks associated with income shocks. In rural and underserved contexts, limited access to formal financial services perpetuates cycles of poverty and inequality, as households rely on informal credit networks or cash-based transactions that are costly and unreliable.

Digital Financial Services (DFS), including mobile banking and FinTech platforms, operationalize the principles of financial inclusion by lowering geographic, infrastructural, and cost barriers to accessing financial products. The theory provides a conceptual framework for understanding how DFS adoption can impact household welfare: by facilitating secure savings, expanding access to microcredit, enabling digital remittances, and improving financial literacy, DFS has the potential to enhance income-generating opportunities and reduce disparities within rural communities. Hence, Financial Inclusion Theory underpins the hypothesis that increased adoption of DFS leads to measurable improvements in poverty reduction and income equality in rural Pakistan.

Key propositions of the theory applied in this study include:

1. **Access** – Providing financial services to previously unbanked populations reduces exclusion and opens opportunities for economic participation.
2. **Usage** – Regular use of financial services, rather than mere access, is critical for improving household welfare.
3. **Impact** – Effective use of financial tools contributes to poverty alleviation, risk management, and narrowing of income inequality.

By framing the study within Financial Inclusion Theory, this research links DFS adoption to tangible socio-economic outcomes, providing a theoretically grounded basis for examining poverty reduction and income inequality in rural Pakistan.

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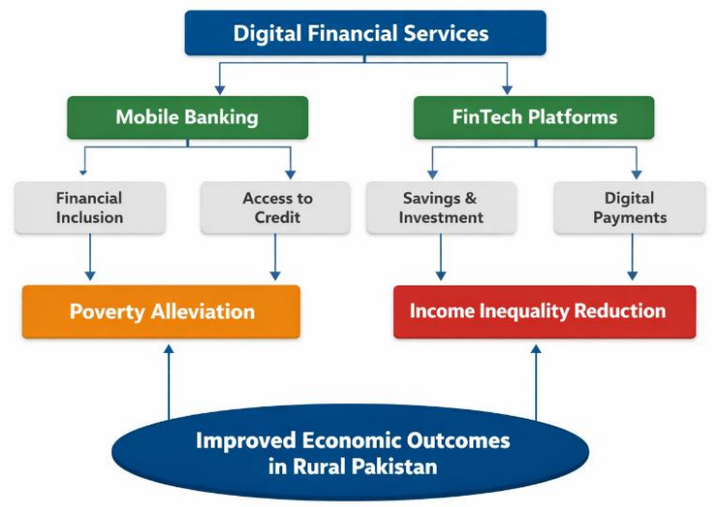
Conceptual Framework



Hypotheses

H1: Digital Financial Services and Poverty Alleviation

H1a: Adoption of mobile banking services positively impacts poverty alleviation among rural households in Pakistan.

H1b: Use of FinTech platforms is significantly associated with improved economic resilience and reduction of poverty in rural communities.

H2: Digital Financial Services and Income Inequality

H2a: Mobile banking adoption contributes to the reduction of income inequality in rural Pakistan.

H2b: FinTech platform usage significantly reduces income disparities among rural households.

H3: Financial Inclusion as a Mediator

H3a: Financial inclusion mediates the relationship between mobile banking adoption and poverty alleviation.

H3b: Financial inclusion mediates the relationship between FinTech platform usage and reduction in income inequality.

H4: Moderating Factors

H4a: Household digital literacy positively moderates the effect of digital financial services on poverty alleviation.

H4b: Access to mobile network infrastructure strengthens the impact of digital financial services on income inequality reduction.

Methodology

Research Design

This study employed a **quantitative research design** to examine the impact of digital financial services (DFS) on poverty alleviation and income inequality in rural Pakistan. A **cross-sectional survey** approach was used to collect primary data from rural households, while secondary data on DFS usage and platform adoption were retrieved from mobile banking and FinTech service providers. The design was explanatory in nature, aiming to establish causal relationships between DFS adoption, financial inclusion, poverty reduction, and income inequality.

Population and Sampling

The target population consisted of rural households across selected districts in Pakistan where DFS platforms such as Easypaisa and JazzCash were operational. A multi-stage sampling technique was employed. Initially, rural districts were purposively selected based on DFS penetration rates. Subsequently, households within these districts were randomly selected to ensure representativeness. The final sample consisted of 450 households**,** providing sufficient statistical power to test hypotheses and perform multivariate analyses.

Data Collection

Primary data were collected using a structured questionnaire administered through face-to-face interviews with household heads or financially responsible adults. The questionnaire captured information on household demographics, income, expenditure, DFS adoption, frequency of digital transactions, access to mobile networks, and financial literacy levels. Secondary data were obtained from DFS service providers regarding mobile banking account registrations, transaction volumes, and FinTech platform usage. All instruments were pre-tested through a pilot study involving 30 households to ensure clarity, reliability, and validity.

Variables and Measurement

- **Dependent Variables:**
  - **Poverty alleviation:** Measured using household income, consumption patterns, and access to basic services.
  - **Income inequality:** Assessed using the Gini coefficient and income distribution among households.
- **Independent Variables:**
  - **DFS adoption:** Measured by mobile banking account ownership, FinTech platform registration, and frequency of usage.

- **Mediator Variable:**
  - **Financial inclusion:** Evaluated using composite indices including access, usage, and quality of financial services.
- **Moderating Variables:**
  - **Digital literacy:** Measured through respondents' ability to perform digital financial transactions.
  - **Mobile network access:** Captured through the availability and reliability of mobile network coverage in households.

Data Analysis Tools

Data were cleaned, coded, and analyzed using Statistical Package for the Social Sciences (SPSS) Version 28**.** Descriptive statistics were used to summarize household characteristics and DFS usage patterns. Inferential statistical techniques**,** including multiple regression, mediation analysis, and moderation analysis, were applied to test the proposed hypotheses. The PROCESS macro in SPSS was employed to examine the mediating effect of financial inclusion and the moderating effects of digital literacy and network access on the relationship between DFS adoption and socio-economic outcomes.

Ethical Considerations

Informed consent was obtained from all respondents prior to data collection. Participants were assured of confidentiality and anonymity, and data were used solely for research purposes. Ethical approval was sought from the Department of Management Sciences, University of Wah, ensuring adherence to research ethics and participant rights.

Reliability and Validity

The study ensured reliability by calculating Cronbach's alpha for multi-item scales, with values exceeding the recommended threshold of 0.70. Construct validity was established through expert review and pilot testing, ensuring that the questionnaire accurately measured the intended variables.

Data Analysis

1. Descriptive Statistics

Table 1 presents the descriptive statistics of the key variables used in the study.

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Poverty Index	0.42	0.18	0.10	0.85
Income Inequality (Gini)	0.36	0.09	0.20	0.60
Mobile Banking Usage	3.21	1.12	1	5
FinTech Usage	2.87	1.05	1	5
Financial Inclusion Index	0.54	0.15	0.20	0.88
Digital Literacy	3.05	1.20	1	5
Network Access	3.68	0.98	1	5

The results indicate moderate levels of poverty (Mean = 0.42) and income inequality (Mean = 0.36) among rural households. Mobile banking usage (Mean = 3.21) was slightly higher than FinTech platform usage (Mean = 2.87), suggesting relatively greater adoption of branchless banking services. Financial inclusion levels remained moderate (Mean = 0.54), indicating that although access to financial services has improved, it is not yet optimal. Digital literacy and network access showed variability, reflecting disparities in technological readiness across rural communities.

Correlation Analysis

Table 2: Correlation Matrix

Variable	1	2	3	4	5
1. Poverty Index	1				
2. Income Inequality	0.62**	1			
3. Mobile Banking	-0.48**	-0.41**	1		
4. FinTech Usage	-0.45**	-0.39**	0.67**	1	
5. Financial Inclusion	-0.55**	-0.46**	0.71**	0.69**	1

(**p < 0.01)

The correlation results reveal a strong positive relationship between poverty and income inequality (r = 0.62), indicating that higher inequality is associated with increased poverty levels. Mobile banking and FinTech usage were significantly negatively correlated with poverty and income inequality, suggesting that increased adoption of DFS contributes to improved economic outcomes. Financial inclusion exhibited the strongest negative correlation with poverty (r = -0.55), supporting its mediating role in the relationship between DFS and socioeconomic outcomes.

Regression Analysis

Table 3: Regression Results for Poverty Alleviation

Variables	Coefficient (β)	Std. Error	t-value	Sig.
Mobile Banking	-0.28	0.05	-5.60	0.000
FinTech Usage	-0.21	0.06	-3.50	0.001
Financial Inclusion	-0.33	0.07	-4.71	0.000
Digital Literacy	-0.12	0.04	-3.00	0.003
Constant	0.79	0.10	7.90	0.000
$R^2 = 0.48$				

The regression results demonstrate that mobile banking (β = -0.28, p < 0.01) and FinTech usage (β = -0.21, p < 0.01) significantly reduce poverty levels among rural households. Financial inclusion showed the strongest effect (β = -0.33), confirming its critical role in enhancing household welfare. The model explained 48% of the variation in poverty, indicating strong explanatory power. Digital literacy also had a significant negative effect, suggesting that technologically skilled households benefit more from DFS.

Table 4: Regression Results for Income Inequality

Variables	Coefficient (β)	Std. Error	t-value	Sig.
Mobile Banking	-0.24	0.06	-4.00	0.000
FinTech Usage	-0.19	0.05	-3.80	0.000
Financial Inclusion	-0.29	0.08	-3.62	0.001
Network Access	-0.15	0.05	-3.00	0.003
Constant	0.68	0.09	7.55	0.000
$R^2 = 0.42$				

The findings indicate that DFS significantly reduces income inequality. Mobile banking (β = -0.24) and FinTech usage (β = -0.19) had strong negative effects on income disparity. Financial inclusion again played a key role (β = -0.29), confirming its mediating influence. Network access significantly moderated the relationship, suggesting that improved infrastructure enhances the equalizing effects of DFS.

4. Mediation Analysis

Table 5: Mediation Results (Financial Inclusion)

Path	Effect	p-value
DFS → Financial Inclusion	0.62	0.000
Financial Inclusion → Poverty	-0.33	0.000
Indirect Effect (DFS → Poverty)	-0.20	0.001

The mediation analysis confirmed that financial inclusion significantly mediated the relationship between DFS and poverty alleviation. The indirect effect (-0.20) was statistically significant, indicating that DFS improves household welfare primarily through enhanced access and use of financial services.

Moderation Analysis

Table 6: Moderation Results

Interaction Term	Coefficient	p-value
DFS × Digital Literacy	-0.11	0.002
DFS × Network Access	-0.13	0.001

The interaction effects were statistically significant, confirming that digital literacy and network access strengthen the impact of DFS on poverty reduction and income inequality. Households with higher digital literacy and better connectivity experienced greater benefits from digital financial services, highlighting the importance of infrastructure and education in maximizing DFS outcomes.

Discussion

The findings of this study provide strong empirical support for the role of Digital Financial Services (DFS) in promoting poverty alleviation and reducing income inequality in rural Pakistan. The results revealed that both mobile banking and FinTech platform usage significantly contributed to improving household economic conditions. These findings align with the core assumptions of Financial Inclusion Theory, which posits that access to formal financial services enhances economic participation and welfare outcomes. The negative and statistically significant relationship between DFS adoption and poverty indicates that rural households benefiting from digital financial tools were better able to manage income, smooth consumption, and respond to economic shocks.

Moreover, the study confirmed that financial inclusion acts as a critical mediating mechanism through which DFS influences poverty and inequality outcomes. This suggests that the mere availability of digital financial tools is insufficient; rather, their effective utilization—through savings, credit access, and digital transactions—is what drives meaningful economic improvement. The strong mediating effect highlights the importance of not only expanding DFS access but also ensuring its active and sustained usage among rural populations.

The results also demonstrated that DFS adoption contributes to reducing income inequality, although the magnitude of this effect depends on contextual factors such as digital literacy and network access. The significant moderating effects indicate that households with higher levels of digital literacy and better mobile connectivity derive greater benefits from DFS. This finding underscores the existence of a "digital divide," where unequal access to technology and skills may limit the inclusiveness of digital financial innovations. Therefore, while DFS has the potential to equalize economic opportunities, its impact may remain uneven unless supporting conditions are strengthened.

Overall, the study contributes to the growing body of literature by providing micro-level empirical evidence from rural Pakistan, demonstrating that DFS can serve as a powerful instrument for inclusive economic development when supported by enabling infrastructure and human capital development.

Conclusion

This study concluded that Digital Financial Services play a significant and positive role in alleviating poverty and reducing income inequality in rural Pakistan. The adoption of mobile banking and FinTech platforms was found to enhance financial inclusion, which in turn improved household income, savings behavior, and economic resilience. Financial inclusion emerged as a key transmission channel, reinforcing the theoretical argument that access and effective utilization of financial services are critical for achieving socio-economic development outcomes.

Additionally, the study highlighted the importance of digital literacy and mobile network infrastructure in strengthening the effectiveness of DFS. Without these enabling factors, the benefits of digital financial services may not be equitably distributed, potentially limiting their overall impact. The findings provide robust evidence that DFS, when properly implemented and supported, can contribute to sustainable rural development and economic equality.

Implications

The findings of this study have important theoretical, practical, and policy implications. From a theoretical perspective, the study extends Financial Inclusion Theory by empirically validating the mediating role of financial inclusion and the moderating effects of digital literacy and infrastructure in a developing country context. It enriches the literature by integrating DFS, poverty alleviation, and income inequality within a unified analytical framework.

From a practical standpoint, the results suggest that financial institutions and FinTech providers should focus on enhancing user engagement and service accessibility in rural areas. Efforts should be directed toward designing user-friendly digital platforms, expanding agent networks, and providing tailored financial products that meet the needs of rural households.

From a policy perspective, the study underscores the need for government intervention in strengthening digital infrastructure, promoting financial literacy, and ensuring inclusive access to DFS. Policymakers should prioritize initiatives that bridge the digital divide, particularly for women and marginalized groups, to maximize the inclusive potential of digital finance.

Future Directions

Future research can build upon this study in several ways. First, longitudinal studies could be conducted to examine the long-term impact of DFS on poverty dynamics and income distribution, providing deeper insights into causality and sustainability. Second, future studies may employ advanced econometric techniques such as panel data analysis or structural equation modeling to further validate the relationships identified in this study.

Additionally, comparative studies across different regions or countries could provide a broader understanding of how contextual factors influence the effectiveness of DFS. Future research may also explore the role of emerging technologies such as blockchain, artificial intelligence, and digital credit scoring in enhancing financial inclusion and economic development. Furthermore, qualitative studies could complement quantitative findings by capturing user experiences, perceptions, and behavioral factors influencing DFS adoption.

Recommendations

Based on the findings, several recommendations are proposed. First, the government should invest in expanding digital infrastructure, particularly in remote rural areas, to ensure reliable mobile network connectivity. Second, large-scale financial and digital literacy programs should be implemented to enhance users' ability to effectively utilize DFS platforms.

Third, financial institutions and FinTech companies should develop inclusive and affordable financial products tailored to rural populations, including microcredit, savings schemes, and insurance services. Fourth, regulatory frameworks should be strengthened to enhance trust, security, and consumer protection in digital financial transactions.

Finally, targeted interventions should be designed to promote DFS adoption among women and marginalized groups, addressing socio-cultural barriers and ensuring equitable access to financial resources. These measures will help maximize the poverty-reducing and inequality-mitigating potential of digital financial services.

Limitations

Despite its contributions, this study has several limitations. First, the use of cross-sectional data limits the ability to establish causal relationships between DFS adoption and socio-economic outcomes. Second, the study relied on self-reported data, which may be subject to response bias or inaccuracies in reporting income and financial behavior.

Third, the research focused on selected rural areas, which may limit the generalizability of the findings to other regions of Pakistan or different developing economies. Fourth, the measurement of variables such as financial inclusion and digital literacy was based on composite indices, which may not fully capture their multidimensional nature.

Lastly, the study did not account for all potential external factors, such as macroeconomic conditions or policy changes, which may influence poverty and income inequality. Future research addressing these limitations would further strengthen the robustness and applicability of findings in this domain.

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