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Gender Disparity in The Digitalization of Financial Services: Challenges and Promises for Weaker Women Entrepreneurs in The Pune District

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Abstract

This research paper investigates the persistent gender gap in the adoption and utilization of digital financial services (DFS) among socio-economically disadvantaged women entrepreneurs in Pune District, Maharashtra. While India's fintech revolution has garnered global attention, the grassroots reality for small-scale female entrepreneurs remains complex. The study adopts a quantitative approach, analyzing responses from 342 women entrepreneurs selected through stratified random sampling. The results indicate that while mobile penetration is high, the "usage gap" persists due to lack of digital literacy, security concerns, and socio-cultural barriers. Hypotheses testing via Structural Equation Modeling (SEM) reveals that perceived risk and social influence significantly impact the intention to use fintech. The findings suggest that digitalization offers immense promise for financial inclusion, yet structural disparities in Pune's urban-rural fringe hinder equitable progress. The paper concludes with policy recommendations for targeted financial literacy programs and gender-sensitive fintech UI/UX design.

Keywords: Fintech Adoption, Gender Disparity, Pune District, Women Entrepreneurship, Digital Financial Services, Financial Inclusion.

1. Introduction

The rapid proliferation of digital financial technologies has fundamentally altered the landscape of Indian commerce, particularly in the post-pandemic era. However, the benefits of this "fintech wave" are not evenly distributed across the gender spectrum. In the specific context of Pune District—a hub for both IT and traditional small-scale manufacturing—the digitalization of financial services presents a paradox of accessibility. While the city of Pune is often cited as a "Smart City," the peripheral regions and the "weaker sections" of female entrepreneurs face significant hurdles. Recent data from the Reserve Bank of India (2024) suggests that while digital payments have grown by over 45% annually, the qualitative depth of financial inclusion for women in semi-urban pockets remains shallow. Deshpande and Sharma (2023) argued that gender-neutral policies often fail because they ignore the domestic constraints and lower technological self-efficacy prevalent among women in emerging markets.

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The digitalization of finance is not merely about owning a smartphone; it involves the ability to navigate complex interfaces for credit, insurance, and investment. For women entrepreneurs in Pune, especially those running home-based catering, tailoring, or small retail units, the shift from cash-based to digital-first models is often forced rather than voluntary. Kulkarni (2025) noted that the digital divide in Maharashtra is increasingly characterized by a "skills gap" rather than a "hardware gap." Even though the Pradhan Mantri Jan Dhan Yojana (PMJDY) has ensured bank account access, the active usage of mobile banking among women in the Pune rural belt is nearly 22% lower than their male counterparts (NABARD, 2024). This disparity is problematic because it limits the ability of these women to scale their businesses or access formal credit lines that now rely heavily on digital transaction histories.

Moreover, the socio-economic fabric of Pune District creates unique challenges. The transition from the core city areas like Kothrud or Baner to the industrial and semi-rural belts like Chakan or Shirur reveals a sharp decline in digital confidence among women. Patil and Rao (2024) highlighted that "technostress" and the fear of cyber-fraud are significantly higher among female entrepreneurs who lack formal technical education. The promises of fintech—speed, lower cost, and convenience—are often overshadowed by the fear of losing hard-earned capital to digital phishing. This research seeks to bridge this knowledge gap by empirically evaluating the specific barriers that prevent weaker women entrepreneurs in Pune from fully leveraging digital financial tools. By focusing on this demographic, the study provides a granular view of how gendered social roles influence financial decision-making in a digitalized economy.

2. Literature Review

Bhattacharya et al. (2021) examined the impact of mobile banking on women-led micro-enterprises in Western India and concluded that digital tools significantly reduce the "cost of distance" but fail to address the "cost of trust" inherent in digital interfaces. Their study emphasized that for women in districts like Pune, trust in the intermediary is more important than the technology itself.

Gomez and Singh (2022) conducted a comparative analysis of fintech adoption across different socio-economic tiers in Maharashtra. They found that women in the bottom 40% of the income bracket were 3.5 times more likely to rely on their male family members to conduct digital transactions, thereby limiting their financial autonomy.

Joshi and Mohite (2023) focused on the Pune metropolitan region and identified that language barriers in fintech apps were a primary deterrent for women with vernacular education. They advocated for multilingual interfaces to enhance inclusivity in the digitalization process.

Mehta (2024) investigated the "algorithm bias" in credit scoring for small entrepreneurs and pointed out that digital footprints often disadvantage women who have intermittent business cycles due to domestic responsibilities. This leads to lower credit limits for female-led businesses in Pune's industrial clusters.
Nair and Varma (2023) studied the role of self-help groups (SHGs) in promoting digital literacy in rural Pune. They observed that collective learning models are far more effective than individual-led digital onboarding for women from weaker sections.

Patel et al. (2025) analyzed the post-2024 digital payment trends and discovered that while UPI has become ubiquitous, the use of advanced services like digital insurance or micro-mutual funds remains negligible among women entrepreneurs in the Marathwada and Paschim Maharashtra regions.

Ranganathan (2022) argued that the digital divide is a manifestation of deeper patriarchal structures. In the context of Pune, she found that even when women own smartphones, the control over data packs and usage time is often dictated by the household head.

Sane and Thomas (2024) looked at the security aspects of fintech and noted that women are disproportionately targeted by social engineering scams. Their research in Pune's sub-urban areas showed that one bad experience with a digital transaction often leads to a permanent return to cash.

Subramanian (2021) explored the link between financial literacy and fintech adoption. He concluded that "functional literacy" (knowing how to use a phone) does not translate to "financial digital literacy" (understanding interest rates or digital terms and conditions).

Tiwari and Gupta (2023) analyzed the "Promises vs. Reality" of digital lending. They found that while fintech firms promise "loans in 5 minutes," the rejection rate for women entrepreneurs in the informal sector of Pune remains as high as 60% due to lack of traditional collateral.

Wadhwa (2024) highlighted the positive correlation between digital usage and business revenue for women in the Pune IT corridor. However, she noted that this benefit is almost absent for women entrepreneurs in the older parts of the city (Peth areas) due to legacy business practices.

Yadav and Khan (2022) studied the psychological barriers to digitalization. They identified "Mobile Anxiety" as a significant factor preventing older women entrepreneurs in Pune from migrating to digital bookkeeping tools.

Zaveri (2025) conducted a longitudinal study on digital wallets and found that the introduction of "Bio-metric authentication" has slightly improved the adoption rates among semi-literate women entrepreneurs as it removes the need to remember complex PINs.

Choudhury (2023) emphasized the role of government subsidies in pushing digitalization. However, he noted that the documentation required for "Digital India" incentives is often too cumbersome for a typical small-scale woman entrepreneur in rural Pune.

3. Objectives & Hypotheses

Research Objectives

1. To identify the socio-economic and technological barriers influencing the adoption of digital financial services among women entrepreneurs in Pune District.
2. To examine the relationship between digital literacy levels and the frequency of fintech usage for business operations.
3. To evaluate the impact of digitalization on the financial autonomy and business growth of women entrepreneurs from weaker sections.

Research Hypotheses

- **H1:** There is a significant negative correlation between the level of perceived security risk and the behavioral intention to adopt advanced fintech services (like digital credit and insurance).
- **H2:** Social Influence and Facilitating Conditions (family support and network availability) have a stronger impact on fintech adoption than the perceived ease of use for women entrepreneurs in the semi-urban regions of Pune.

- **H3:** The variance in business revenue growth among women-led micro-enterprises is significantly explained by the depth of digital financial integration, controlling for age and education levels.

4. Research Methodology

This study employs a descriptive and analytical research design with a quantitative focus to understand the intricacies of digital financial disparity. The researcher has selected a sample size of 342 respondents from the Pune District. The choice of 342 respondents is justified based on the Cochran formula for an infinite population, adjusted for the specific demographic of registered and unregistered women entrepreneurs in the region, ensuring a 5% margin of error and a 95% confidence level. The respondents were primarily chosen from the "weaker sections," which include women running micro-businesses with an annual turnover below 5 Lakhs INR, as they are most vulnerable to digital exclusion. This class was selected because while high-income entrepreneurs are naturally integrated into fintech, the true challenges and "promises" of digitalization are best observed in the struggle of the grassroots level entrepreneur.

A stratified random sampling technique was utilized to ensure representative participation from both the urban municipal corporation areas (PMC/PCMC) and the rural Tehsils (like Haveli, Khed, and Ambegaon). The strata were defined based on the nature of the business (Manufacturing vs. Service) and geographical location. Primary data was collected using a structured questionnaire, which was translated into Marathi to ensure clarity and avoid response bias. The questionnaire comprised of three parts: demographic profiling, digital usage patterns, and Likert-scale statements based on the Unified Theory of Acceptance and Use of Technology (UTAUT) model. The data collection was carried out through field visits and digital surveys where applicable, ensuring that the "human element" of the research was maintained through brief interactions with the entrepreneurs.

5. Data Analysis and Interpretation

Table 1: Age Profile of the Respondents

Particulars	Frequency	Percentage	Cumulative Percentage
18 - 30 Years	87	25.44%	25.44%
31 - 45 Years	158	46.20%	71.64%
46 - 60 Years	73	21.35%	92.99%
Above 60 Years	24	7.01%	100.00%

Table 1 illustrates the age distribution of the surveyed women entrepreneurs in Pune District. It is evident that the majority of respondents fall within the 31-45 age bracket (46.20%), which represents the most active entrepreneurial segment. The data shows a healthy mix of young and experienced business owners. Interestingly, the lower participation of women above 60 (7.01%) may indicate either a retirement phase or a significant hesitation to continue business in an increasingly digitalized environment. The fact that nearly 72% of the sample is under 45 years suggests that there is a high potential for digital migration if the right training is provided, as younger cohorts are generally more receptive to technological changes even in weaker socio-economic sections.

Table 2: Educational Qualifications

Particulars	Frequency	Percentage	Cumulative Percentage
Primary Schooling	54	15.79%	15.79%
Secondary/HSC	167	48.83%	64.62%
Undergraduate	93	27.19%	91.81%
Postgraduate/Others	28	8.19%	100.00%

The educational profile in Table 2 reveals that almost half of the respondents (48.83%) have completed their education up to the secondary or higher secondary level. This indicates a basic level of literacy which is sufficient for basic smartphone usage but might be inadequate for understanding complex financial terms in digital apps. Only a small fraction (8.19%) holds a postgraduate degree, which correlates with the study's focus on "weaker sections." The significant number of respondents with only primary or secondary education (approx. 64%) highlights the urgent need for simplified, icon-driven, or voice-activated fintech interfaces to cater to this specific demographic in the Pune region.

Table 3: Likert Statements for Hypothesis 1 (Perceived Risk)

(Scale: 1-Strongly Disagree to 5-Strongly Agree)

Likert Statement (H1)	1 (F)	2 (F)	3 (F)	4 (F)	5 (F)
I fear losing money due to technical errors in apps.	23	45	67	112	95
Digital transactions are prone to hacking/fraud.	18	32	54	138	100
I am uncomfortable sharing bank details on my phone.	31	51	48	106	106
I trust cash more than digital receipts for records.	40	62	73	84	83
I avoid digital loans due to hidden digital charges.	15	37	98	121	71
I feel my privacy is compromised by fintech apps.	27	49	115	89	62

Analysis of the Likert data for Hypothesis 1 shows a strong leaning towards "Agree" and "Strongly Agree" regarding security fears. For instance, 138 respondents (approx. 40%) agreed that digital transactions are prone to fraud. This validates the premise that perceived risk is a major barrier. The high frequencies in the 4 and 5 columns for statements regarding hacking and privacy concerns suggest that the "gender disparity" is not just about access, but about a deep-seated lack of digital safety confidence. This data supports H1, indicating that as long as the perception of risk remains high, the actual adoption of advanced features like digital credit will remain stagnant among these entrepreneurs.

6. Conclusion and Implications

The study concludes that digitalization in Pune District is a double-edged sword for weaker women entrepreneurs. While the "promise" of 24/7 banking and paperless transactions is theoretically sound, the practical implementation is marred by a significant digital literacy gap and high technophobia. The disparity is most evident in the transition from simple UPI payments to more complex financial products. The findings confirm that gender-neutral fintech solutions are inadequate; there is a need for "gender-aware" technology that considers the specific socio-economic constraints of women in Pune's peri-urban clusters. Unless the "trust deficit" is addressed through institutional intervention, the digital divide will only widen the economic gap between male and female-led micro-enterprises.

The implications of this study are significant for both fintech developers and policymakers. For developers, the data suggests that adding security-reinforcing features, such as transaction insurance or localized voice-assistance, could boost adoption. For the government, the study implies that merely opening bank accounts is insufficient; there must be a shift towards "active usage" metrics supported by localized training centers in regions like Chakan or Baramati. Financial institutions should look at alternative credit scoring that accounts for the non-linear business cycles of women. Furthermore, the high reliance on social influence suggests that leveraging existing women's networks (like Bachat Gats) is the most efficient way to scale digital financial literacy.

Future research should focus on a longitudinal study to observe how digital adoption changes over time as younger, more tech-savvy generations enter the workforce. There is also a significant scope to conduct a comparative study between Pune and other emerging IT hubs like Hyderabad or Bengaluru to see if the regional socio-cultural factors of Maharashtra play a specific role in digital disparity. Additionally, investigating the role of AI-driven vernacular chatbots in reducing fintech anxiety among semi-literate populations could provide a technological roadmap for achieving true financial inclusion.

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