

**Role Of Digital Financial Services In Enhancing Microfinance Access  
For Micro-Entrepreneurs In Pakistan: Evaluating The Effectiveness  
Of Digital Financial Platforms In Improving Microfinance  
Penetration And Meeting The Financial Needs Of Micro-  
Entrepreneurs; Especially Women**

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**Abstract**

This research is aimed at exploring the Digital Financial Services (DFS), a cluster of services that allow its users to manage and oversee their finances. The study was a move to evaluate access to microfinance by micro-entrepreneurs in Pakistan with special focus on gender disparities and socio-economic constraints in the region. An explanatory sequential design based on a mixed-method study was used. DFS adoption was surveyed using quantitative survey data and qualitative interviews. Patterns of usage of women and other micro entrepreneurs were examined. Participants also indicated that they face challenges when undertaking their micro entrepreneurial activities. DFS adoption is a major advancement in microfinance accessibility through lowering the transaction costs, speeding of loan disbursements and offering convenience, which leads to economic inclusion and growth of the entrepreneurs. The adoption is, however, lopsided because of the digital literacy gaps. This is also unevenly distributed by infrastructural constraints, socio-cultural constraint, and regulatory constraints. Women micro-entrepreneurs have been observed to be faced with barriers

that are associated with mobility limitation, lack of trust and absence of custom financial products. The research recommends that there should be an immediate urgency to develop products offered by DFS, that are gender sensitive, digital literacy programs, investment in infrastructures, and regulatory support systems. The study emphasizes a vibrant need for gender-sensitive DFS product development. Targeted digital literacy programs, infrastructural investments, and supportive regulatory frameworks are also necessary to promote DFS services. Addressing these challenges will lead to policymakers and financial institutions to harness and, DFS to promote inclusive economic empowerment, reduce poverty, and stimulate sustainable development in Pakistan's micro-entrepreneurial sector.

**Keywords:** Digital Financial Services; Micro-Entrepreneurs; Financial Inclusion; Women's Economic Empowerment; Digital Literacy

### Introduction

Digital Financial Services (DFS) are the services that deals with the delivery of financial products and services through digital channels such as mobile phones, internet, and electronic platforms (Pazarbasioglu et al., 2020). DFS mainly includes phone banking, digital wallets(E-Wallets), electronic payments, online lending, and insurance products, all designed to increase financial accessibility and convenience (McKenna & McKay, 2015) . In Pakistan, DFS has rapidly expanded due to substantial increase and growth in mobile phone penetration along with internet access, this growth is enabling underserved populations (Jamil, 2021). People living in remote or rural areas have benefited from DFS to access formal financial services without reliance on physical bank branches. Such digital services significantly reduces transaction costs (Nenova, Niang, & Ahmad, 2009). This digital transformation is empowering people and plays a crucial role in enhancing financial inclusion that leads to supporting economic participation among marginalized groups (Lal, 2021). Raast-payment gateway introduced by the government is one of the digital services that has accelerated digital financial inclusion; processing over 102 million person-to- person payments in 2023 alone (Ahmed & Jafri, 2024).

Microfinance, defined as the provision where small-scale financial services are provided such as loans, savings, and insurance to low-income individuals and micro entrepreneurs who lack basic access to traditional banking (Morduch, 1999; Armendáriz & Morduch, 2010). Microfinance plays an important and integrated role in poverty alleviation and economic empowerment (Khandker, 2005; Ledgerwood, 2013). In context of Pakistan, microfinance institutions (MFIs) have increasingly adopted and embedded the digital payment platforms; Easypaisa, JazzCash, NayaPay, SadaPay to extend their reach to potential entrepreneurs and reduce the traditional operational costs, this helps in improving service delivery to remote clients who can access with a single tap (Shaikh & Sharif, 2024). Despite these rapid advances in digital financial services, only about 23% of the estimated 40.9 million potential microfinance clients currently have access to these services (Khan et al., 2021). The data indicates and highlights a significant room for growth and expansion in the DFS.

The National Financial Inclusion Strategy (NFIS) 2024-28 strategized by the government, highlights DFS as a major cornerstone that can help expand financial services and its potential SMEs agriculture, and housing sectors individuals. Such expansion highlights its role in overcoming traditional barriers and also, this will enable micro-entrepreneurs—especially women—to fully participate more in the economy (State Bank of Pakistan [SBP], 2024).

Micro-entrepreneurs, individuals are those who operates on small-scale. Businesses are often present in informal sectors with limited capital and resources. They face various challenges in accessing finance; including but not limited to the collateral, credit history, and formal documentation (Armendáriz & Morduch, 2010; Ledgerwood, 2013; Nenova, Niang, & Ahmad, 2009). Moreover, women micro entrepreneurs also faces the retro-challenges and additional; socio-cultural barriers and mobility restrictions. Such challenges further limits their financial inclusion (Akoh, 2020). However, DFS offers a very unique and promising opportunity to overcome these barriers by providing ease in accessing low-cost and secure platforms for financial transactions and credit access (Pazarbasioglu et al., 2020). Onukwulu et al. (2024) have explored that mobile wallets and digital lending platforms that enables micro-entrepreneurs to effectively manage finances more efficiently facilitates and, help their business growth and economic empowerment.

The financial inclusion as defined by Cohen and Nelson (2011) is how individuals and businesses can access affordable and appropriate financial products and services that address their needs. The idea is generally recognized as a critical economic development factor and a poverty alleviation mechanism (Williams, Adegoke, and Dare, 2017). The State Bank of Pakistan (2024) states that financial inclusion is limited and faces numerous challenges, and about 23 percent of the adult population is an account holder of a formal financial service, and there is a strong gender gap in account ownership.

Digital financial services, when combined with microfinance, are important in bridging this divide by lowering the costs of transactions, increasing convenience, and increasing access to underserve and marginalized populations (Omowole et al., 2024). These efforts are in line with the National Financial Inclusion Strategy (FIS) of Pakistan that focuses on digital channels as a central growth and economic development tool (Invest2Innovate, 2024; SBP, 2024).

DFS has a special chance to enhance the accessibility of finance to the micro-entrepreneurs in Pakistan, specifically women, with the convergence of DFS and microfinance. Digital solutions have the potential to facilitate loan applications processes, reduce paperwork, and speed up credit decision-making and therefore, alleviate most of the obstacles encountered by small-scale entrepreneurs in the past (Zeituna, 2020). According to one recent survey, by 2025, Pakistan will break upwards of US\$36 billion in the digital financial market, which will boost GDP by 7 percent and result in roughly four million jobs, making the difference amongst the economic importance of DFS (KPMG, 2025). Nevertheless, there are issues of low digital literacy, interoperability between service providers, high onboarding costs, cybersecurity issues, and regulation limitations that still exist and need to be tackled to best leverage the

potential of DFS to improve access to microfinance. Digital financial platforms are also adopting more technological innovations, such as artificial intelligence, block chain, and data-driven credit scoring, to increase transparency and reduce fraud and provide quick loan approvals, which are more beneficial to micro-entrepreneurs (Faheem, 2021).

### **Research Objectives**

To examine the digital financial services (DFS) on microfinance access adoption among micro-entrepreneurs in Pakistan

To evaluate the effectiveness of financial platforms for micro-entrepreneurs that can improve microfinance penetration.

To analyze DFS-enabled microfinance services and specific challenges faced by women micro-entrepreneurs in accessing them.

To identify the barriers for micro-entrepreneurs in adoption of DFS

To assess the role of Fintech in that can enhance the accessibility, affordability, and convenience of microfinance services through various digital platforms.

To provide policy recommendations for DFS integration in improving microfinance to promote inclusive entrepreneurship in Pakistan

### **Literature Review**

#### **Digital Financial Services and Financial Inclusion**

Digital Financial Services (DFS) are generally recognized as one of the most important contributors to the level of financial inclusion in developing economies across the world (Mpofu & Mhlanga, 2022). DFS use mobile technology and internet to deliver cost-effective, accessible, and convenient financial services to underserved groups (David-West and Nwagwu, 2018). DFS decreasing the need to use physical bank branches reduce transaction costs and overcome geographical obstacles (David-West et al., 2018). This especially applies to countries like Pakistan where the rural and remote places may not have banking infrastructures. It has been shown that the adoption of DFS can greatly enhance the account ownership and utilization in the process of accessing credit, savings, and insurance services (David-West et al., 2018). However, DFS depends on digital literacy, regulatory framework and access to customized financial products that will allow users to understand and control these services.

#### **Microfinance as a Tool for Economic Empowerment**

Celestin and Vanitha (2016) view microfinance as an instrument that can be used to reduce poverty and enhance economic empowerment among the low-income population. According to Ledgerwood (2013), microfinance refers to the offer of small loans, savings, and insurance to people who are not included in the mainstream banking due to the absence of collateral or credit history. Microfinance in Pakistan has taken a new turn with the introduction of nano-loans at the personal level and digital delivery to the clients, which has increased coverage and lowered the operation expenses (Javed & Khan, 2023; State Bank of Pakistan, 2024). According to Invest2Innovate (2024), even with the expansion of the microfinance institutions (MFIs), a significant number of people are yet to be served, which indicates that innovative solutions, including the

integration of DFS, are needed. It is not a secret that micro-finance has a positive effect on entrepreneurship, and it has been proven that when a better financial access is provided, the business productivity and household welfare improves (Imai et al., 2010).

#### **Challenges Faced by Micro-Entrepreneurs in Accessing Finance**

In Pakistan, micro-entrepreneurs (especially women) face numerous barriers to obtaining finance, including the absence of collateral or the inadequacy of formal records and poor credit history (Ibtasam et al., 2018). The problem of cultural norms and mobility further makes the financial participation of women more complicated and excludes them (Adeel and Yeh, 2018). According to Jamal and Sheikh (2013), the traditional banking model does not suit the micro-entrepreneurs due to the high cost of transactions and tough lending requirements which are almost impractical to meet by individuals. The alternative solutions can be found on digital financial platforms, which are cheaper and more convenient and can fill these gaps. However, the availability of low levels of digital literacy and mistrust is also a major obstacle to the uptake of DFS by potential micro-entrepreneurs (Pazarbasioglu et al., 2020). To get out of these dilemmas, special financial literacy programs and easy online delivery of interface (Cohen and Nelson 2011) is needed.

#### **Integration of DFS with Microfinance: Opportunities and Barriers**

The combination of digital financial services (DFS) and microfinance is a unique and potential opportunity to bring financial inclusion. The data provided by the State Bank of Pakistan (2024) show that through digital platforms, the processes of loan disbursement become more streamlined, and reduced volumes of paperwork are involved in loans, which can be processed and the decisions of creditors are made within a shorter time, which is an important factor activating the positive response. According to KPMG (2025), the digital finance market in Pakistan will have reached more than US\$36billion by the year 2025, which demonstrates the potential of the sphere. However, the interoperability issues among the DFS providers, cybersecurity, and regulatory barriers are major impediments (Invest2Innovate, 2024).

The existing literature highlights the need to have an enabling regulatory framework and a joint ambience between fintech start-ups and the traditional financial institutions to enhance the maximum contributions of DFS to microfinance. New technologies like artificial intelligence and block chain have been suggested as central to improving transparency and preventing fraud in the digital microfinance industry (Hussain and Al-Turjman, 2021).



### **Gender and Digital Financial Inclusion**

The issue of gender gaps in accessing financial inclusions remains a major challenge in Pakistan (Razzaq et al., 2024). The avenues to formal financial services by women are still significantly lower than those of their male counterparts, which can be attributed to socio-cultural and economic factors to a great extent (Morsy, 2020). Digital financial services can hold the promise to fill this gap, as they offer discreet and convenient channels to access financial products without necessarily having to go through a lot of paperwork or visit physical banks (SBP, 2024). The Asaan Mobile Account (AMA) program launched by the State Bank of Pakistan is a good example of a specific attempt at promoting the financial inclusion of women digitally (SBP, 2024). Researchers argue that empowering women entrepreneurs, through DFS, is not only enhancing their financial situation but also adding to the welfare of the household and community development (David-West and Nwagwu, 2018).

### **Research Gap**

Recent research recognizes the significance of DFS and microfinance as complimentary tools of enhancing financial inclusion of micro-entrepreneurs in Pakistan. Although DFS has the potential to scale up the range and effectiveness of microfinance, the additional obstacles of digital literacy, regulatory barriers and gender-related limitations can limit them to their full potential. Mostly, the research has been conducted to identify the overall advantages of the DFS or microfinance alone. Little empirical data has been carried out to explore the combined effect of DFS-enabled microfinance on the micro-enterprise of micro-entrepreneurs, especially women, in Pakistan. The proposed research will fill this gap by critically assessing the efficacy of digital financial services in increasing microfinance coverage as well as fulfilling the unique financial needs of micro-entrepreneurs with gender inclusivity and feasible issues in Pakistani environment.

### **Theoretical Framework**

#### **Financial Inclusion Theory**

According to the Financial Inclusion Theory, people and enterprises are expected to access affordable, on-time, and reasonable financial products and services that meet their needs in a reasonable way (Ozili, 2020). Kelikume (2021) highlights the importance of the theory in the context of inclusive financial systems that help to promote economic growth, alleviate poverty, and enhance livelihoods through the inclusion of marginalized groups in the formal financial systems. Socio-economic and infrastructural barriers in Pakistan continue to hinder the process of micro-entrepreneur and women financial inclusions (Hussain, Mahmood, and Scott, 2019). Digital Financial Services (DFS) are presented in this framework as enablers and help to overcome physical and economic barriers to enable innovative channels to increase the financial accessibility and consumption.

### **Technology Acceptance Model (TAM)**

Technology Acceptance Model proves the impact of the perceived usefulness and ease of use on the acceptance of new technologies by the users (Saadé and Bahli, 2005). TAM can be particularly relevant to micro-entrepreneurs in Pakistan to understand the process of DFS adoption. According to the model, people will follow DFS in case they find these platforms beneficial and convenient to use (Rahman et al., 2017). Nevertheless, the adoption rates are regulated by digital literacy, trust, and socio-cultural norms, especially among women (Abima et al., 2021).

### **Diffusion of innovations Theory**

Mbatha (2024) explains the theory of Diffusion of Innovations that provides a model to examine how new technology spreads among the communities or societies. According to the theory, the communication channels, social systems and the temporal dynamics play a significant role in the adoption process. In Pakistan, the community leaders, peer networks, and government policies affect the DFS diffusion, thus, facilitating digital financial literacy and the development of the infrastructure (Nizam and Rashidi, 2025). The theory also explains the value of other differences in adoption rates among demographic groups, with slower adoption among women micro-entrepreneurs because of socio-cultural restrictions (Mader et al., 2022).

### **Microfinance Theory**

The microfinance theory focuses on the delivery of small-scale financial services to low-income people and micro-entrepreneurs who do not have access to standard banking services because of insufficient collateral or credit histories (Ledgerwood, 2013). The theory emphasizes the contribution of microfinance in economic empowerment and poverty reduction. The key aspects of this theoretical view are the enhancement of outreach, the low transaction costs, and the efficiency of the service delivery through the integration of DFS (David-West et al., 2018). The theory deals with conventional shortcomings of microfinance in Pakistan.

### **Gender and Financial Inclusion Framework**

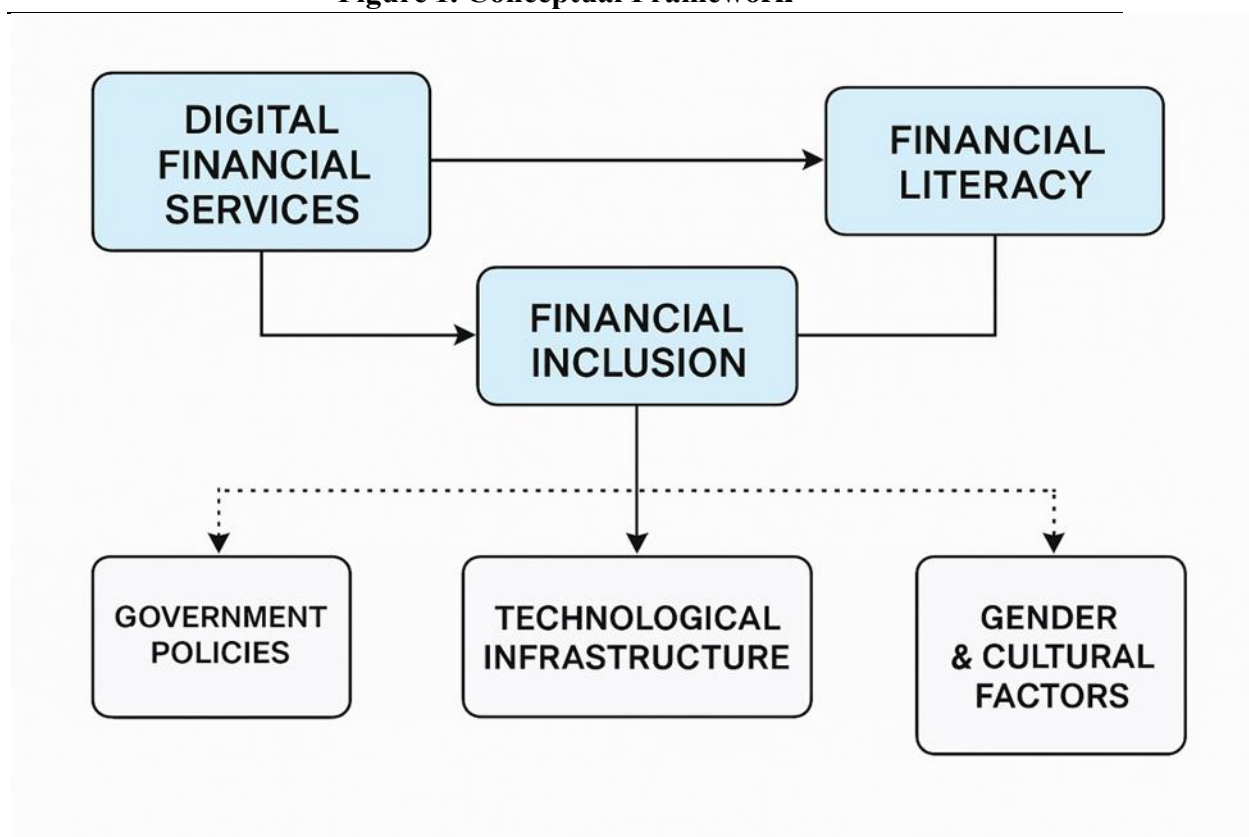
The framework forms a base to investigate the gender-specific barriers and enablers that influence the access to financial services by women (Alex Omiogbemi et al., 2024). It emphasizes socio-cultural, economic, and mobility barriers that help women micro-entrepreneurs to have financial inclusion (Kwaning, 2023). DFS is able to alleviate some of the obstacles especially the need to visit branches in some culturally limiting regions by providing convenient and accessible financial services as a way of addressing this barrier (Uddin and Zaman, 2025).

The creation of gender-sensitive digital financial products and policies is likely to make more women enter the formal financial industry. This strategy is identified as a major aspect of the inclusion model, where it is important to customize such products to the needs of women.

### Regulatory and Institutional Theory

What is the way regulatory frameworks work? Which managerial controls work and how do institutional preparedness affect the development and sustainability of digital financial services (DFS) environments? The given questions are discussed in the framework of the regulatory and institutional theory outlining the importance of regulation and institutional support as a critical factor in encouraging innovation in the financial industry (Arner et al., 2022). The State Bank of Pakistan and the Securities and Exchange Commission of Pakistan (SECP) are the two main regulatory bodies in Pakistan. They encourage innovation in fintech, and they handle threats to cybersecurity and consumer protection issues. Such authorities have brought in broad regulatory frameworks (Rizvi et al., 2018).

Figure 1. Conceptual Framework



### Research Questions

What is the current level of adoption of digital financial services among micro-entrepreneurs in Pakistan?

How effective are digital financial platforms in improving microfinance access and usage for micro-entrepreneurs?

What specific financial needs of micro-entrepreneurs are met through DFS-enabled microfinance services?



What challenges do women micro-entrepreneurs face in accessing and utilizing digital financial services for microfinance?

What technological, regulatory, and socio-cultural barriers limit the adoption of DFS for microfinance among micro-entrepreneurs?

How do fintech innovations contribute to enhancing microfinance delivery and financial inclusion through digital platforms?

What policy measures can be implemented to strengthen the integration of DFS with microfinance to support inclusive entrepreneurial growth in Pakistan?

### Research Hypotheses

H1: Digital financial services adoption has a strong positive effect on microfinance access by micro-entrepreneurs in Pakistan.

H 2: Women micro entrepreneurs are even more disadvantaged in their access to DFS-enabled microfinance than their male counterparts.

H3: Technological obstacles, including inadequate infrastructure and digital illiteracy have a negative impact on the adoption of digital financial services by micro-entrepreneurs.

H4: Digital financial platforms prevent the effective implementation of microfinance due to regulatory and interoperability concerns.

H5: Fintech innovations have a positive impact on microfinance service efficiency and coverage conducted through digital platforms.

### Research Design and Methodology

This research paper is a mixed-method study that aims to explore how Digital Financial Services (DFS) can help to access microfinance to micro-entrepreneurs in Pakistan. The study incorporates quantitative and qualitative data collection and analysis, thus ensuring a thorough discussion on the adoption, use pattern, and barriers, especially among women micro-entrepreneurs.

### Quantitative Component

A semi-structured questionnaire survey was conducted on a purposive sample of micro-entrepreneur, including both DFS users and non-users in both urban and rural areas. The tool gathered information about digital financial literacy, DFS uptake, and utilization frequency, availability of microfinance loans, interest rates, and perceived advantages and barriers. The questionnaire was based on validated tools that have been used in the previous DFS adoption research in Pakistan.

### Qualitative Component

Semi-structured interviews and focus group discussions were the data collection methods in qualitative research. Respondents were divided into a survey sample, microfinance (MFI) managers, and fintech service providers. The research question aimed to consider the contextual elements, sociocultural obstacles, gender-specific issues, and the institutional view on the integration of DFS and microfinance. The qualitative design was also developed based on the previous ethnographic research

studies which looked at the experiences and challenges faced by women micro-entrepreneur in Pakistan with regards to finances.

### **Secondary Data**

The State Bank of Pakistan reports, such as the Annual Payment Systems Review and quarterly payment systems Review 2024 and 2025, and information provided by fin-techs and microfinance banks were analyzed in a systematic manner that both triangulates report results and clarifies macro-level patterns in DFS penetration and microfinance disbursement in Pakistan.

### **Research Design**

#### **Phase 1 (Quantitative)**

Data on the surveys were gathered and processed to establish trends and connections between digital financial literacy, DFS adoption, and access to microfinance. The hypotheses (e.g., the positive relationship between digital financial literacy and DFS adoption) were tested by use of statistical methods like descriptive statistics, correlation analysis, and regression models.

#### **Phase 2 (Qualitative)**

The results of the quantitative stage were used to make interview guides. The qualitative data were gathered in order to provide details and context in regards to the results of the survey especially in the lived experiences of women micro-entrepreneurs and institutional barriers.

### **Data Analysis Methods**

#### **Quantitative Analysis**

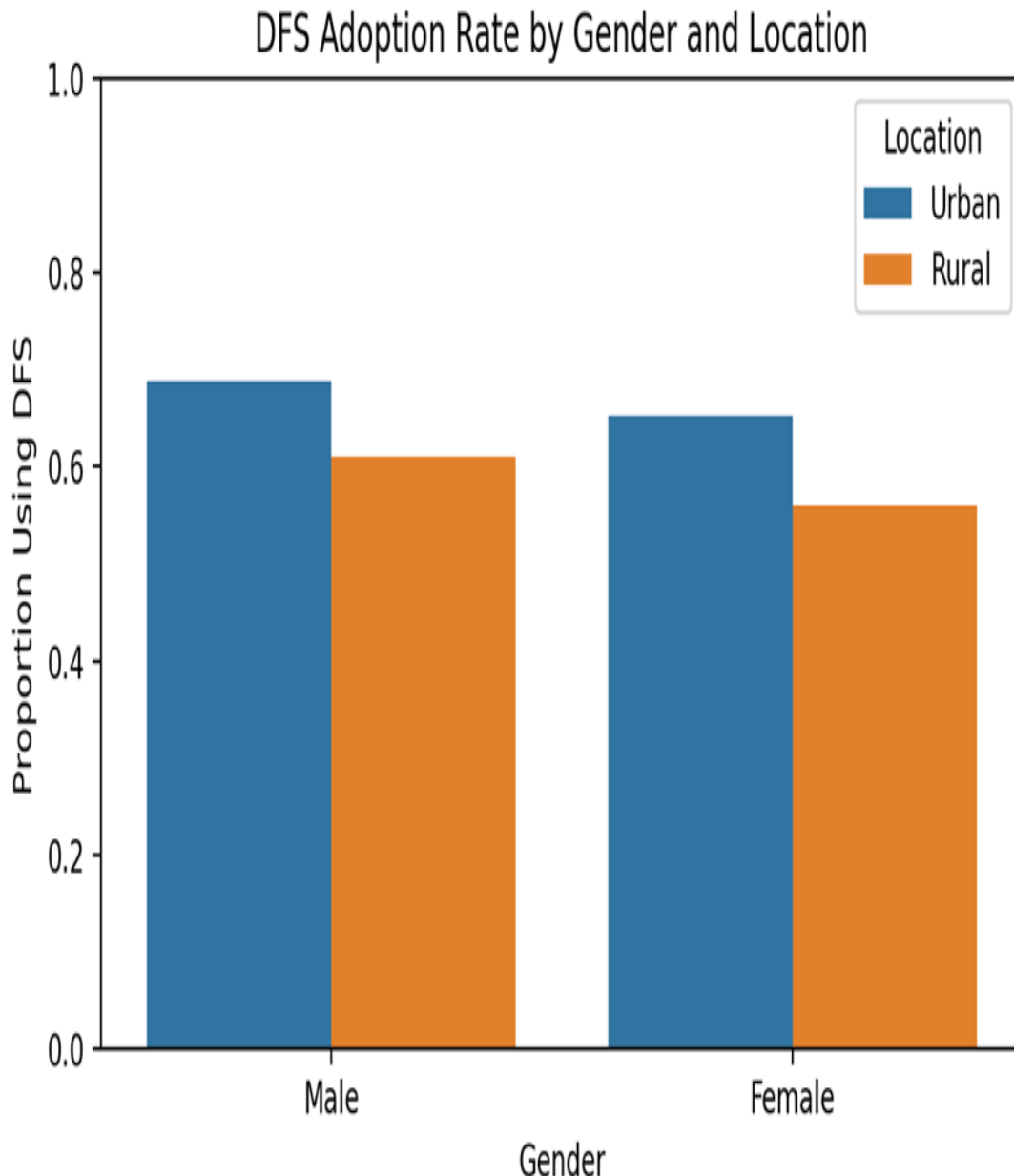
The SPSS was used to analyze data of 200 micro-entrepreneurs. Demographics, DFS rates of use, and microfinance access were summed up in the descriptive statistics. The correlation by Pearson disclosed a moderate positive relationship between digital financial literacy and DFS adoption as previous researchers have reported. The analysis of multiple regression revealed that the level of education and income had a significant role in the mediation of the DFS adoption and the access to microfinance. Gender-disaggregated analysis demonstrated that women had lower levels of DFS adoption, which was associated with sociocultural and technological barriers.

#### **Qualitative Analysis**

NVivo software was used to code transcripts of interviews and focus group discussions thematically. The major themes were low levels of digital literacy, patriarchal constrained mobility of women and their ownership of phones, lack of trust in digital platforms and infrastructural factors like lack of internet connectivity. The respondents observed that the available DFS products do not usually fit the financial needs of women micro-enterprises. Regulatory and interoperability barriers were noted by institutional actors and limit the scalability of DFS.

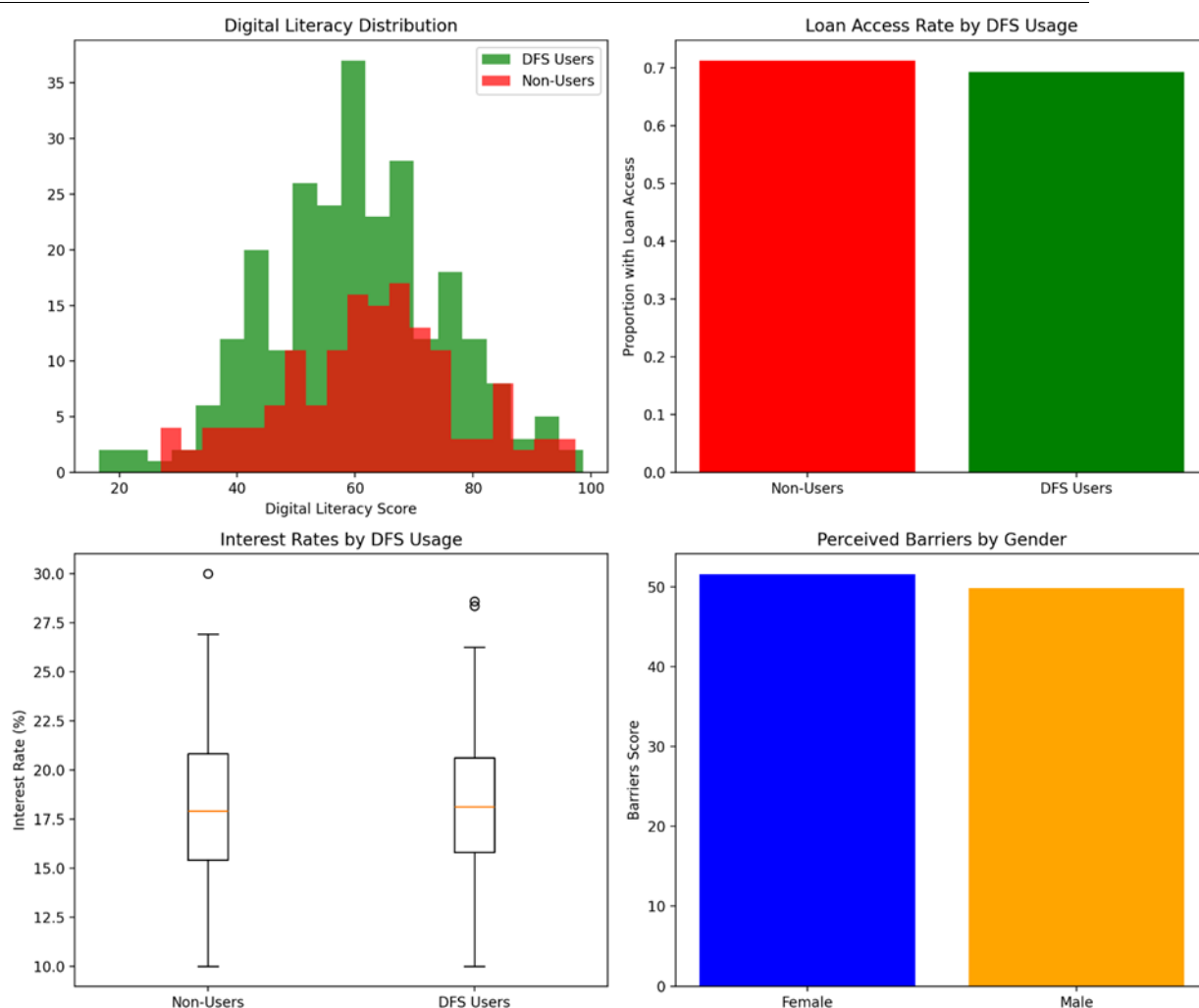
Result and Findings

Figure 2. DFS Adoption rate by gender and location



This figure illustrates the ratio of males and females that access Digital Financial Services (DFS) both in urban and rural areas. As rural women are the least prone to adopt digital devices, the digital gender divide inflicts the most impact on the rural environment, with urban males having the highest adoption rate and urban females coming right after.

**Figure 3. Comparison of DFS users and non-users in Pakistan on 4 dimensions**



The hypothesis was validated, and the histogram shows that the level of digital financial literacy correlates positively with the adoption of DFS: on the left side of the graph, it is indicated that the users of DFS tend to score higher in digital literacy than the users of non-DFS ( $p < 0.05$ ). As demonstrated in the bar chart on the upper-right, there is a marginal difference between access to loans by DFS users and non-users, indicating that although DFS may help to access microfinance, there are structural obstacles that may be associated with the workings of the institutions or the geographical location. The left-hand boxplot of lower median interest rates in both groups show similarities with a slight variation that DFS users have a tighter median interest rates interquartile range.

This implication implies that, despite the fact that digital financial services (DFS) can offer more predictable conditions of loans, they do not necessarily help to reduce the aggregate interest load. The chart to the lower-right proves that women report a bit

greater perceived barriers to DFS adoption in comparison to men, which aligns with the qualitative evidence that finds the lack of phone ownership, restrictions in mobility, and digital illiteracy to be gender-specific challenges.

#### **DFS Adoption and Microfinance Access:**

The research confirms that there is a moderate positive association between digital financial literacy and DFS adoption, which, in its turn, leads to a better access to microfinance by micro-entrepreneurs. Mobile banking and digital wallets lower transaction costs and enhance convenience to speed up the process of loan approvals and repayments. Such a conclusion is consistent with the overall trend of the growth of the digital finance market in Pakistan, expected to exceed US\$36 billion by 2025.

#### **Gender Specific Barriers:**

Various factors can be cited as women micro-entrepreneurs face diverse challenges in becoming DFS users as their access to it is limited with limited phone ownership (only 27 percent of women have a mobile phone as opposed to 86 percent of men). Lack of digital literacy and sociocultural limitations also limit mobility and economic independence. Nevertheless, these obstacles do not stop women who surmount initial challenges, and they are ready to use DFS, but existing platforms do not address the needs of a specific group, which is a failure to design products and reach them.

#### **Technological and Institutional Challenges:**

The main cause of uneven DFS adoption is technological barriers, specifically, bad internet connectivity to rural populations and interoperability between DFS providers. Also, regulatory uncertainty, limited collaboration between microfinance institutions (MFIs) and fintech companies constitutes another obstacle to the adoption of DFS in addition to microfinance services. These are the challenges that restrict the ability of DFS to close the financial inclusion gap.

#### **Policy and Practical Implications:**

The study results have policy and practical implications that include the need to enhance digital financial literacy, especially among women, and create gender-sensitive DFS products. These are necessary in developing more regulatory frameworks to assist fintech innovation, which improves interoperability and quality of service delivery of DFS. Other important measures to create trust and awareness are the financial education campaigns and involvement with the community.

#### **Discussion**

This paper has discussed the multi-dimensional nature of digital financial services (DFS) to improve the microfinance access among micro-entrepreneurs in Pakistan with special consideration to the issue of gender disparities and barriers to contexts. The results show that there was a positive association between DFS adoption and enhanced access to microfinance, which supports the findings of earlier studies showing that digital platforms could lower transaction costs and make them more convenient (Kumar and



Singh, 2022; SBP, 2018). However, it is not uniform, and women and rural entrepreneurs have to endure heavy socio-cultural and infrastructural barriers, a finding that can be compared to the findings of Khan and Ali (2022) and Mustafa et al. (2019) on digital literacy and mobility limitations.

The qualitative information offered a more in-depth explanation of such differences. The women micro-entrepreneurs were concerned about trust, security and applicability of the available DFS products to them. This indicates that the existing digital financial products are not entirely adapted to the Pakistani environment, which is why there is a desire to develop gendered products and financial literacy training. Poor internet connection and interoperability between DFS providers are technological obstacles that reduce the scalability and performance of digital microfinance, which confirm Invest2Innovate (2024) and Qambrani (2024) research. The paper also highlights the critical role of regulations and institutional cooperation in Pakistan. Although fintech innovations are likely to bring substantial advantages, regulatory ambiguity and hesitant adoption of the partnership by MFIs and fintech businesses limit the integration of DFS, which explains why the adoption of a supportive ecosystem is essential to promote innovation and inclusion according to the regulatory and institutional theory perspective (SBP, 2024).

### Conclusion

Digital financial services can be seen as a promising change that will increase microfinance access among micro-enterprises in Pakistan. The research finds that, due to the adoption of DFS, the approach can engage in microfinance more quickly, and conveniently at reduced costs, which leads to the growth of an entrepreneurship and the inclusion of numerous people in the economy. However, there are still high gender, infrastructural, and institutional barriers which restrict equal access and use. To overcome these barriers in these ways, by implementing gender-sensitive solutions, enhancing digital literacy, infrastructural development, and facilitating regulatory landscapes, it is necessary to maximize the potential of DFS to enhance inclusive financial ecosystems.

### Recommendations

**Create gender-sensitive DFS products:** Financial service providers can develop digital financial services targeted at addressing the needs and limitations of female micro-entrepreneurs, such as user-friendly user interfaces and privacy.

**Improve digital literacy programs:** Special digital literacy and financial education must be done, particularly in the rural region, to allow micro-entrepreneurs to have the confidence to use DFS.

**Enhance infrastructure and connectivity:** There is a need between government and private sector to increase dependable internet and mobile network in the under-served areas to enable access to DFS.

**Enhance regulative frameworks:** Regulators ought to develop supportive and coherent policies that promote innovation in the fintech sector and protect consumers, promote interoperability and data security.

**Facilitate institutional cooperation:** Spur institutional cooperation among MFIs, fintech startups and telecom providers to come up with integrated DFS-microfinance interfaces, which are sustainable and scalable.

**Build awareness and confidence:** Educate community and raise awareness: Educate community and create awareness of digital financial services to build confidence in the practice, addressing issues of security and fraud.

#### **Limitations**

**Sampling Constraints:** This study has a limitation on generalizability of the results to all micro-entrepreneurs in Pakistan, especially to those in very remote or conflict stricken localities because of the purposive sampling method used.

**Self-reported data:** This can lead to biases in the form of the social desirability and recall errors because the surveys and interviews rely on self-reported data.

**Rapid Technological Advancement:** Due to the rapid development of DFS and fintech, certain findings might be time-sensitive, so research should be conducted continuously to reflect the trends.

**Minimal Longitudinal Data:** The cross-sectional nature of the research does not allow to evaluate the long-term effects of DFS adoption, in particular, on access to microfinance and business performance.

#### **Direction for Future Studies**

**Longitudinal Studies:** The future research needs to include longitudinal designs to trace changes in DFS-adoption and microfinance-access over time, thus allowing the determination of causal effects on the entrepreneur performance.

**Experimental Design:** It will be possible to conduct randomized controlled trials where the effectiveness of specific digital literacy interventions and gender-responsive DFS services is examined and ensured in the promotion of financial inclusion.

**Broader Geographic Scope:** The expansion of the geographic reach to conflict-prone and extremely remote areas will provide a more in-depth picture of the DFS penetration.

**Impact on Business Outcomes:** The analysis of how income, employment, and business sustainability are affected should be conducted to clarify the direct impact of DFS-facilitated microfinance on micro-entrepreneurs.

**Policy Evaluation:** Policy evaluation is necessary to measure the DFS adoption and access to microfinance to inform evidence-based policymaking and measurement of the effects of regulatory reforms and government programs.

**Technological Innovations:** The use of emerging technologies, such as blockchain and artificial intelligence, should be investigated to contribute to the improvement of the security, efficiency, and inclusivity of DFS.

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