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# Socio-Economic Determinants of Digital Financial Service Adoption in India: Insights from a Quantitative Study

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## Abstract

This study aims to examine socio-economic determinants of Digital Financial Service (DFS) adoption in India, using 117survey respondents. Findings indicated a higher 90.6% adoption rate, predominantly among young (97.4% aged 20-30), female (94.9%) students (81.2%) with undergraduate education (93.2%) and low income (76.9% below  20,000). Statistical analysis, the Chi-square tests reveal no significant association with income ($\chi^2 = 0.60$, $p > 0.05$) or education ($\chi^2 = 5.10$, $p > 0.05$), though higher groups show 100% adoption. This study shows that 91.5% student adoption is a demonstration of telecom-enabled inclusion, informing 6G financial empowerment for access in India's digital inclusion.

**Keywords:***Digital Financial Services, Socio-Economic Determinants, DFS Adoption, Telecommunications, 6G*

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## Introduction

Digital Financial Services (DFS) such as mobile banking, digital wallets (e.g., Paytm, Google Pay, PhonePe), and the Unified Payments Interface (UPI) have been changing the way people manage their money in India, through government initiatives like Pradhan Mantri Jan Dhan Yojana (2014) and Digital India (2015), which have contributed to enhancing financial inclusion. UPI (2016) was introduced by the National Payments Corporation of India (NPCI). It has become a milestone of India's digital economy, with transaction volumes reaching over 130 billion in FY 2024-25, as reported by NPCI. Digital wallets, mobile banking, online banking, and internet banking have gained significant popularity because of the widespread use of smartphones and the availability of affordable internet access, a development caused by innovations from telecom providers such as Jio. According to the data from TRAI in May 2025, Jio and Airtel gained 2.70 million and 0.27 million wireless subscribers, respectively. Jio also topped the wireline growth and raised its wireless market share to 40.92%, while the overall tele-density reached 85.36%. Additionally, 14.03 million Mobile Number Portability requests were handled during that month.

The 2025 Global Findex survey engaged approximately 148,000 adults across 141 countries in 2024, providing new insights into how individuals save their money, borrow loans, make payments, and manage risks. For the first time, the survey also examines mobile phone ownership, internet usage, and global digital security, highlighting the challenges encountered by women and economically disadvantaged groups (World Bank, 2025). Despite the increase in mobile penetration, variations exist among socio-economic groups, shaped by elements such as education, income, and access to digital channels. This research examines these disparities to comprehend the determinants and barriers to the adoption of digital financial services (DFS) in India. This study quantifies how income, education, gender, and age influence DFS adoption, aligning with 6G's smart, sustainable network goals.

**Objectives of the Study**

- To identify the primary socio-economic factors that affect the adoption of digital financial services in India.
- To evaluate the significance of these factors in encouraging individuals to embrace DFS, thereby facilitating the development of networks such as 6G.

**Literature Review**

To know a clear picture of how Digital Financial Services (DFS) in India works, we need to look at what others have already found out. This section explores how things like income, education, and technology access shape DFS adoption, especially with telecom playing a big role. We'll check out research from India and beyond to see what influences people to use mobile banking and digital wallets, and how these insights can guide us toward smarter networks like 6G. Let's see what the experts have explored:

Ali, J., &Ghildiyal, A. K. (2023) investigated the drivers of digital financial service (DFS) adoption in India, focusing on socio-economic characteristics, mobile phone ownership, and banking habits. Their findings indicate that older, more educated men with higher incomes and stable employment are more likely to adopt DFS, such as mobile banking and digital wallets. Mobile phone ownership is a critical enabler, while active banking practices, including savings and borrowing, significantly enhance DFS adoption. These results underscore the role of technology access and financial habits in shaping DFS adoption in India, offering insights into adoption patterns.

Nandru et al. (2024) examined digital financial inclusion (DFI) in India, focusing on the impact of socio-economic characteristics and residential status on digital financial service (DFS) adoption during the COVID-19 pandemic. The study found that being female, belonging to middle-to-high income brackets, being employed, and having a tertiary education significantly enhance DFS accessibility. Moreover, Residential status also influences DFS usage. The study suggested that improved digital infrastructure, simplified banking procedures, and more focus on digital financial literacy are needed to help unbanked populations and support India's digital inclusion goals.

Ozili, P.K. (2018) examined the risks and advantages associated with digital finance and its influence on digital financial inclusion and the stability of financial systems in developing economies, including India. The research indicated that digital literacy and income levels are significant factors influencing the adoption of Digital Financial Services, with individuals possessing higher incomes and regular access to technology being more inclined to utilize digital platforms. It has been recommended that policymakers implement simpler digital interfaces to help close the digital divide.

Md. Nur Alam Siddik et al. (2014) carried out an empirical study in Bangladesh to examine the factors influencing behavioural intention to adopt mobile banking as a tool for financial inclusion. They found that perceived financial cost, perceived risk, and subjective norm were the most influential factors affecting people's intention to adopt mobile banking in Bangladesh. High costs and security concerns were seen as barriers, discouraging many people from continuing to use mobile banking services. On the other hand, support and encouragement from family, friends or peers were found to have a positive effect, motivating people to adopt mobile banking. However, whether these same factors play a similar role in India's urban areas, like Chennai, where the digital divide remains a key barrier, requires further empirical investigation.

**Methodology**

We reached out to 117 Indian adults through a simple online survey on Google Forms, asking about their age, gender, education, income, job, and whether they use Digital Financial Services (DFS)—yes or no. we used some basic number-crunching with descriptive statisticsand chi-square tests to see how these factors influence the DFS adoption. We also collected some telecom context from TRAI (2025) and NPCI (2025) data to tie it to the bigger picture, especially with 6G networks angle.

**Results and Analysis**

**Table 1 : (Descriptive Statistics: Overview of Sample Characteristics (e.g., Demographics, DFS Usage Patterns))**

| Category | Sub-Category | Frequency | Percentage (%) |
|---|---|---|---|
| Gender | Female | 111 | 94.9 |
| | Male | 6 | 5.1 |
| Age Group | 20-30 | 114 | 97.4 |
| | 41-50 | 2 | 1.7 |
| | 51-60 | 1 | 0.9 |
| Education | UG | 109 | 93.2 |
| | PG | 5 | 4.3 |

| | | | |
|---|---|---|---|
| | Professional Course | 3 | 2.5 |
| Income Range (□ ) | Below 20,000 | 90 | 76.9 |
| | 20,001 - 40,000 | 20 | 17.1 |
| | 40,001 - 60,000 | 5 | 4.2 |
| | 60,001 - 80,000 | 1 | 0.9 |
| | Above 80,000 | 1 | 0.9 |
| Occupation | Student | 95 | 81.2 |
| | Government Employee | 7 | 6.0 |
| | Private Sector Employee | 7 | 6.0 |
| | Self Employed/Business Owner | 6 | 5.1 |
| | Homemaker | 1 | 0.9 |
| DFS Adoption | Yes | 106 | 90.6 |
| | No | 11 | 9.4 |

The survey included 117 people, mostly young women (94.9%) aged 20-30 (97.4%), with a few in their 40s and 50s. Most had a UG degree (93.2%), earned below □ 20,000 (76.9%), and were students (81.2%), with smaller groups in other jobs. Notably, 90.6% of respondents used digital financial services, indicating strong adoption across the group.

**Table 2 : (Statistical Measures)**

| **Variable** | **Assigned Values** | **Mean** | **Standard Deviation** |
|---|---|---|---|
| Age Group | 1 (20-30), 2 (41-50), 3 (51-60) | 1.03 | ≈ 0.19 |
| Income Range | 1 (<□ 20,000), 2 (□ 20,001-40,000), 3 (□ 40,001-60,000), 4 (□ 60,001-80,000), 5 (>□ 80,000) | 1.34 | ≈ 0.64 |
| Education Level | 1 (UG), 2 (PG), 3 (Professional Course) | 1.10 | ≈ 0.37 |

*Note*: Means and standard deviations are calculated assuming ordinal scaling for categorical data, with SD derived from variance across assigned values.

The average age group leaned heavily toward 20-30 (mean 1.03, with a tight spread of 0.19), showing most respondents were young. Income averaged around the lowest bracket (mean 1.34, spread 0.64), reflecting a mostly low-earning group. Education mostly hovered at the

UG level (mean 1.10, spread 0.37), with little variety, while occupations were too diverse to average meaningfully.

**Table 3: (Adoption Rates)**

| Factor | Sub-Category | Adoption (Yes) | Adoption (No) | Adoption Rate (%) |
|---|---|---|---|---|
| Income Range (□ ) | Below 20,000 | 82 | 8 | 91.1 |
| | 20,001 - 40,000 | 18 | 2 | 90.0 |
| | 40,001 - 60,000 | 3 | 0 | 100.0 |
| | 60,001 - 80,000 | 1 | 0 | 100.0 |
| | Above 80,000 | 1 | 0 | 100.0 |
| Education Level | UG | 98 | 11 | 90.2 |
| | PG | 5 | 0 | 100.0 |
| | Professional Course | 3 | 0 | 100.0 |
| Gender | Female | 100 | 11 | 90.5 |
| | Male | 6 | 0 | 100.0 |
| Age Group | 20-30 | 104 | 10 | 95.3 |
| | 41-50 | 4 | 0 | 100.0 |
| | 51-60 | 1 | 0 | 100.0 |
| Occupation | Student | 87 | 8 | 91.5 |
| | Government Employee | 6 | 1 | 85.7 |
| | Private Sector Employee | 6 | 1 | 85.7 |
| | Self Employed/Business Owner | 6 | 0 | 100.0 |
| | Homemaker | 1 | 0 | 100.0 |

Most people used digital financial services, with 91% of those earning under □ 20,000 and nearly all in higher income groups adopting them, though small numbers in the higher brackets make it hard to be sure. Education showed a similar trend, with 90% of undergraduate students and 100% of postgraduate or professional course students using it, thanks to the large undergraduate crowd. Female adoption 90.5% , Men and older folks (100% adoption) seemed keen, but the small sample size muddies the picture. The student-heavy group (91.5%).

**Table 4 : (Chi-Square Analysis)**

**Chi-Square Test: Income vs. DFS Adoption**

| Income Range (□ ) | Adoption Yes (Observed) | Adoption No (Observed) | Expected Yes | Expected No |
|---|---|---|---|---|
| Below 20,000 | 82 | 8 | 81.54 | 8.46 |
| 20,001 - 40,000 | 18 | 2 | 18.16 | 1.84 |
| 40,001 - 60,000 | 3 | 0 | 2.72 | 0.28 |
| 60,001 - 80,000 | 1 | 0 | 0.91 | 0.09 |
| Above 80,000 | 1 | 0 | 0.91 | 0.09 |

- Chi-Square Calculation: $\chi^2 = \Sigma[(\text{Observed} - \text{Expected})^2 / \text{Expected}] \approx 0.06$
- Degrees of Freedom: (5-1)×(2-1) = 4
- p-value: > 0.05 (not significant), indicating no strong association between income and adoption.

**Chi-Square Test: Education vs. DFS Adoption**

| Education Level | Adoption Yes (Observed) | Adoption No (Observed) | Expected Yes | Expected No |
|---|---|---|---|---|
| UG | 98 | 11 | 98.72 | 10.28 |
| PG | 5 | 0 | 4.53 | 0.47 |
| Professional Course | 3 | 0 | 2.72 | 0.28 |

- Chi-Square Calculation: $\chi^2 = \Sigma[(\text{Observed} - \text{Expected})^2 / \text{Expected}] \approx 0.51$
- Degrees of Freedom: (3-1)×(2-1) = 2
- p-value: > 0.05 (not significant), suggesting no significant education-adoption link.

**Trends**

The 90.6% adoption rate reflects strong DFS penetration, likely driven by the 91.5% adoption among students (87/95), indicating institutional or peer influence.

Adoption reached 90.6%, with 91.5% among students, reflecting telecom's role. No significant income ($p > 0.05$) or education ($p > 0.05$) links emerged.

**Conclusion:**

Our study found that an impressive 90.6% of the 117 respondents we surveyed in India are using Digital Financial Services (DFS), with most being young (97.4% aged 20-30), mostly female (94.9%), and a big chunk being students (81.2%). Money doesn't seem to make a

huge difference—91.1% of those earning below □ 20,000 and 100% in higher brackets are on board, likely thanks to student perks, with a chi-square of 0.60 ($p > 0.05$) showing it's not a big factor. Education also plays a role, with 100% adoption among those with PG and professional courses, though the 90.2% UG crowd sets the pace (chi-square 5.10, $p > 0.05$). We couldn't find clear trends for gender or age due to the sample leaning heavily one way, and the 100% male adoption needs more checking, especially for older groups. Plus, without location details, we can't say much about urban-rural differences.

On the academic side, this highlights how Indian students are leading the charge in DFS, giving us a better grasp of youth-powered digital inclusion. Practically, it's a nudge to focus on schools and colleges to tap into that 91.5% student adoption, helping India's push for financial inclusion. With students driving that 90.6% adoption, telecom is a big player here. Since income and education don't sway things much ($p > 0.05$), and gender and age need a broader look, boosting rural connectivity and literacy with 6G could take this even further!

**Future Work**

Future studies should expand the sample size beyond 117 to include diverse genders, age groups, and rural participants to address the current bias (94.9% female, 93.2% 20-30). Gathering location data will help to find out urban-rural disparities. We also want to track how DFS adoption grows in the futurewiththe help of 6G. Exploring these ideas could shape the future of digital finance.

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