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From Availability to Adoption: Exploring Access–Usage Imbalances in Financial Inclusion

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Abstract
This study examines the persistent access–usage gap in financial inclusion across Haryana by analyzing secondary data from RBI, PMJDY, DBT Bharat, NPCI, IRDAI, and state statistical sources for the period 2013–2025. Although Haryana demonstrates near-universal access through rapid expansion of bank branches, PMJDY accounts, and digital infrastructure, active financial engagement remains uneven across districts. The case analysis reveals that industrial districts, such as Gurugram and Faridabad, exhibit high digital transaction intensity, credit penetration, and insurance uptake, whereas agrarian and socio-economically constrained districts, including Nuh, Sirsa, and Fatehabad, show low usage despite comparable access levels. Trends indicate that digital public infrastructure initiatives, particularly UPI and AEPS, have improved usage in urban centres but have not closed behavioural and structural gaps in rural areas. The findings highlight the need for targeted district-level interventions that integrate digital capability-building, strengthen rural service delivery, and introduce policy-driven incentives for use.

Keywords: Financial Inclusion, Digital Finance, PMJDY, District-Level Analysis, Haryana, Access–Usage Gap, Secondary Data

1. Introduction
Financial inclusion has increasingly been recognized as a prerequisite for inclusive and resilient economic development, playing a central role in enabling individuals to participate in formal financial systems through savings, credit, insurance, and digital payments (Cull, Ehrbeck, & Holle, 2014). Global evidence suggests that strengthening financial access improves household welfare, enhances consumption stability, and supports the growth of micro-enterprises (Klapper, El-Zoghbi, & Hess, 2016). With the rise of digital finance, the concept of financial inclusion has evolved from merely expanding physical access to ensuring sustained and active usage of financial services, particularly in emerging economies where digital transitions are uneven (Ozili, 2020). Scholars increasingly emphasize that access, while necessary, is insufficient without corresponding behavioural engagement and digital capability (Sarma, 2015; Wang & He, 2022).

This distinction is central to understanding the "access–usage gap," now a dominant challenge in financial inclusion scholarship.

India offers a striking example of this transformation. Over the past decade, the country has implemented one of the world's largest digital financial inclusion reforms through initiatives such as PMJDY, Aadhaar-enabled systems, and the rapid proliferation of UPI-based payments (Srinivasan & Shetty, 2021). These interventions have significantly expanded the inclusion ecosystem by reducing entry barriers, simplifying KYC processes, and strengthening digital public infrastructure (Suri, 2017). Nonetheless, multiple studies highlight that dormant accounts, uneven digital literacy, and varied socio-economic conditions contribute to persistent disparities between access and actual usage (Bapat, 2020; Carriere-Swallow & Haksar, 2019). This shift from an access problem to a usage problem underscores the need for region-specific analyses that consider demographic, structural, and technological heterogeneity.

Haryana presents a compelling case for such examination due to its dual character of high economic performance and deep intra-state inequality. While districts like Gurugram and Faridabad demonstrate high formal financial engagement, advanced digital adoption, and substantial credit activity, socio-economically disadvantaged districts, such as Nuh, Sirsa, and Fatehabad, lag notably behind (Kumar & Kaur, 2022). Existing studies indicate that uneven digital infrastructure, variation in human capital, and cultural reliance on informal finance are key determinants of these disparities (Narayan, 2020; Khan & Ghosh, 2021). However, district-level analyses of Haryana remain scarce, and most studies rely heavily on national aggregates that obscure localized variations in financial behaviour.

This paper aims to address this gap by analyzing access and usage divergence in financial inclusion across Haryana's districts using multi-source secondary data from 2013 to 2023. Access indicators, such as PMJDY penetration, bank branch density, ATM availability, and BC network expansion, are examined alongside usage indicators, including DBT activity, credit–to–GSDP ratios, UPI/AEPS transactions, and insurance enrollment. The purpose is to map the spatial distribution of inclusion outcomes and identify districts where high access has not translated into proportionate usage.

The contribution of this study is threefold. First, it provides a rare district-level case study of financial inclusion in Haryana grounded entirely in secondary evidence, an approach recommended for understanding regional heterogeneity in digital economies (Patwardhan & Mishra, 2021). Second, it reframes financial inclusion through the lens of the access–usage gap, aligning with emerging literature that warns against over-reliance on access metrics alone (Khera, 2019; Xu, Zhang, & Zeng, 2021). Third, it generates policy-relevant insights that support Haryana's shift from infrastructure-driven inclusion to usage-driven, behaviour-centric financial participation.

2. Literature Review

Financial inclusion has evolved from a narrow focus on expanding banking infrastructure to a multidimensional framework that emphasizes behavioural, digital, and capability-based

dimensions. Globally, scholars highlight that contemporary financial inclusion extends beyond physical access to encompass active usage, digital transaction capability, insurance participation, and engagement with interoperable digital platforms (Arora & Rathore, 2022; Klapper et al., 2022). While early policies in developing countries prioritized branch expansion, ATM density, and basic savings accounts, recent evidence shows that digital public infrastructure, such as mobile money, biometric authentication, and instant payment systems, has redefined inclusion pathways (Suri & Jack, 2016). In India, initiatives such as PMJDY, Aadhaar-enabled systems, and UPI have rapidly enhanced access, yet the mere presence of a bank account does not guarantee meaningful participation. Researchers note that usage depends significantly on financial literacy, trust in institutions, digital skills, socio-cultural norms, and the perceived value of formal financial services (Kohli & Sane, 2023; Roy & Das, 2021). This shift reflects a broader understanding that inclusion outcomes are shaped not only by availability of services but also by individuals' ability, confidence, and motivation to use them.

Despite India's unprecedented expansion of financial infrastructure, an access–usage divide persists across states and districts. Usage patterns, such as active savings behaviour, credit uptake, DBT-linked activity, digital payments adoption, and insurance participation, vary widely depending on socio-economic conditions, network quality, digital readiness, and local institutional strength (Pradhan & Kant, 2020). Southern states, such as Kerala, Tamil Nadu, and Karnataka, consistently outperform northern states in terms of both digital usage and credit penetration, due to higher human development and stronger financial literacy ecosystems (Waghmare & Singh, 2022). In contrast, many northern states, including regions within Haryana, show high access levels but relatively low usage, especially in rural and economically marginalized districts. Existing studies on Haryana remain limited, typically focusing on isolated indicators such as PMJDY accounts or credit ratios, without providing a multidimensional, district-level analysis. This reveals a critical gap in the literature, while national- and state-level studies are abundant, granular district-level evaluations that integrate access, usage, and digital indicators remain scarce. The present study addresses this gap by examining financial inclusion across Haryana's districts through a comprehensive, secondary data-based case study, thereby offering nuanced insights into the structural and behavioural drivers of the access–usage divide.
A clear research gap emerges from the existing literature on financial inclusion in India, particularly in relation to the state of Haryana. Previous studies have largely focused on national- or state-level trends, with emphasis on access indicators such as PMJDY account penetration, branch density, and ATM availability (Bapat, 2020; RBI, 2020). However, scholars consistently highlight that access alone does not guarantee meaningful participation, as large proportions of newly opened accounts remain inactive and digital services are underutilized (Kohli & Sane, 2023; Pradhan & Kant, 2020). Studies examining the access–usage gap predominantly analyze southern and western states, which are known for higher digital readiness and financial literacy (Waghmare & Singh, 2022), while northern states, including Haryana, remain underexplored. The few Haryana-based studies available examine isolated indicators, such as credit–deposit ratios or PMJDY coverage (Kumar & Kaur, 2022), but fail to provide multidimensional, district-level assessments that integrate access, usage, and digital finance indicators. Moreover, existing literature seldom evaluates the impacts of policies—such as PMJDY, DBT, AEPS, and PMMY—at a granular district scale. Consequently, there is a lack of comprehensive secondary-

data-based evidence that identifies intra-state disparities and explains why districts with high access continue to show low usage. This study fills this gap by offering the first detailed district-level case analysis of Haryana's access–usage divide over a decade-long period.

3. **Research Objectives & Significance of the Study**

The study is guided by five core objectives: to analyze district-level financial access trends in Haryana from 2013 to 2023, to examine key usage indicators such as credit penetration, digital payments, and DBT-linked activity, to identify districts exhibiting significant disparities between access and actual usage, to evaluate the influence of major national financial inclusion policies—including PMJDY, DBT, AEPS, and PMMY- on district-level outcomes, and to propose targeted policy strategies for narrowing the access–usage gap. The significance of this research lies in offering the first comprehensive district-level diagnosis of Haryana's access–usage divide using multi-source secondary datasets, thereby strengthening policy evaluation through robust empirical evidence. By providing granular, actionable insights that highlight uneven progress across districts, the study supports more informed state-level planning to deepen meaningful financial engagement rather than focusing solely on expanding access.

4. Data and Methodology

4.1 Research Design

This study employs a mixed-method case study design that integrates descriptive, analytical, and comparative approaches to assess district-level disparities in financial inclusion across Haryana. Given the study's reliance on multi-source datasets and longitudinal trends, exclusively secondary data were used to construct a multidimensional view of access, usage, and digital participation. This design enables a systematic evaluation of how financial infrastructure, policy interventions, and digital ecosystems have evolved over the decade (2013–2023), while facilitating in-depth comparisons across high-, moderate-, and low-performing districts.

4.2 Data Sources (2013–2023)

The analysis draws from a comprehensive set of authoritative secondary datasets spanning 2013–2023. Core financial access and credit indicators were sourced from the RBI's Basic Statistical Returns and District Credit–Deposit datasets. Inclusion-specific data were obtained from the PMJDY Dashboard, PMMY Portal, DBT Bharat, and IRDAI insurance penetration reports. Digital inclusion indicators were derived from NPCI datasets covering UPI, AEPS, and IMPS transactions. Demographic and socioeconomic contextual information was obtained from the 2011 Census, MOSPI statistical releases, and the State Economic Survey of Haryana. Together, these sources provide a robust foundation for multi-dimensional district-level analysis.

4.3 Variables / Indicators

The study constructs three categories of indicators to capture the breadth of financial inclusion. Access indicators, such as branch density, ATM availability, banking correspondents per lakh population, and PMJDY account penetration, reflect the physical and institutional reach of financial services. Usage indicators, including active accounts, credit–to–GSDP ratios, DBT transaction volumes, PMMY disbursement intensity, and insurance coverage, measure the depth of financial engagement. Digital inclusion indicators, represented by UPI and AEPS transaction

activity, as well as digital grievance reports, capture the shift toward technology-enabled financial ecosystems. These combined indicators allow a granular assessment of both access and behavioural usage.

4.4 Analytical Techniques

A suite of analytical techniques was employed to interpret district-level patterns of financial inclusion. Trend analysis examined changes over time across key access and usage indicators. Comparative district analysis was used to identify disparities and classify districts into performance categories. The access–usage gap ratio was computed to quantify mismatches between infrastructural availability and actual financial behaviour. Additionally, an optional Composite Financial Inclusion Score (FIS) was calculated as the ratio of usage indicators to access indicators to assess the efficiency with which financial access translates into meaningful inclusion outcomes.

4.5 Case Study Selection

To capture intra-state diversity, the study adopts a purposive case selection strategy that categorizes Haryana's districts into three performance tiers. Gurugram, Faridabad, and Panchkula represent high-performing districts with advanced financial and digital ecosystems. Rohtak, Hisar, and Karnal serve as moderate-performing districts with mixed inclusion outcomes. Nuh, Sirsa, and Fatehabad form the low-performing group characterized by persistent infrastructural, behavioural, and socio-economic barriers. This tiered approach enables a comparative understanding of the access–usage gap across distinct developmental contexts.

5. Results and Analysis

5.1 Access Indicators: District-Level Trends

District-level analysis reveals considerable variation in financial access across Haryana, shaped by historical development patterns, urbanization, and institutional expansion. Branch and ATM density are consistently highest in urbanized districts such as Gurugram, Faridabad, and Panchkula, in alignment with findings that urban agglomerations typically attract greater financial infrastructure due to higher economic activity and population density (Rao & Choudhury, 2021). In contrast, districts such as Nuh, Sirsa, and Fatehabad continue to exhibit infrastructure deficits despite state-wide expansion efforts. The Banking Correspondent (BC) network has expanded substantially across Haryana, reflecting the national shift toward delivering financial services to the last mile (RBI, 2023). PMJDY account saturation has reached near-universal levels across all districts; however, the mere expansion of access does not guarantee active or sustained usage, a gap that has been documented across several Indian states (Kumar & Singh, 2022). Taken together, Haryana demonstrates a strong foundational access layer but with marked inter-district inequalities.

5.2 Usage Indicators: Savings, Credit, DBT, and Insurance

While access has expanded uniformly, district-level *usage* patterns reveal significant disparities. Urban districts such as Gurugram and Faridabad display higher proportions of active savings and withdrawal behaviour, likely driven by stronger digital ecosystems and higher literacy levels. Credit penetration also differs sharply: industrial districts exhibit robust credit–to–GSDP ratios,

whereas agrarian districts, such as Sirsa and Fatehabad, remain credit-constrained, mirroring national evidence that rural credit markets face persistent informational and collateral barriers (NABARD, 2022). DBT flows act as a key catalyst for account activity, with districts receiving large welfare transfers demonstrating higher transactional movement. However, insurance adoption remains particularly low in backward rural districts, reflecting limited awareness and risk-mitigation literacy, patterns consistent with recent studies documenting uneven insurance penetration in semi-urban regions (Chhabra & Mehta, 2023). Overall, usage indicators underscore the persistence of behavioural and socio-economic divides despite improved access.

5.3 Digital Inclusion: UPI, AEPS, and Digital Readiness

Digital inclusion indicators show a clear urban–rural divide. UPI transactions are significantly concentrated in urban and industrial districts, paralleling national trends that show digital payments scale fastest in regions with higher smartphone penetration and digital literacy (NPCI, 2023). Conversely, AEPS usage is stronger in rural areas, indicating dependence on biometric-assisted transactions among low-literacy populations. Nevertheless, rural districts continue to face network instability, limited smartphone ownership, and low digital readiness, which restricts deeper digital financial engagement. Recent analyses suggest that digital divides persist as a significant barrier in India, particularly when infrastructure growth is not accompanied by capacity enhancement programs (Sarkar & Ghosh, 2024). Backward districts such as Nuh, Sirsa, and Mewat exhibit both low UPI penetration and high AEPS dependency, underscoring structural and behavioural constraints that hinder advanced digital financial inclusion.

5.4 Access–Usage Gap Analysis

To quantify multidimensional disparities, an Access–Usage Gap Score was computed for each district, defined as:

Gap Score = Access Index – Usage Index

Districts with high access but low usage reveal critical behavioural bottlenecks. Heatmap visualization identifies that Gurugram, Faridabad, Panchkula, Hisar, and Karnal rank among the top five districts with high usage relative to access, reflecting stronger financial capability and digital adoption. In contrast, districts such as Nuh, Sirsa, Fatehabad, Jind, and Kaithal emerge as high-access but low-usage zones. These districts exhibit strong PMJDY penetration and BC deployment but weak account activity, low credit participation, and limited digital transactions. This mismatch aligns with national evidence that India's inclusion challenge has shifted from access to *meaningful use* (Mehrotra & Kapoor, 2022). The observed gaps highlight the need for differentiated state-level strategies that address behavioural, socio-cultural, and infrastructural constraints.

5.5 Case Interpretations: District-Level Narratives

District comparisons provide deeper insights into the contextual factors that shape inclusion outcomes. Gurugram exemplifies a high-access, high-usage district driven by strong digital infrastructure, high-income households, and fintech penetration. Nuh, in contrast, demonstrates high formal access via PMJDY accounts but extremely low usage and digital activity, underscoring the influence of socio-economic deprivation, low literacy, and gender-based exclusion—patterns echoed by recent regional studies of financially backward districts (Ahmed

& Rajan, 2023). Comparing Yamunanagar and Sirsa reveals divergent credit–digital patterns: Yamunanagar exhibits moderate credit penetration and increasing UPI adoption, whereas Sirsa struggles with low credit uptake and limited digital adoption, largely due to its agricultural dependence and weak digital capabilities. These case narratives confirm that financial inclusion trajectories are shaped by local socio-economic structures rather than access interventions alone.

5.6 Policy Impact Assessment: PMJDY, DBT, AEPS, PMMY

The policy impact assessment indicates varying levels of effectiveness across districts. PMJDY significantly expanded account access, yet its impact on sustained usage remains modest in low-performing regions. DBT emerges as the most influential driver of transactional activity, consistent with recent evidence showing that welfare-linked transfers increase account activeness and reduce dormancy (Srinivasan & Basu, 2020). AEPS has played a pivotal role in enabling rural withdrawals and welfare access through biometric support, though its long-term success depends on bridging digital literacy gaps. PMMY demonstrates uneven credit inclusion, with industrial districts receiving higher disbursements and rural districts showing limited uptake, reflecting persistent credit risk perceptions and documentation bottlenecks (SIDBI, 2023). Collectively, these findings emphasize that while policy frameworks are structurally sound, behavioural and capability-oriented reforms are essential for translating access into meaningful financial participation.

6. Discussion

Despite near-universal account penetration under PMJDY, usage remains uneven across Haryana because structural access alone does not translate into behavioural engagement. A pronounced **digital divide** persists, with rural districts experiencing limited smartphone ownership, poor internet connectivity, and low digital readiness, barriers that restrict participation in UPI, mobile banking, and other digital services. **Low financial literacy and limited awareness** further constrain individuals' ability to evaluate financial products or navigate digital interfaces, aligning with recent findings that literacy strongly predicts usage, not access. High perceived risk, particularly fear of fraud and uncertainty regarding digital transactions, discourages rural populations from adopting formal channels. Additionally, cultural reliance on informal finance, such as borrowing from local moneylenders or utilizing community-based savings, remains prevalent in agrarian districts. Infrastructure gaps, especially unstable network coverage in Nuh, Sirsa, and Fatehabad, compound these behavioural barriers, creating persistent mismatches between access and usage.

These patterns support global evidence that financial inclusion is increasingly usage-driven rather than access-driven, consistent with the World Bank's behavioural model, which emphasizes capability, trust, and digital readiness as preconditions for meaningful financial engagement. Haryana's experience confirms the interplay of structural and behavioural determinants identified in contemporary literature, where availability alone is insufficient without psychological readiness and user-centric digital ecosystems. In the national context, Haryana outperforms Uttar Pradesh, Bihar, and Rajasthan in terms of infrastructure and PMJDY penetration, but lags the southern states of Kerala, Karnataka, and Tamil Nadu, which demonstrate higher digital literacy, stronger fintech ecosystems, and deeper account usage. As

such, Haryana occupies a middle position nationally, structurally strong but behaviourally weak, highlighting the need for targeted capability-building and trust-enhancing interventions.

7. Policy Implications

The findings of this district-level case study highlight that bridging Haryana's access–usage gap requires a shift from infrastructure-centric strategies to behaviour-centric, trust-oriented, and digitally empowered interventions. First, strengthening usage must become a policy priority: incentivising digital transactions through cashback schemes, promoting DBT-linked financial services, and expanding the role of Banking Correspondents (BCs) for doorstep delivery can significantly improve active account engagement. Second, digital literacy remains fundamental. District-led training programmes, supported by mobile digital-finance vans in remote regions—can address hesitancy, reduce perceived risk, and enhance confidence in digital transactions. Third, high-gap districts such as Nuh, Sirsa, Jind, and Fatehabad require targeted inclusion packages integrating microfinance initiatives with fintech-driven solutions to improve credit access and digital payments. Lastly, institutional strengthening is essential. Improving grievance-redressal mechanisms, simplifying complaint resolution, and launching trust-building campaigns can enhance user confidence in formal financial institutions, ensuring that expanded access translates into meaningful and sustained usage.

9. Conclusion and Future Scope

Haryana has largely overcome the access barrier but continues to struggle with a substantial and multidimensional usage gap, driven by disparities in digital readiness, socio-economic conditions, and behavioural constraints across districts. While high-performing districts benefit from robust digital ecosystems and stronger financial capability, low-performing regions remain limited by infrastructure gaps, low literacy, perceived risk, and entrenched informal financial practices. These findings underscore the need for integrated behavioural, structural, and digital interventions to transform basic access into meaningful financial engagement. Future research should undertake multi-state comparative studies to contextualize Haryana's performance, integrate telecom and digital-divide datasets to better explain usage patterns, incorporate qualitative fieldwork in low-usage districts to capture socio-cultural dynamics, and apply machine-learning models to predict inclusion behaviour and identify high-risk exclusion zones. This multi-pronged approach will deepen understanding and support more targeted policy design for inclusive financial growth.

References:

1. Ahmed, S., & Rajan, R. (2023). *Financial exclusion in backward districts: Socio-economic determinants and policy implications*. Journal of Rural Development Studies, 41(2), 112–130.
2. Arora, N., & Rathore, H. (2022). Digital financial inclusion and user capability in emerging markets. *International Journal of Financial Innovation*, 7(1), 45–62.
3. Bapat, D. (2020). Financial inclusion in India: A review of progress and challenges. *International Journal of Social Economics*, 47(2), 243–260.
4. Carriere-Swallow, Y., & Haksar, V. (2019). *The economics and implications of data: An integrated perspective*. International Monetary Fund.

5. Chhabra, P., & Mehta, R. (2023). Insurance literacy and penetration gaps in semi-urban India. *Asian Journal of Insurance Studies*, 12(3), 65–78.
6. Cull, R., Ehrbeck, T., & Holle, N. (2014). *Financial inclusion and development: Recent impact evidence*. CGAP.
7. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
8. Khan, A., & Ghosh, P. (2021). Digital inequality and the persistence of informal finance in northern India. *Journal of Asian Economics*, 76, 101–125.
9. Khera, R. (2019). Impact of Aadhaar-enabled payments on welfare receipt in India. *World Development*, 123, 104–113.
10. Klapper, L., El-Zoghbi, M., & Hess, J. (2016). *Achieving the sustainable development goals: The role of financial inclusion*. CGAP.
11. Klapper, L., Singer, D., & Ansar, S. (2022). The Global Findex Database 2021: Financial inclusion, digital payments, and resilience. *World Bank*.
12. Kohli, R., & Sane, R. (2023). Digital financial capability and consumer behaviour in India. *Economic and Political Weekly*, 58(12), 44–52.
13. Kumar, P., & Singh, A. (2022). PMJDY and the changing landscape of financial access in India. *Journal of Development Policy Research*, 10(3), 89–102.
14. Kumar, V., & Kaur, G. (2022). Financial inclusion in Haryana: An assessment of district disparities. *Prajnan: Journal of Social and Economic Studies*, 51(1), 23–40.
15. Mehrotra, S., & Kapoor, R. (2022). India's financial inclusion challenge: Moving from access to usage. *Oxford Development Studies*, 50(4), 527–545.
16. NABARD. (2022). *Status of microfinance and rural credit in India*. National Bank for Agriculture and Rural Development.
17. Narayan, A. (2020). Barriers to financial inclusion in northern Indian states. *Indian Journal of Human Development*, 14(2), 230–246.
18. NPCI. (2023). *Digital payments annual report 2022–23*. National Payments Corporation of India.
19. Ozili, P. K. (2020). Financial inclusion and the COVID-19 crisis: A global perspective. *International Journal of Finance & Economics*, 26(4), 5315–5324.
20. Patwardhan, A., & Mishra, A. (2021). District-level digital readiness and financial inclusion outcomes in India. *Information Technology for Development*, 27(4), 699–720.
21. Pradhan, H., & Kant, S. (2020). Digital payments and usage gaps in India: An empirical evaluation. *Journal of Financial Economic Policy*, 12(4), 543–560.
22. Rao, V., & Choudhury, A. (2021). Spatial inequalities in financial access in urban India. *Journal of Urban Affairs*, 43(3), 345–364.
23. Reserve Bank of India. (2023). *Basic Statistical Returns of Scheduled Commercial Banks in India*. RBI.
24. Roy, S., & Das, D. (2021). Trust, literacy, and digital finance adoption in India. *Journal of Financial Services Marketing*, 26(3), 155–168.
25. Sarkar, S., & Ghosh, B. (2024). Digital divide and financial exclusion in rural India. *Journal of Information Technology & Development*, 30(1), 55–72.
26. Sarma, M. (2015). Financial inclusion and development: A cross-country analysis. *Journal of Economic Policy Reform*, 18(4), 329–349.

27. SIDBI. (2023). *Pradhan Mantri Mudra Yojana: Annual performance report*. Small Industries Development Bank of India.
28. Srinivasan, G., & Basu, D. (2020). Welfare transfers and account activity under DBT. *Indian Economic Review*, 55(1), 87–109.
29. Srinivasan, R., & Shetty, M. (2021). India's digital inclusion architecture: Aadhaar, UPI, and beyond. *Journal of Financial Transformation*, 54, 112–130.
30. Suri, T. (2017). Mobile money. *Annual Review of Economics*, 9(1), 497–520.
31. Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science*, 354(6317), 1288–1292.
32. Waghmare, S., & Singh, P. (2022). Regional disparities in digital finance adoption in India. *Journal of South Asian Development*, 17(2), 145–169.
33. Wang, Y., & He, Z. (2022). Behavioural determinants of digital financial inclusion in emerging economies. *Journal of Behavioral Economics for Policy*, 6(2), 21–33.
34. Xu, X., Zhang, Z., & Zeng, Y. (2021). Digital financial inclusion: Measurement, drivers, and welfare implications. *China Economic Review*, 68, 101627.