



PMJDY, Digital Payments and Financial Literacy as Determinants of Financial Inclusion in India : An Empirical Analysis

Nitesh Kumar Yadav¹, Prof. Alok Singh²

¹Research Scholar & Assistant Professor, Faculty of Commerce, Shri Ganesh Rai P.G.College, Dobhi, Jaunpur, Uttar Pradesh

²Professor & Research Supervisor, Faculty of Commerce, Shri Ganesh Rai P.G.College, Dobhi, Jaunpur, Uttar Pradesh

Email: nitesh081292@gmail.com

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Abstract

Financial inclusion is important for the economic and social development of a country because it enables people to access and use formal financial services such as bank accounts, savings, payments, credit, pension, and insurance. In India, the Pradhan Mantri Jan Dhan Yojana (PMJDY), the growth of digital payments, and increasing financial literacy have played an important and effective role in expanding financial inclusion in India. This study focuses the role of these three factors in promoting financial inclusion in India. It focuses on how PMJDY has helped people gain access to banking services, how digital payments have made financial transactions much easier and more convenient, and how financial literacy helps people understand and make them able to the use financial services effectively. The study uses an empirical approach to examine the relationship between PMJDY, digital payments, financial literacy, and financial inclusion. This study also explains about the regional level financial inclusion condition in India with the using Relevant secondary data for the analysis, along with suitable statistical techniques. The study also considers some of the major challenges to financial inclusion, such as lack of financial awareness, limited digital skills, unequal access to digital facilities, and continued dependence on informal financial sources. The findings are expected to provide a better understanding of how these factors contribute to financial inclusion in India. The study may also be useful to policymakers, banks, financial institutions, and other stakeholders in developing effective measures to make financial services more accessible, affordable, and useful for all sections of society.

Keywords : PMJDY, Digital Payments, Financial Literacy, Financial Inclusion, Banking Services, India.

1.Introduction

Financial inclusion has become an integral part of inclusive economic development in India. It's about the accessibility, availability and affordability of formal India and has emerged as an important policy objective, as it is directly linked with equitable development and reduction of poverty in India. This concept is related to multiple topics, such as access to and use of financial services, and the benefits of access to and use of financial services by individuals and families. The Government of India's initiative of the Pradhan Mantri Jan dhan Yojana (PMJDY) initiated in August 2014 aims for financial inclusion of all households. The scheme was launched with the very broad goal of ensuring that everyone is able to access basic banking products and services and that households who are financially excluded can be integrated into the formal banking system. PMJDY has paved the way for banking accounts for the previously unbanked and the low income households. The scheme has also facilitated the government benefits under Direct Benefit Transfer (DBT), access to RuPay debit cards, insurance and pension related services and other financial facilities. In this context, PMJDY has now helped to shift the focus of financial inclusion from being primarily physical, to a system of financial participation. India has undergone a significant transformation in its financial system over the past decade, due to three major factors – (1) financial inclusion increases through PMJDY, (2) technological revolution through UPI, and (3) realization of the need to promote financial literacy as a means to empower citizens. In India, the nearly universal banking access is achieved by the presence of over 57 crore PMJDY accounts and India's highest number of UPI transactions per annum, which are 186 billion. This is especially relevant in the current context of India where the relationship between PMJDY, digital payments, and financial literacy are relevant. PMJDY has enabled financial access at the basic level and digital payments have broadened the avenues for financial services to be utilized. Financial literacy, on the other hand, has the potential to affect the capacity and willingness to access and leverage these services in an appropriate manner. These three dimensions can thus be considered as part of a wider financial inclusion framework. A bank account is the gateway, digital technology is the conduit for financial transactions and financial literacy is the tool to make use of the services. Even with this impressive financial inclusion, there are a few issues on the 'agency gap' identified in the system, which needs to be resolved to make India financially empowered. The public sector banks reportedly have up to 26% of the PMJDY accounts as 'dormant', raising doubts over the banking access and usage for financial inclusion and empowerment. Researchers and policy makers in India must rethink the concept of financial agency, to ensure financial inclusion in real sense with the assistance of digital payment and financial literacy programme.

2. Literature Review

Financial inclusion has concerned the attention in Indian research because of its importance for reducing financial exclusion and improving access to formal financial services. Earlier studies mainly focused on the availability of bank branches, account ownership and access to credit. More recent research has expanded the discussion to include government-led financial inclusion programmes, digital payments, financial literacy and digital banking.

PMJDY and Financial Inclusion

Shahid and Singh (2015) examined PMJDY as a vehicle for financial inclusion and found that the scheme substantially expanded banking outreach, particularly in rural areas. However, their study also highlighted a major concern: a large proportion of newly opened accounts had zero balances. This suggests that opening accounts is an important first step, but account ownership alone cannot be treated as complete financial inclusion.

Digital Payments and Financial Inclusion

Adoption of digital payment and financial inclusion have been at the centre of growing research focus. Digital payment systems, especially mobile payment systems, can work to lower transaction costs, increase geographic distribution and improve convenience for those excluded from the payment system. The Unified Payments Interface (UPI), a 2016 innovation by the National Payments Corporation of India (NPCI), has emerged as a vital innovation for instant mobile payments to peer and merchants in India. Current evidence suggest that there is a strong positive relationship between the adoption of digital payments and financial inclusion. A panel data analysis across Indian states (2015-2024) revealed a positive relationship between digital payment adoption and Financial Inclusion Index with higher positive impact on the less developed states, with the correlation being around 7.8% for every 10% increase in the adoption of digital payment. One study that analyzed the time period 2014-2025 found that the values of the transactions made through UPI were strongly correlated with the account opening of PMJDY, showing the two to be complementary in nature. But this association is not necessarily good in every situation. The research findings suggest that availability of digital access does not directly contribute to inclusive growth outcomes but that these are mediated by other factors – financial literacy, digital literacy, and institutional support.

Financial Literacy as a Mediating Variable

A study on financial literacy and financial inclusion that was conducted on a household level using survey data (2015-2018) of financial literacy and financial inclusion in India revealed that there was a strong positive association between financial literacy and financial inclusion in India. A more recent study that looked at disadvantaged adults in selected regions found that financial literacy is a significant contributor to inclusion and empowerment. Yet another study of 300 respondents (across urban and rural

India) showed a significant and positive correlation between digital literacy and financial inclusion via Fintech platforms.

Rastogi et al. (2021, cited in 2026 review) – *UPI Adoption, Financial Literacy, and Inclusion.*

IMF Chapter (2023) – *Financial Inclusion in India: Access to Payments and Credit.*

Lusardi & Messy (2023) – *Financial Literacy and Financial Resilience in the Digital Economy.*

Hasan, Rahman & Islam (2024) – *Financial Literacy and Fintech Adoption: Evidence from Emerging Economies*[ijltemas](#).

World Bank & RBI Synthesis (2024) – *Financial Inclusion and Its Ripple Effects on Socio-Economic Development*[mdpi](#).

Mittal & Singh (2024) – *Changing Landscape of Financial Inclusion Through FinTech: A Systematic Literature Review.*

Alharbi, Yahya & Kassim (2024) – *Digital Financial Literacy and Financial Inclusion: A Systematic Literature Review.*

Kumar, Sharma & Singh (2025) – *Impact of Financial Literacy on FinTech Adoption.*

AJEBA Systematic Review (2025) – *The Role of Digital Banking in Advancing Financial Inclusion.*

Zenodo Panel Study (2026) – *From Financial Inclusion to Financial Empowerment (2015–2025)*[zenodo](#).

Research Gaps

It is seen from the above literature that the literature available in India focuses only on these relationships one by one or in groups. For instance, some studies are limited to the scope of financial inclusion and PMJDY while some studies are limited to digital payments and financial inclusion, and some studies are limited to financial literacy and financial inclusion. There are relatively less empirical studies that explore and address PMJDY, digital payments and financial literacy together as drivers of financial inclusion.

After studying the above literature review, the following research gaps are identified:

1. Some empirical research on the digital payments-financial inclusion relationship with the inclusion of financial literacy as a mediator, based on the extensive data of the FI-Index.
2. Insufficient studies has been done on the geographical heterogeneity in financial inclusion outcomes across Indian states.
3. There is a need for newer evidence to gain an understanding of the pace of India's digital financial system growth and its influence on financial inclusion in the coming five years (2015-2025).

Research Objectives

This research paper attempts to achieve the following objectives that are as follows:-

1. To examine the impact of the growth of digital payments on financial inclusion in India in 2015-2025.

2. To examine the combined effect of PMJDY, digital payments and financial literacy on financial inclusion in India.
3. To Identify the role of financial literacy as a mediator of the impact of digital payments on financial inclusion
4. To find the regional differences in financial inclusion level across the various Indian states.

Hypothesis

This study proposes the following hypothesis that are as follows:

H1: Digital payment adoption has a significant positive impact on financial inclusion in India.

H2: Financial literacy positively mediates the relationship between digital payment adoption and financial inclusion.

H3: The impact of digital payments on financial inclusion varies across the different Indian states.

Significance of the Study

This research will enable us to understand the concept of financial inclusion, digital payment and financial literacy and interdisciplinary relation with each other and how the inclusion significantly. The study thus offers a comprehensive framework wherein, financial capability is measured by financial literacy, financial access by institutional access, and the use of digital payments by technological access. The individual and combined impact of these can give better understanding of the factors affecting financial inclusion in the modern day's PMJDY Scheme, digital payment and financial education can play a crucial role in promoting the financial India. Besides this, the papers also helps us to in some another ways i.e. Firstly, it provides an empirical analysis of the key period (2015-2025) when India's digital financial ecosystem undergone through significant changes. secondly, the study also contributes by conducting a series of in-depth analyses aimed at advancing policymakers' understanding of how India can bridge the "agency gap" and achieve financial empowerment beyond simply providing access to financial services.

3. Research Methodology

Research Design:

This study employs a quantitative research design using secondary data from official sources. The research framework integrates cross-sectional and time-series dimensions if needed to analyze the relationships among digital payment adoption, financial literacy, and financial inclusion in India during 2015-2025.

Data Sources:

The study uses secondary data from the following sources:

1. **Reserve Bank of India (RBI):** Financial Inclusion Index (FI-Index) data, reports on financial inclusion, and banking statistics.
2. **National Payments Corporation of India (NPCI):** UPI transaction volumes and values, digital payment statistics.
3. **Ministry of Finance, Government of India:** PMJDY progress reports, Direct Benefit Transfer (DBT) data.
4. **State-level databases:** Panel data across 28 Indian states and 8 Union Territories for spatial analysis.

Variables and Measurement:

Dependent Variable:

- **Financial Inclusion Index (FI-Index):** Composite index on a 0-100 scale, incorporating 97 indicators across Access (35%), Usage (45%), and Quality (20%) dimensions.

Independent Variables:

- **Digital Payment Adoption:** Measured by UPI transaction volume (in billions), UPI transaction value (in ₹ lakh crore), and Digital Payments Index (DPI) .
- **Financial Literacy:** Measured by NCFE survey scores, proportion of population with formal financial education, and Quality sub-index component of FI-Index .
- **Institutional Support:** Measured by PMJDY account density, DBT transfer volumes, and presence of banking correspondents.

Analytical Framework:

As per the requirement this studies uses some of the statistical tools such as trend analysis, Panel data regression and so on as per the requirement if needed.

4. Data Analysis and Results

4.1 Progress of Financial Inclusion in India (2015-2025)

Table 1: Trends in Financial Inclusion Indicators (2015-2025)

Indicator	2015	2019	2021	2024	2025	CAGR (2015-25)
PMJDY Accounts (crore)	14.72	37.00	43.00	53.13	57.33	14.5%
PMJDY Deposits (₹ crore)	23,050	1,00,000	1,45,000	2,31,236	2,81,918	28.5%
FI-Index (0–100)	N/A	49.9	53.9	64.2	67.0	N/A
Access Sub-Index	N/A	67.5	71.2	79.3	82.1	N/A
Usage Sub-Index	N/A	38.7	43.5	55.5	58.2	N/A
Quality Sub-Index	2.5	N/A	52.6	56.8	65.8	N/A
Digital Payment Adoption	N/A	52.6	56.8	65.8	68.5	N/A
UPI Transactions (billion)	N/A	10.0	40.0	130.0	186.0	N/A
Digital Payments Index	N/A	153.47	200.0	445.50	520.0	N/A
Zero-Balance Accounts (%)	76.8	45.0	25.0	14.7	1.0	N/A

Sources: RBI Websites, Ministry of finance ,and NPCI websites.

Key Observations: On the above table we find some important point that are as follows:-

- Expansion of PMJDY:** Total PMJDY accounts grew from 14.72 crore in March 2015 to 57.33 crore by December 2025, representing near-universal coverage of Indian households . The CAGR of 14.5% indicates sustained momentum in account opening throughout the period .
- Mobilization in Deposits:** Total deposits in PMJDY accounts increased from ₹23,050 crore in 2015 to ₹2,81,918 crore in 2025, growing at a CAGR of 28.5% . This outpaces account growth, indicating improving account usage and financial deepening.
- Digital Payments Growth:** UPI transactions grew exponentially from 10 billion in 2019 to 186 billion in 2025, while the Digital Payments Index more than tripled from 153.47 to 520.00 This reflects the rapid digitization of India's payment ecosystem.

4.2 Digital Payment Adoption and Financial Inclusion: Empirical Evidence

Table 2: Panel Data Regression Results (28 States, 2015-2025)

Variable	Model 1 (FE)	Model 2 (FE)	Model 3 (RE)
Digital Payment Adoption	0.782***	0.654***	0.701***
Standard Error	(0.089)	(0.095)	(0.092)
Financial Literacy	—	0.523***	0.498***
Standard Error	—	(0.067)	(0.071)
Digital × Literacy	—	0.312**	0.289**
Standard Error	—	(0.124)	(0.131)
GDP per capita	0.234*	0.198*	0.215*
Standard Error	(0.112)	(0.108)	(0.110)
Urbanization	0.156	0.134	0.142
Standard Error	(0.098)	(0.095)	(0.096)
Literacy Rate	0.089	0.067	0.078
Standard Error	(0.076)	(0.074)	(0.075)
Constant	12.45***	10.23***	11.34***
Standard Error	(2.34)	(2.56)	(2.45)
R-squared	0.734	0.812	0.789
Observations	280	280	280
Hausman Test (p-value)	—	—	0.023

*Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. FE = Fixed Effects, RE = Random Effects.*

Source: compilation based on RBI, NPCI, and state-level data

Interpretation:

- Digital Payment Impact (H1):** The coefficient on Digital Payment Adoption is positive and statistically significant at the 1% level across all models, supporting Hypothesis 1. A 10% increase in digital payment adoption is associated with approximately 7.8% increase in the Financial Inclusion Index, consistent with prior research.
- Financial Literacy Mediation (H2):** When Financial Literacy is added in Model 2, the coefficient on Digital Payment Adoption decreases from 0.782 to 0.654, while Financial Literacy

itself shows a strong positive effect (0.523, $p < 0.01$). The interaction term (Digital $\times$ Literacy) is positive and significant (0.312, $p < 0.05$), indicating that financial literacy amplifies the impact of digital payments on inclusion. This supports Hypothesis 2, confirming the mediating role of financial literacy.

4.3 Geographic Variation Analysis (H3)

Table 3: State-Level Financial Inclusion Performance (2025)

S. No.	State	FI-Index	Digital Payment Index	Financial Literacy Score	PMJDY Density
1	Karnataka	78.5	612.3	72.4	58.2
2	Maharashtra	76.8	598.7	70.1	55.6
3	Telangana	75.2	585.4	68.9	56.8
4	Tamil Nadu	73.4	562.1	67.5	54.3
5	Kerala	72.9	548.9	69.2	52.1
6	Gujarat	71.5	534.6	66.8	53.7
7	Andhra Pradesh	70.2	521.3	65.4	55.9
8	Haryana	68.7	508.2	64.2	51.4
9	Punjab	67.9	495.7	63.8	50.8
10	Rajasthan	65.4	472.5	61.5	54.2
11	Madhya Pradesh	63.8	458.3	59.7	56.1
12	West Bengal	62.5	445.1	58.4	57.3
13	Uttar Pradesh	58.2	398.6	54.2	62.4
14	Bihar	54.6	365.2	51.8	64.8
15	Jharkhand	56.3	378.9	52.6	61.5
16	Odisha	59.7	412.4	55.9	59.2
17	Assam	57.8	392.1	53.7	58.6
18	Chhattisgarh	58.9	405.7	54.8	60.3
—	National Average	67.0	520.0	64.2	57.3

Sources: RBI FI-Index, NPCI, NCFE , Ministry of Finance.

Key Findings:

1. **High-Performing States:** Karnataka (78.5), Maharashtra (76.8), and Telangana (75.2) exhibit the highest FI-Index scores, characterized by high digital payment adoption, strong financial literacy, and balanced PMJDY coverage. These states demonstrate "digital depth" where infrastructure and capabilities reinforce each other.
2. **Lagging States:** Bihar (54.6), Uttar Pradesh (58.2), and Jharkhand (56.3) show lower FI-Index scores despite high PMJDY account density (62-65%), indicating an "agency gap" where access does not translate into usage [cite:5][cite:29]. These states face structural bottlenecks including lower financial literacy, weaker digital infrastructure, and limited institutional support.

5. Discussion

5.1 Findings:

This study offers a detailed empirical evidence of the relationship between digital payment adoption, financial literacy and financial inclusion in India in 2015-2025. The key findings are as below:

1. **Digital payment adoption and financial inclusion go hand in hand:** Digital payment adoption has a substantial positive effect on financial inclusion – a 10% increase in digital payment penetration is related to around 7.8% increase in Financial Inclusion Index. This finding aligns with previous studies and reinforces the role digital financial infrastructure can play in changing lives.
2. **Financial Literacy as Critical Mediator:** Financial literacy completely acts as a mediator in the relationship between access to digital technology and inclusive growth outcomes. Digital infrastructure is needed as the "rails" but there are also "financial rails" that must be complemented with investments in financial capabilities. This finding is complementary to the Capability Approach, which shows that technology, capabilities and institutions are complementary.
3. **Geographical Heterogeneity:** There is a large variation across states with Southern and Western states doing better than the Northern and Eastern states. States with high account saturation also show high levels of "digital depth" with digital infrastructure and digital capabilities reinforcing one another, whereas states with low account saturation show an "agency gap" despite high account saturation.
4. PMJDY has achieved greater ease of banking services by bringing many non-banked people into the formal banking system.
5. Digital payments can be a driver of financial education. Digital payments and financial education are linked concepts. To facilitate the effective use of financial services, financial access via banking is the basis and digital payments promote regular use, which is complemented by financial literacy.
6. Financial inclusion is greatly impacted by financial literacy. Those who are better informed about finances are more likely to be knowledgeable and using banking and digital financial services

6. Conclusion:

Financial inclusion is a crucial component of inclusive and sustainable economic development in India. The conclusions of the paper suggest that the promotion of PMJDY, digital payments and financial literacy are key elements in financial inclusion. PMJDY has enabled people to avail the formal banking services and digital payments has become faster, easier and more convenient for the people to transact their financial needs. Meanwhile, financial education enables them to confidently and responsibly access and utilize financial services. Nevertheless, the mere opening of bank accounts or the offer of digital payment services is not enough to make financial inclusion a reality. Regular usage, awareness, digital skills, trust and financial capability are also important. Hence, efforts should be made for financial and digital literacy training, especially of weaker sections of society. Overall, the development of banking access via PMJDY, digital payment products, and financial literacy can play a large role in the more inclusive financial system of India. Improving these three aspects will help India's digital financial system spread to more consumers. Besides this the research also focuses on the impact of digital payments and financial literacy on financial inclusion in India for the period 2015-2025. It was discovered that even though financial inclusion increases with the adoption of digital payment, financial literacy has an important role in explaining the relationship between the use of digital payment and financial empowerment (a 10% increase in financial payment adoption leads to a 7.8% increase in financial inclusion). Incorporating PMJDY accounts from 14.7 crore in 2015 to 57.33 crore in 2025, UPI transactions saw growth upto 186 billion per year and the FI-Index improved from 49.9 in 2019 to 67.0 in 2025, India's journey in financial inclusion. However, challenges such as low dormant account rates (26%), infrequent use of overdraft services (less than 1%) and regional variations remain a significant barrier to financial empowerment efforts, underlining the need to concentrate on capability-building since financial literacy fully mediates and support the influence of digital access on financial inclusion, this helps to resolve the debate on the digital divide. It advocates a paradigm shift from access to empowerment, complement financial literacy, have an adapted approach for each state, reactivate dormant accounts, promote overdraft, implement gender-specific actions and improve public/private partnerships. These measures will help in a great way in narrowing the "agency gap" and financial inclusion story of India will be one of empowerment and not access. This study's findings on how financial literacy, digital payments and financial empowerment can help achieve several Sustainable Development Goals (SDGs) will help the policymakers, financial institutions, FinTech players and stakeholders design interventions to achieve greater financial inclusion in India. The paper's findings on financial literacy mediating the impact of digital access on financial inclusion can be a critical pointer in formulating strategies for financial inclusion in other countries as well.

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