

Does Financial Inclusion Lead To State-Level Economic Growth?

A Comparative Study Of Karnataka, Maharashtra, And Bihar (2011–2023)

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Abstract—This study examines the relationship between financial inclusion and economic growth across three Indian states—Karnataka, Maharashtra, and Bihar—during 2011–2023. These states represent varying levels of development and financial penetration. Using secondary data and regression models, the analysis highlights how Jan Dhan account expansion and UPI adoption influence state-level GSDP growth. To enrich the analysis, a primary survey conducted in Mumbai provides micro-level insights on banking access, digital payments, and trust in financial services. Findings suggest positive impacts in Karnataka and Maharashtra, while Bihar lags due to infrastructural gaps, emphasizing the need for region-specific, inclusive policy measures.

I. INTRODUCTION

India's push for financial inclusion, particularly after the launch of the Pradhan Mantri Jan Dhan Yojana (PMJDY) in 2014 and the Unified Payments Interface (UPI) in 2016, has sought to democratize access to financial services by promoting banking outreach and digital payments. These reforms have not only enhanced access to formal banking but also encouraged a shift towards a cashless economy. However, the outcomes of such initiatives have not been uniform across states, reflecting differences in infrastructure, awareness, and digital adoption. This paper focuses on three states—Karnataka, Maharashtra, and Bihar—which represent contrasting levels of development. Karnataka stands out as digitally advanced with strong technology adoption, Maharashtra is financially strong with deep banking networks, while Bihar continues to lag in both digital infrastructure and financial outreach. By examining how financial inclusion influences Gross State Domestic Product (GSDP) growth in these states, the study attempts to highlight regional disparities and the need for targeted policy interventions.

II. LITERATURE REVIEW

Chakrabarty (2013), as RBI Deputy Governor, identified financial inclusion as essential for equitable growth in India, particularly in rural and semi-urban areas with limited banking reach. He stressed that access to savings, credit, insurance, and remittances is a necessity for reducing poverty, since exclusion restricts households from investing, managing risks, or stabilizing consumption. Importantly, he argued that inclusion must extend beyond account ownership to ensure active and meaningful usage, supported by financial literacy, consumer protection, and affordable products. He also highlighted the duty of banks and policymakers to build inclusive infrastructure through technology-driven models and simplified KYC. By framing inclusion as a developmental mandate, Chakrabarty aligned with global findings that real impact comes from quality and sustained financial use.

Suri and Jack (2016) examined the impact of Kenya's M-Pesa mobile money system, showing how digital finance can reduce poverty and strengthen household resilience. Their study found that access to mobile money enabled safer, quicker, and cheaper transactions, allowing families to smooth consumption during shocks and encouraging occupational mobility. Notably, female-headed households benefitted the most, often shifting into non-agricultural businesses, which improved income stability and long-term security. The authors estimate that nearly 2% of Kenyan households were lifted out of extreme poverty due to M-Pesa. By creating a trusted ecosystem of liquidity and risk-sharing, mobile money emerged as both a technological and social innovation, advancing inclusion, reducing inequality, and empowering women.

Tripathi, Yadav, and Shastri (2016) critically assess the Pradhan Mantri Jan Dhan Yojana (PMJDY) as a tool for advancing financial inclusion in India, using statistical data to evaluate its reach and performance. Their study highlights the rapid growth of bank account penetration following the scheme's launch, particularly among rural households and marginalized communities that had previously remained outside the formal banking system. The authors argue that PMJDY has made a measurable contribution by expanding access to savings facilities, enabling direct benefit transfers, and reducing dependence on informal moneylenders. However, they also note challenges such as account dormancy, limited financial literacy, and inadequate awareness about associated benefits like insurance and overdraft facilities. The research concludes that while PMJDY represents a significant step toward inclusive finance, its long-term effectiveness depends on sustained account usage, capacity-building initiatives, and supportive policy measures that integrate the unbanked population into the broader financial ecosystem.

Demirgüç-Kunt, Klapper, and Singer (2018) provide a global perspective on the role of household finance in development, using Global Findex data to assess access and usage of formal financial services. They highlight that while account ownership has expanded significantly, especially with digital platforms, many households remain financially excluded or underutilize services. The study emphasizes that meaningful inclusion requires more than opening accounts—it depends on effective use of payments, savings, credit, and insurance to improve welfare. Evidence shows that digital payments and mobile money lower transaction costs and expand access, while savings accounts tailored to low-income groups foster investment and consumption. In contrast, microcredit has shown limited short-term effects on household income, suggesting credit alone cannot drive poverty reduction. The authors stress that consumer protection, financial literacy, and supportive digital infrastructure are essential for translating financial access into long-term economic security, resilience, and inclusive growth.

The World Bank (2018) highlights financial inclusion as a cornerstone of sustainable development, linking it directly to higher productivity, resilience, and economic security. According to its Global Findex findings, expanding access to formal financial services

enables households to save safely, invest in education and businesses, and manage financial shocks more effectively. The report emphasizes that digital finance, especially mobile payments, has accelerated inclusion by lowering transaction costs and expanding reach in underserved regions. By improving access and usage, financial inclusion not only enhances individual well-being but also supports broader goals of poverty reduction and inclusive economic growth.

III. OBJECTIVES

1. To evaluate the extent of financial inclusion in Karnataka, Maharashtra, and Bihar using indicators like Jan Dhan penetration, UPI usage, bank density, and internet access.
2. To analyze the relationship between financial inclusion and economic growth, assessing whether active usage of financial services drives higher GSDP growth.
3. To compare regional disparities in financial access across states and propose policy measures for improving inclusion in underperforming regions like Bihar.

IV. HYPOTHESIS

- Hypothesis 1: Extent of Inclusion across States.
 - Null Hypothesis (H_{01}): There is no significant difference in the level of financial inclusion (measured through Jan Dhan penetration, UPI usage, bank density, and internet access) among Karnataka, Maharashtra, and Bihar.
 - Alternative Hypothesis (H_{11}): There is a significant difference in the level of financial inclusion among Karnataka, Maharashtra, and Bihar.
- Hypothesis 2: Financial Inclusion and Growth.
 - Null Hypothesis (H_{02}): Financial inclusion indicators have no significant relationship with Gross State Domestic Product (GSDP) growth in Karnataka, Maharashtra, and Bihar.
 - Alternative Hypothesis (H_{12}): Financial inclusion indicators have a significant positive relationship with GSDP growth in Karnataka, Maharashtra, and Bihar.
- Hypothesis 3: Regional Disparities.
 - Null Hypothesis (H_{03}): There are no significant regional disparities in financial inclusion levels across the three states, and Bihar does not lag significantly behind Karnataka and Maharashtra.
 - Alternative Hypothesis (H_{13}): There are significant regional disparities in financial inclusion, with Bihar showing comparatively lower levels than Karnataka and Maharashtra.

V. SCOPE OF THE STUDY

This research focuses on examining the impact of financial inclusion on economic growth in three Indian states—Karnataka, Maharashtra, and Bihar—between 2011 and 2023. The study integrates secondary data, including GSDP, UPI transactions, and PMJDY accounts, with primary survey evidence from Mumbai to capture urban financial behaviour. While the scope is limited to these states, they represent varying levels of development, allowing meaningful comparisons and insights into how financial inclusion initiatives influence state-level growth trajectories.

VI. LIMITATIONS

This study faces limitations due to reliance on secondary data with gaps in consistency and state-level detail. Primary data is restricted to Mumbai, limiting wider representation. Financial inclusion's broader dimensions, like credit and literacy, remain underexplored. Simple regression indicates correlation, not causation, making findings a contextual snapshot.

VII. RESEARCH METHODOLOGY

Research Design

The study adopts a comparative mixed-methods approach, combining secondary data analysis with primary survey insights. This allows both macro-level state comparisons and micro-level urban perspectives.

Data Sources

1. Primary Data: A structured questionnaire survey conducted in Mumbai via Google forms, capturing perceptions on banking access, digital payment usage, financial trust and barriers faced.
2. Secondary Data (2011-2023):
 - a. Gross State Domestic Product (GSDP) data - MOSPI.
 - b. Jan Dhan Yojana accounts, banking penetration - RBI & Government Reports.
 - c. Digital payment indicators (UPI, debit/credit card usage) - NPCI.

Sampling Methods

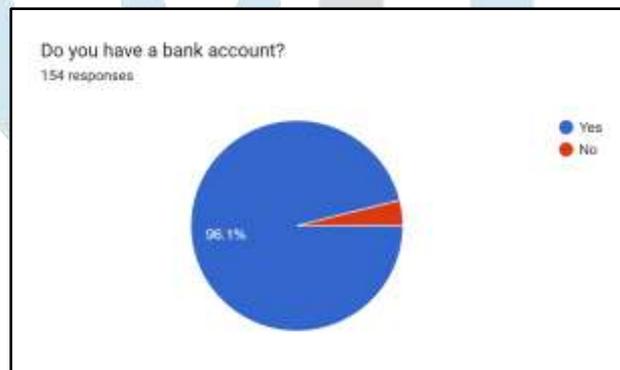
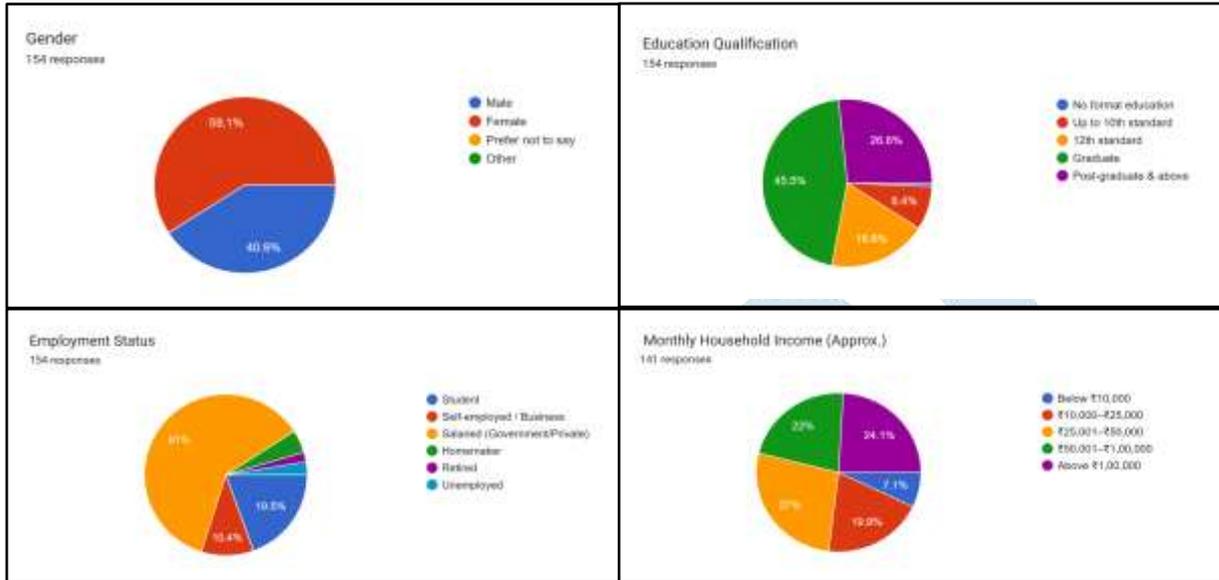
- Technique: Convenience sampling.
- Sample Size: ~150 respondents.
- Coverage: Diverse groups in terms of age, gender, occupation, and income to capture inclusivity.
- Justification: Mumbai acts as a proxy for Maharashtra's urban financial ecosystem.

Analytical Tools

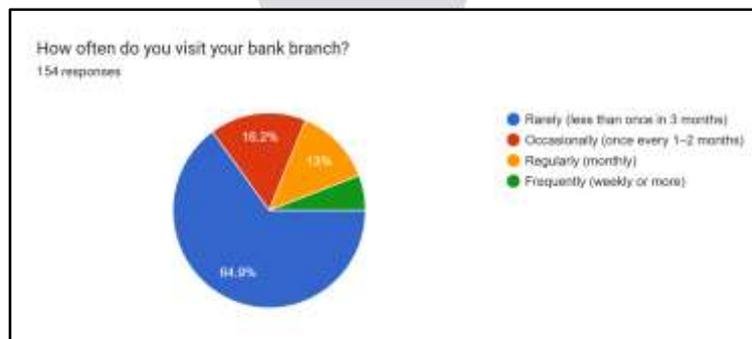
- Quantitative: Regression analysis of secondary data to measure the effect of financial inclusion indicators on GSDP growth.
- Qualitative: Interpretation of survey responses to highlight behavioral, infrastructural, and trust-related barriers.

VIII. DATA ANALYSIS AND FINDINGS

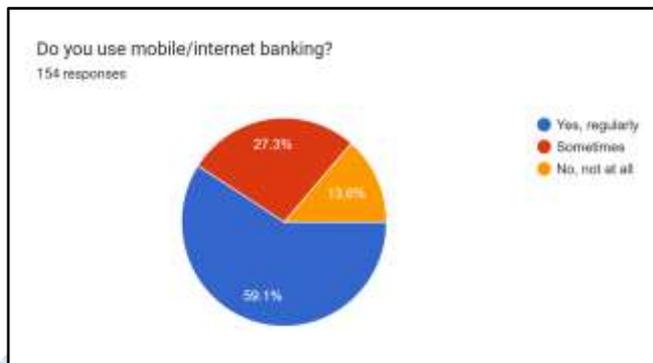
- *Primary Data:*
 - *State: Maharashtra*



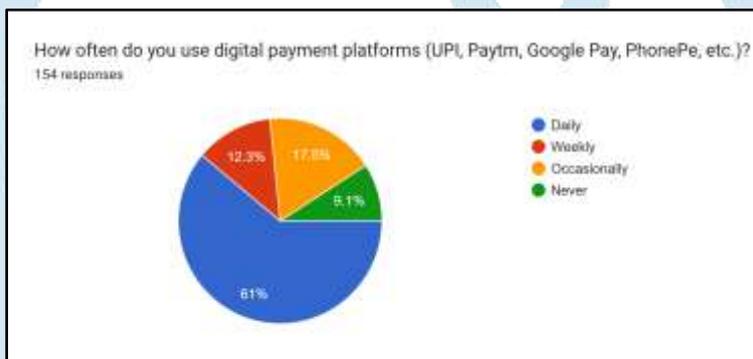
Bank Account Ownership: Almost all respondents (96.1%) have a bank account, reflecting near-universal basic financial access in urban Maharashtra. This shows the effectiveness of banking penetration in cities.



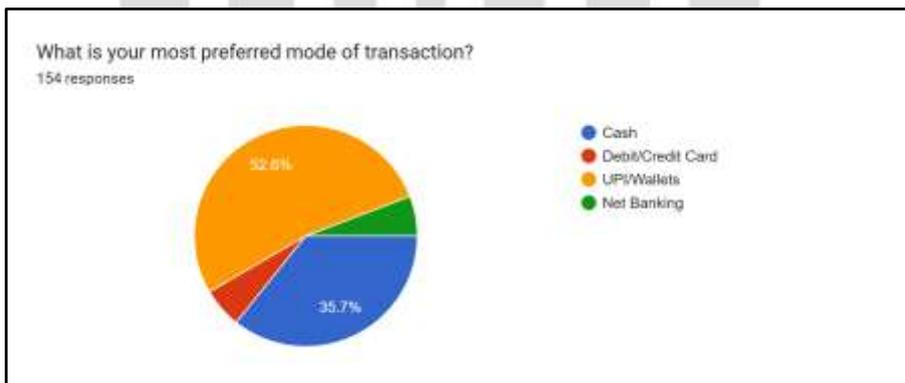
Bank Visits: Nearly 65% visit bank branches rarely, indicating a shift towards digital and remote banking, with physical visits becoming less common.



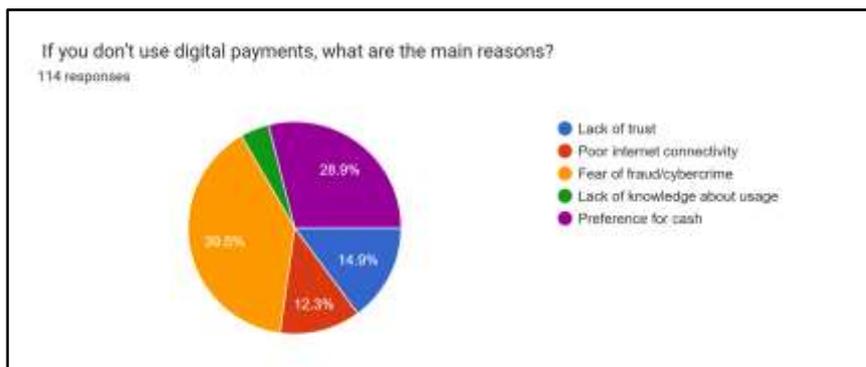
Mobile/Internet Banking Usage: Around 59% use it regularly, but a notable 27% do not use it at all, suggesting a digital divide even in urban areas.



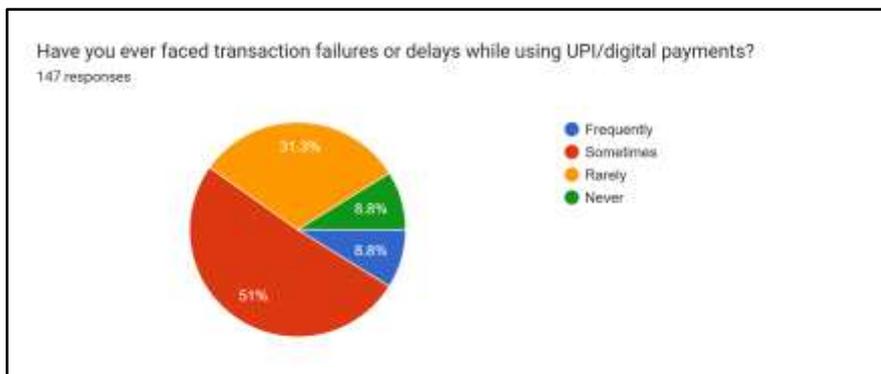
Digital Payment Platforms: Daily usage is high at 61%, showing UPI and wallets are the dominant form of financial transactions in urban Maharashtra.



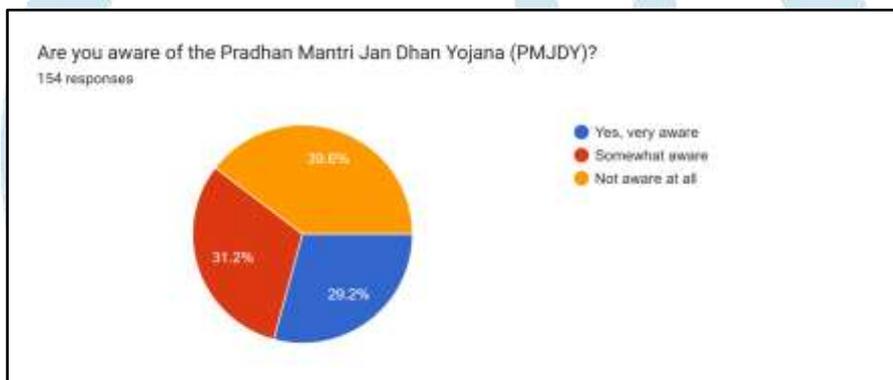
Preferred Transaction Mode: UPI/Wallets are the top preference (52.6%), followed by cash (35.7%), highlighting strong digital adoption but persistence of cash.



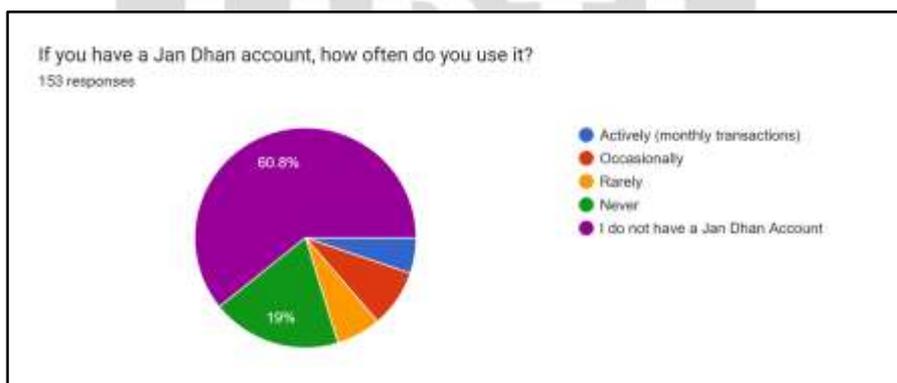
Non-usage of Digital Payments: The main reasons are fear of fraud/cybercrime (39.5%) and preference for cash (28.9%), indicating trust and security issues.



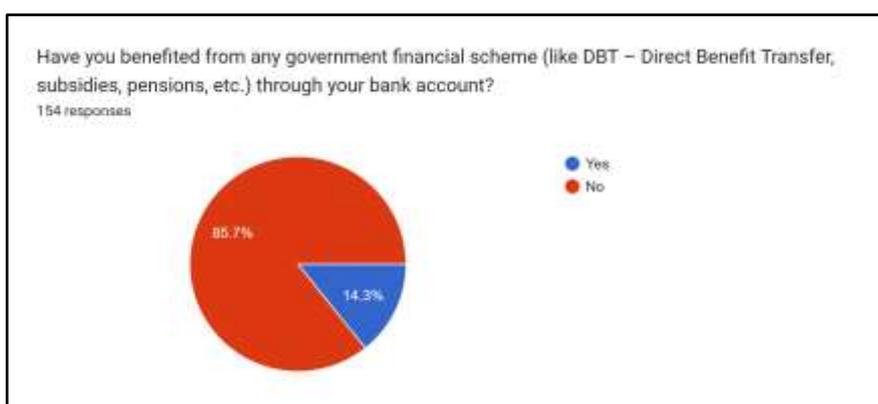
Transaction Failures: Over half (51%) face issues sometimes, showing operational inefficiencies in digital systems.



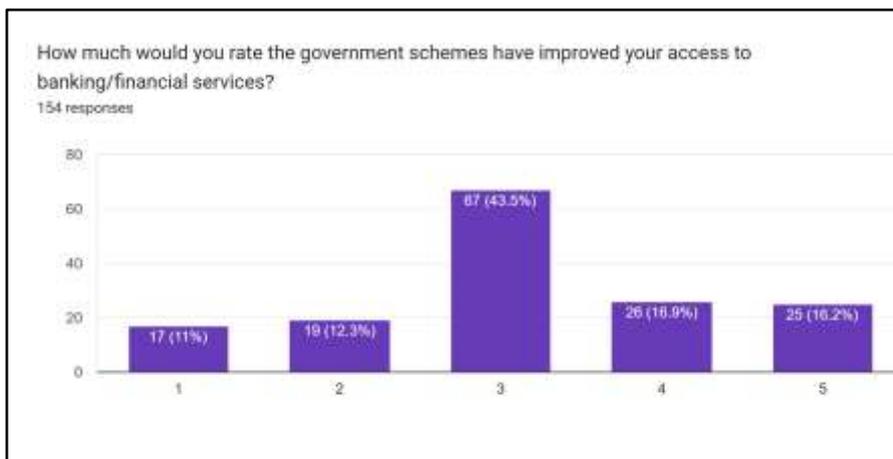
Awareness of PMJDY: Only 29% are very aware, while 39.6% are not aware at all, reflecting low awareness of government schemes despite urban setting.



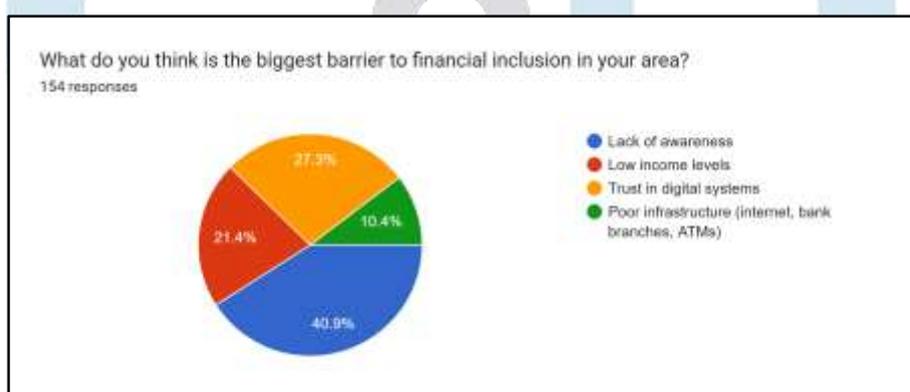
Usage of Jan Dhan Accounts: 60.8% reported not having a Jan Dhan account, suggesting the scheme has limited relevance for urban populations.



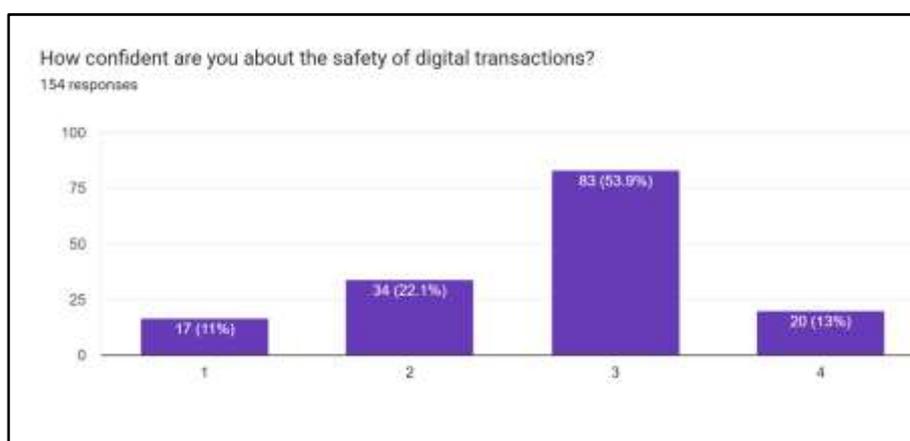
Government Scheme Benefits (DBT, subsidies, etc.): Only 14.3% benefitted, implying weak scheme penetration among urban middle-class respondents.



Effectiveness of Schemes: Majority (43.5%) rated the impact as average (score 3), showing mixed perceptions of how schemes improve access.



Barriers to Financial Inclusion: Lack of awareness (40.9%) and trust in digital systems (27.3%) emerged as the biggest challenges.



Confidence in Digital Transactions: About 54% rate their confidence at moderate (3/5), indicating caution and partial trust in digital finance.

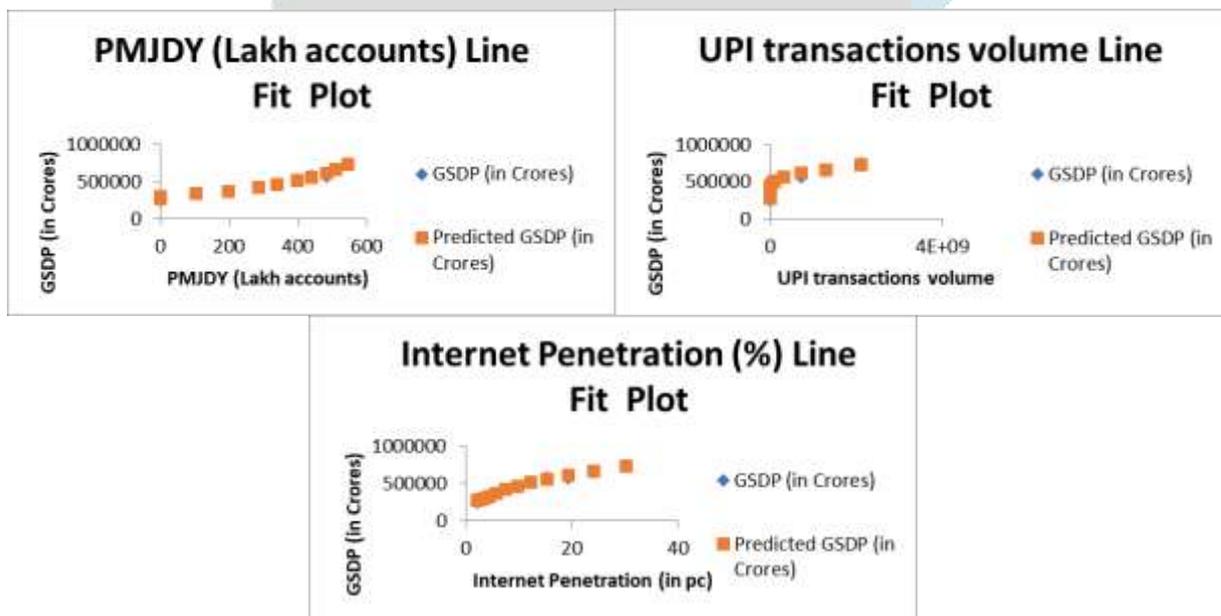
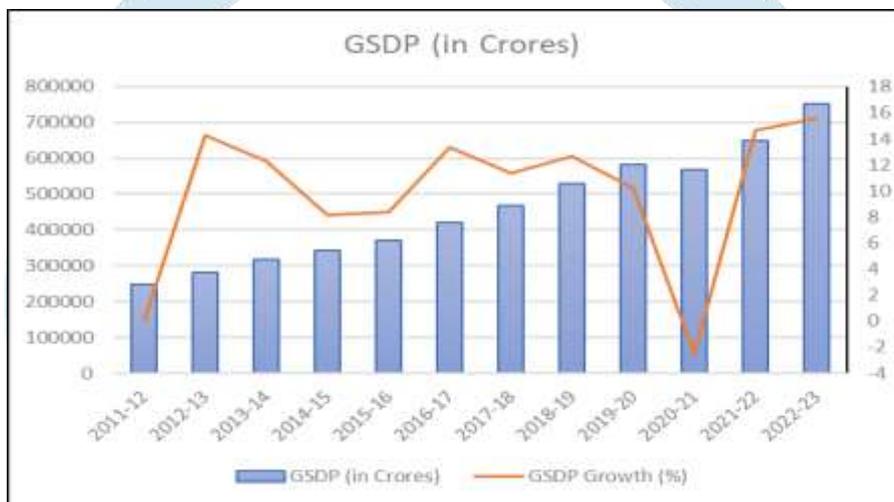
The Mumbai survey highlights that financial access in urban Maharashtra is almost universal, with very high adoption of UPI and digital payments, validating secondary data findings. However, barriers such as low awareness of government schemes, security concerns, and moderate confidence in digital systems persist. This suggests that while financial inclusion has advanced substantially in Maharashtra’s urban centers, awareness and trust gaps limit its full contribution to economic growth. When compared with Bihar and Karnataka, Maharashtra stands ahead of Bihar in both access and usage but slightly behind Karnataka in terms of digital confidence and IT-driven inclusivity.

- *Secondary Data:*
 - *Variables:*
 - **Dependent Variable:** Gross State Domestic Product (GSDP)

- Independent Variables:
 - PMJDY accounts.
 - UPI transactions volume.
 - Internet Penetration (%)
- Panel Regression Model:

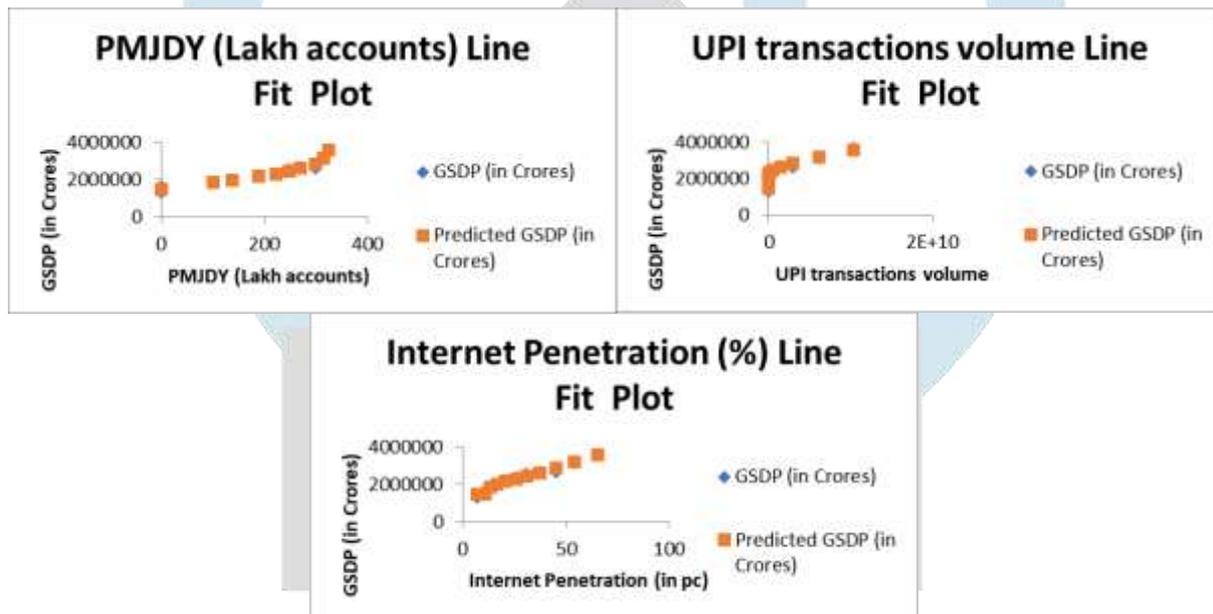
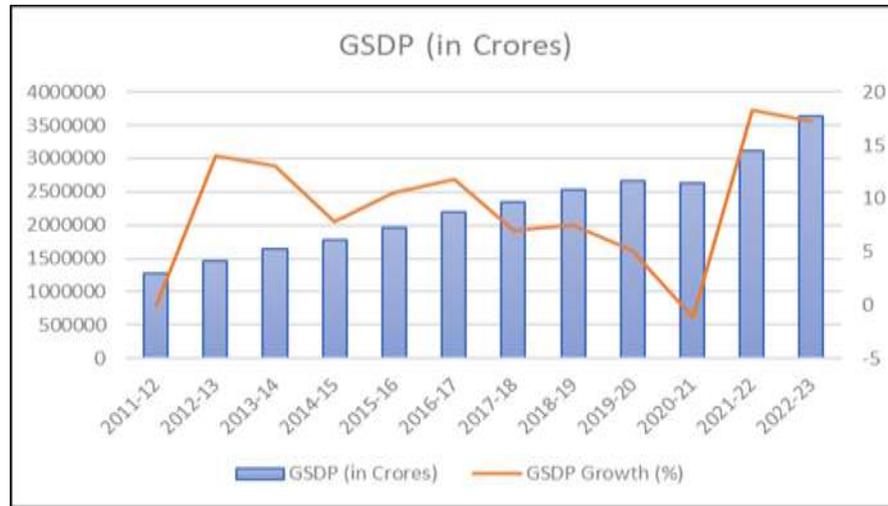
Using the above variables, OLS regressions analysis was run separately for each state. The equation used for the analysis is given below:

$$GSDP_i = \alpha + \beta_1 \text{JanDhan}_i + \beta_2 \text{UPI}_i + \beta_3 \text{Internet Penetration}_i + \mu_i$$
- State: Bihar.



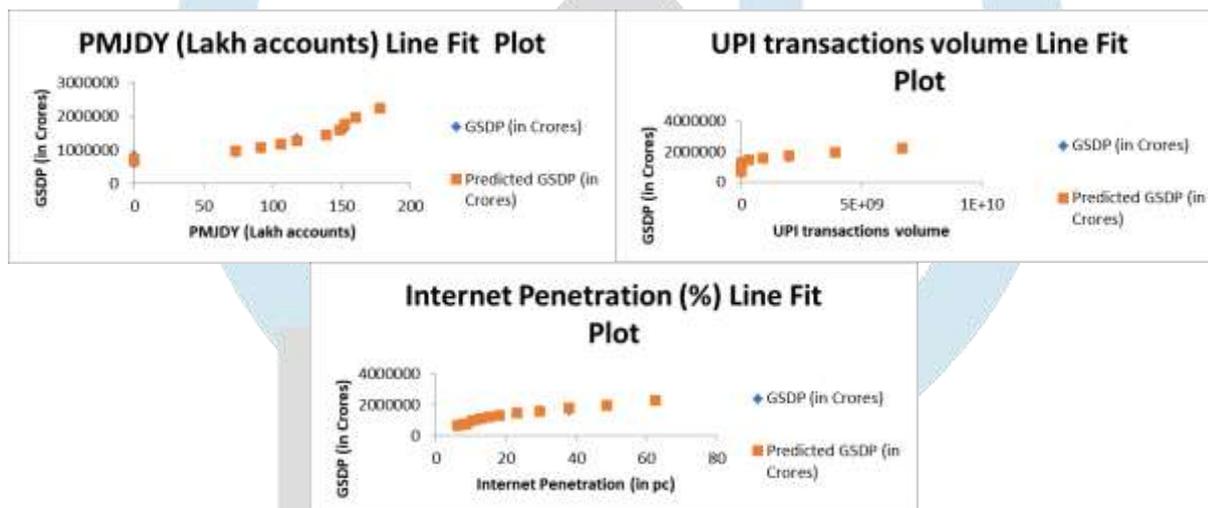
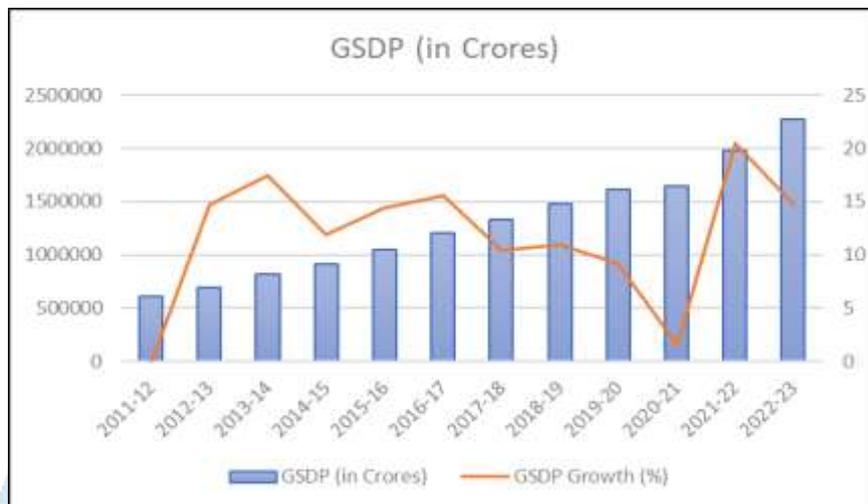
The analysis of Bihar reveals a steady increase in GSDP from 2011–12 to 2022–23, accompanied by a gradual rise in financial inclusion indicators such as PMJDY accounts, internet penetration, and UPI transaction volumes. Internet penetration remained very low in the early years but improved modestly over time, indicating slow digital adoption. The regression statistics show a very strong correlation (Multiple R = 0.99, R² ≈ 0.98), suggesting that financial inclusion indicators collectively explain nearly all the variation in economic growth. However, the pace of UPI adoption and internet access was relatively delayed compared to other states, reflecting infrastructure gaps. Despite strong statistical linkage, Bihar’s digital financial ecosystem still lags in practical outreach.

- State: Maharashtra.



Maharashtra demonstrates the highest GSDP among the three states, with consistent growth across the study period. Financial inclusion expanded steadily, with PMJDY accounts increasing significantly and internet penetration starting from a higher base compared to Bihar. UPI transaction volumes also registered strong growth, reflecting better digital adoption and urban infrastructure. The regression output highlights a strong association ($R^2 \approx 0.97$), confirming that economic growth in Maharashtra is closely tied to financial inclusion parameters. Compared to Bihar, the state's internet penetration levels were far higher, allowing a more rapid expansion of digital payments. Overall, Maharashtra reflects a more advanced stage of financial inclusion, supported by its developed economic base and wider reach of digital financial services.

○ State: Karnataka.



Karnataka exhibits a robust financial inclusion trajectory, with strong growth in GSDP and early adoption of digital modes. PMJDY accounts grew substantially after 2014–15, and internet penetration showed consistent improvement, starting from moderate levels but advancing quickly. UPI transactions, aided by the state’s strong IT ecosystem and Bengaluru’s role as a digital hub, grew rapidly, making Karnataka a frontrunner in digital payment usage. Regression results ($R^2 \approx 0.98$) confirm a very strong explanatory power of financial inclusion on economic performance, slightly stronger than Maharashtra. This highlights Karnataka’s balanced progress across traditional and digital financial inclusion dimensions, making it an advanced performer in this sphere.

IX. CONCLUSION

The comparative analysis shows uneven progress of financial inclusion across Bihar, Maharashtra, and Karnataka. Bihar has recorded steady economic growth and expansion in PMJDY accounts, but low internet penetration and weak digital adoption hinder its performance despite a strong statistical link with GSDP. Maharashtra leads in overall GSDP and digital usage, supported by rising UPI transactions and banking access. The Mumbai survey confirms this maturity with near-universal account ownership and high daily digital payments, though low awareness of government schemes, limited DBT reach, and trust issues remain. Karnataka emerges as the most advanced, with strong UPI adoption and a robust digital ecosystem driven by Bengaluru’s technology hub, firmly linking inclusion with growth. In ranking, Karnataka leads, Maharashtra follows, and Bihar trails, highlighting that financial inclusion fosters growth, but its effectiveness depends on addressing infrastructure gaps, awareness, and user trust.

The study establishes that financial inclusion plays a crucial role in driving economic growth, though its impact differs across states. Karnataka emerges as the most advanced, supported by high digital penetration, UPI adoption, and robust technological infrastructure. Maharashtra, while economically strong with widespread banking access, faces challenges in terms of awareness of schemes and trust in digital systems. Bihar, despite showing statistical potential, continues to lag due to weaker infrastructure, low internet access, and slower digital adoption.

Hypothesis testing reinforces these findings. For Hypothesis 1, the null (no significant difference in inclusion across states) is rejected, as Karnataka and Maharashtra are significantly ahead of Bihar. For Hypothesis 2, the null (no relationship between financial inclusion and growth) is rejected in Karnataka and Maharashtra, where inclusion strongly correlates with GSDP growth. However, in Bihar, weak infrastructure prevents full rejection of the null. For Hypothesis 3, the null (no regional disparities) is also rejected, since Bihar’s financial inclusion levels remain comparatively lower.

Thus, the results confirm that financial inclusion positively supports growth but is conditioned by state-specific factors such as digital readiness, awareness, and institutional trust.

X. POLICY SUGGESTIONS

To strengthen financial inclusion further, Bihar requires major investments in digital infrastructure and rural connectivity. Maharashtra should focus on raising awareness of government schemes and enhancing cybersecurity measures to build user trust. Karnataka, while advanced, can work on reducing transaction failures and ensuring equitable rural outreach. At the national level, expanding financial literacy campaigns, improving digital infrastructure, enhancing grievance redressal for digital failures, and ensuring last-mile delivery of benefits will ensure that financial inclusion translates into sustainable economic growth.

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 - b. <https://pmjdy.gov.in>
 - c. <https://data.gov.in>
2. UPI (Unified Payments Interface) Transactions:
 - a. <https://www.npci.org.in>
 - b. <https://www.indiataportal.com>
3. GSDP (Gross State Domestic Product) Data:
 - a. <https://www.rbi.org.in>
 - b. <https://www.mospi.gov.in>
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