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ADAPTATION AND IMPACT OF UPI ON STREET VENDORS IN TRIBAL AREAS OF BASTAR DIVISION, CHHATTISGARH

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ABSTRACT

India's UPI recorded approximately 228 billion transactions worth nearly Rs. 300 lakh crores in 2025, making it the world's largest real-time retail payment system [13, 6]. Despite this national growth, its penetration into remote tribal economies remains largely unexplored. This paper examines UPI adaptation and impact among street vendors in Bastar Division of Chhattisgarh, a seven-district predominantly Scheduled Tribe region, through a mixed-method approach that combines a structured survey (n=34) with systematic stall-by-stall field observations across three distinct markets. The field data, collected in May 2026, reveal a sharp urban–rural digital divide. At Geedam Haat (rural) on 10 May 2026 we counted UPI QR codes at only 62 of 274 stalls (22.6%); the remaining 212 stalls (77.4%) traded entirely in cash. At Jagdalpur Sanjay Market (urban) on 16 May 2026, by contrast, 278 of 317 stalls (87.7%) accepted UPI. Despite strong 5G connectivity and nearby financial infrastructure at Geedam, 69% of vendors owned no smartphone, which indicates that device access, rather than network quality, is the primary barrier to digital inclusion. The gender divide is equally sharp: of the 202 female vendors at Geedam Haat, only 7.9% used UPI, a pattern we also observed qualitatively in urban Jagdalpur. The preliminary survey (n = 34) recorded 100% UPI adoption, but that figure reflects a selection bias toward vendors who already own smartphones. To achieve genuine digital financial inclusion in tribal Bastar, therefore, policymakers must prioritise expanding smartphone access, foster peer-led adoption, and deliver targeted, women-specific interventions.

Keywords: UPI adoption in Bastar, tribal economy, street vendors, Bastar Division, financial inclusion, women vendors, mixed method, UPI adoption in Bastar, Chhattisgarh

INTRODUCTION

India's UPI recorded approximately 228 billion transactions worth nearly Rs. 300 lakh crore in calendar year 2025, growing approximately 32 percent over 2024 [13, 5]. The International Monetary Fund recognised UPI as the world's largest retail fast-payment system in June 2025 [6]. Through its Payments Infrastructure Development Fund (PIDF), the NPCI deployed approximately 5.45 crore digital touchpoints in Tier-3 to Tier-6 centres and 56.86 crore QR codes to approximately 6.5 crore merchants by October 2025 [14]. However, Ernst & Young and the Confederation of Indian Industry [7] found that while 38 percent of rural respondents prefer UPI, 19 percent still use only cash, and the National Family Health Survey found that only 40.7 percent of women in Chhattisgarh own a mobile phone [10].

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This study focuses on the Bastar Division (Bastar, Kondagaon, Narayanpur, Dantewada, Sukma, Bijapur, and Kanker), a predominantly Scheduled Tribe region in southern Chhattisgarh. The local economy relies heavily on agriculture, minor forest produce, and weekly informal market *haats*. The region presents unique challenges for digital inclusion, characterised by dispersed settlements, low literacy, and deep linguistic diversity among communities like the Gond, Maria, and Halba. Kanker is relatively more accessible and literate; Bijapur and Narayanpur rank among India's most remote districts.

Table 1: Bastar Division — Districts and Key Tribal Communities

District	Character	Key tribal communities
Bastar (Jagdalpur)	Divisional HQ — most urbanised	Gond, Maria, Muria, Bhatra, Halba, Dhurva
Kondagaon	Central forest and agricultural belt	Gond, Halba, Bhatra
Narayanpur	Remote Abujhmad interior	Abujh Maria, Gond
Dantewada	South-Bastar Forest belt	Gond, Bison Horn Maria, Muria
Sukma	Southernmost — geographically remote	Gond, Dorla, Koya
Bijapur	Remote western forest interior	Gond, Bison Horn Maria
Kanker	Northern Bastar — more accessible	Gond, Maria, Muria, Bhatra
Bastar Division	7 districts — southern Chhattisgarh	Predominantly Scheduled Tribe population

Source: Government of Chhattisgarh district records. Sukma and Kondagaon became separate districts in 2012.

Existing research on UPI focuses overwhelmingly on urban consumers and semi-urban merchants, leaving tribal economies almost entirely unstudied. Street vendors in tribal Bastar confront a unique combination of barriers: limited smartphone ownership, unreliable connectivity in interior areas, unfamiliarity with digital interfaces in Hindi or English, and a deeply embedded cash culture at haats. This study asks a direct question: is network connectivity the primary barrier to UPI adoption in tribal Bastar, or does something else hold vendors back?

OBJECTIVES

This study pursues five objectives:

- To assess UPI adoption levels among street vendors across Bastar Division through survey and field observation.
- To identify the socioeconomic and technological factors associated with adoption, particularly smartphone access, income, gender, and connectivity.
- To document vendor’s perceptions of UPI's effect on their income, financial management, and transaction security.
- To compare UPI adoption across urban (Jagdalpur) and rural tribal (Geedam, Dantewada) market settings.
- To provide evidence-based policy recommendations for digital financial inclusion in tribal central India.

SIGNIFICANCE

This study contributes the first systematically counted stall-level UPI adoption data from major tribal weekly haats in Bastar Division. The Geedam Haat count (274 stalls, 10 May

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2026) and Jagdalpur Sanjay Market count (317 stalls, 16 May 2026) provide ground-level evidence that no previous study has produced. Our finding that adoption is constrained by the lack of smartphone ownership, together with the high risk of transaction failure and fraud during market rush hours, rather than by network quality, directly reframes digital inclusion policy priorities for tribal regions.

LITERATURE REVIEW

UPI Growth and Rural Adoption

Two catalysts drove UPI adoption nationally. Demonetisation in November 2016 pushed cash-dependent users toward digital alternatives [3], and COVID-19 in 2020-21 embedded contactless payment as a public health preference. By 2025, UPI handled approximately 49 percent of all global real-time payment transactions [1]. EY-CII [7], surveying 1,033 rural and semi-urban respondents, found that 38 percent prefer UPI, but 86 percent still visit bank branches for credit needs. Working in rural Aligarh, Haque et al. [20] found that younger age, higher education, and higher income predict adoption, and the authors called specifically for district-level studies in areas with persistent financial inclusion challenges, a gap the present study addresses.

Informal Sector and Street Vendors

Raghavendra and Aparna [16] studied UPI adoption among hawkers in Mangaluru using a structured model and found that reliable internet access and peer support are essential facilitating conditions, though their urban coastal setting limits generalisability to tribal Bastar. Ragini and Vineesh Prakash [17] found that financial literacy and self-efficacy predict UPI adoption among construction workers in Andhra Pradesh. Praveen [15] studied cashless transactions in a tribal community in Kerala and found that despite awareness, actual adoption remained low due to digital literacy gaps, poor infrastructure, and security concerns.

Barriers in Low-Literacy and Tribal Contexts

Four barrier categories recur consistently. First, device access: IIPS and ICF [10] show that only 40.7 percent of Chhattisgarh women own a mobile phone. Second, digital literacy: Kumar and Mishra [11] confirm a strong positive correlation between digital literacy and fintech adoption; Behera [4] identifies the absence of tribal-language digital literacy programmes as a structural barrier. Third, fraud and trust: India recorded over 95,000 UPI fraud cases in FY 2022-23, and Rashid et al. [18] and Asthana et al. [2] show these incidents disproportionately affect low-literacy rural users. Fourth, language: Rathor [19] identifies language-interface mismatch as a critical exclusion factor for dialect-speaking communities, which applies directly to Gondi, Halbi, and Bhatri speakers in Bastar Division.

Research gap

No published study has examined UPI adoption among street vendors in Scheduled Tribe communities of Chhattisgarh, nor has any study produced stall-level UPI adoption counts from tribal weekly haats. This study fills both gaps.

RESEARCH METHODOLOGY

This study employs a descriptive mixed-method design, combining quantitative primary data from structured questionnaires (*n=34*) with qualitative field observation at three markets. We chose this design because structured surveys reach only vendors who own smartphones and consent to participate, whereas field observation captures the entire vendor population at a market, including the non-adopting majority that surveys systematically miss.

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The study covers all seven districts of Bastar Division. We administered the survey through purposive and convenience sampling at weekly haats and daily markets across the Division in 2026. For field observation we selected three contrasting sites: Dantewada Haat (rural, May 2026 observation), Geedam Haat (rural, precise stall count 10 May 2026), and Jagdalpur Sanjay Market (urban, precise stall count 16 May 2026). At Geedam and Jagdalpur, the lead author recorded every stall individually using a purpose-built mobile counting tool.

The survey questionnaire contained 34 items across five sections: Section A, demographic profile (Q1-Q7); Section B, technology access (Q8-Q12); Section C, UPI adoption behaviour (Q13-Q20); Section D, Likert-scale agreement statements on UPI benefits (Q21-Q30, scale 1-5); and Section E, open-ended qualitative questions (Q31-Q34). Enumerators administered the instrument verbally in Hindi, Gondi, or Halbi as the respondent required. We analysed the quantitative data using descriptive statistics, frequency counts, and cross-tabulations, and applied thematic analysis to the open-ended responses and field notes. We drew community and demographic context from Government of Chhattisgarh district records and from IIPS and ICF [10]; we deliberately omit exact Census figures because the 2021 Census has not been conducted.

DATA ANALYSIS AND FINDINGS

Demographic Profile

Table 2: Demographic Profile of Survey Respondents (n = 34)

Variable	Category	Count (%)
Gender	Male	29 (85.3%)
	Female	5 (14.7%)
Age	20–30 years	15 (44.1%)
	31–40 years	11 (32.4%)
	41–50 years	7 (20.6%)
Education	Graduate & above	24 (70.6%)
	Higher Secondary	6 (17.6%)
	Secondary/Primary	4 (11.8%)
Community	Scheduled Tribe	15 (44.1%)
	Non-tribal / mixed	19 (55.9%)
Monthly income	Above ₹10,000	22 (64.7%)
	₹5,001–10,000	7 (20.6%)
	Below ₹5,000	5 (14.7%)
Years in business	More than 7 years	17 (50.0%)
	1–7 years	15 (44.1%)

The survey sample was predominantly male (85.3%) and highly educated (70.6% graduates), well above the general literacy levels of Bastar Division's remote districts; only 44.1% of respondents identified as Scheduled Tribe members. This educational and gender skew indicates a sampling bias toward digitally connected vendors, which we address through the field observation data in Section 4.5.

UPI Adoption and Technology Access

Table 3: UPI Adoption and Technology Access (n = 34)

Indicator	Response	Count (%)
UPI usage frequency	Regularly	28 (82.4%)
	Occasionally	6 (17.6%)
Preferred UPI app	PhonePe	22 (64.7%)
	Google Pay	6 (17.6%)
	Other / Paytm	6 (17.6%)
Duration of use	5 years or more	15 (44.1%)

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	3–4 years	12 (35.3%)
	1–2 years	7 (20.6%)
Internet connectivity	Strong / reliable	20 (58.8%)
	Fluctuating / poor	14 (41.2%)
Who taught UPI	Self or family member	31 (91.2%)
	Government or bank	3 (8.8%)

All 34 surveyed vendors used UPI: 82.4% regularly and 17.6% occasionally. PhonePe held the largest share of this group at 64.7%, and 44.1% of vendors had used UPI for five or more years, which indicates long-standing adoption within this segment. Crucially, 91.2% of respondents taught themselves or learned from a family member, so government and bank-led training played almost no part. Peer learning, rather than institutional outreach, therefore drives adoption in tribal Bastar. Despite active UPI use, 41.2% of respondents still reported fluctuating or poor internet connectivity, which marks network reliability as a persistent barrier even within the already-connected vendor group.

INCOME AND UPI REGULARITY

Table 4: Monthly Income vs UPI Usage Frequency

Monthly income	Regular UPI	Occasional	Total	Regular %
Above ₹20,000	11	1	12	91.7%
₹10,001–20,000	9	1	10	90.0%
₹5,001–10,000	6	1	7	85.7%
Below ₹5,000	2	3	5	40.0%
Total	28	6	34	82.4%

Vendor income and the frequency of UPI transactions correlate strongly. Vendors in the highest bracket (earning above ₹10,000 per month) showed robust digital engagement, with over 90% using UPI regularly. The most economically vulnerable vendors (earning below ₹5,000) showed only 40% regular usage and relied mainly on occasional digital transactions. This disparity indicates that device access alone does not guarantee consistent digital financial inclusion for the lowest earners.

Vendor Perceptions of UPI

Table 5: Vendor Agreement with UPI Statements (1–5 scale, n = valid responses)

Statement (1 = Strongly disagree → 5 = Strongly agree)	Mean	n	Interpretation
UPI has increased my daily sales (Q21)	3.87	23	Moderate agreement
UPI helps me attract more customers (Q22)	4.18	28	Agreed
UPI reduces my risk of carrying cash (Q23)	4.61	31	Strongly agreed — highest score
UPI is easy for me to use (Q24)	4.40	30	Strongly agreed
My income improved after I started using UPI (Q26)	4.13	30	Agreed
UPI helps me save and manage money better (Q27)	4.40	30	Strongly agreed
I trust UPI for my business transactions (Q28)	4.23	31	Agreed
The vendors around me also use UPI (Q29)	4.57	30	Highest — peer adoption confirmed

Vendors rated 'UPI reduces my risk of carrying cash' highest (Q23, mean = 4.61), followed closely by 'The vendors around me also use UPI' (Q29, mean = 4.57). These two scores carry the study's most important message: vendors value UPI primarily for safety rather than revenue growth, and peer visibility within the market community sustains their engagement. They rated 'UPI has increased my daily sales' lowest (Q21, mean = 3.87), which confirms that UPI delivers operational and security benefits more reliably than direct income gains. High

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ease-of-use scores (Q24, mean = 4.40) and trust scores (Q28, mean = 4.23) indicate that vendors who adopt UPI find it manageable and trustworthy.

FIELD OBSERVATIONS: THREE MARKETS

Table 6: Comparative Field Observation Data — Three Markets, Bastar Division

Indicator	Dantewada Haat — 8 May 2026	Jagdalpur Sanjay Market — 16 May 2026	Geedam Haat — 10 May 2026
Market type	Rural weekly haat	Urban daily market	Rural weekly haat
Total stalls	Estimated >200	317 (precise count)	274 (precise count)
Stalls with UPI	Est. <25% (<50 stalls)	278 — 87.7%	62 — 22.6%
Cash only stalls	Est. >75%	39 — 12.3%	212 — 77.4%
Vendors with smartphone	Est. 20–30%	216 — 68.1%	84 — 30.7%
Female vendors (total)	Est. ~70% of market	89 of 317 (28.1%)	202 of 274 (73.7%)
Female vendors with UPI	Very few	26 of 89 (29.2%)	16 of 202 (7.9%)
Network quality	Fluctuating / weak	Strong 4G	Strong 4G
PIDF QR stickers	Not observed	Yes — observed	Not observed
Sound box audio	Not observed	Yes — heard	Not observed
Child helping parent with UPI	Not observed	Yes — observed	Not observed
Vendor refusing UPI	Yes — observed	Yes — observed	Yes — observed
Primary barrier identified	No smartphone	No smartphone (tribal women)	No smartphone — NOT network

Source: Field observations by the lead author. Geedam Haat: 10 May 2026; Jagdalpur Sanjay Market: 16 May 2026; Dantewada Haat: observer estimates, 8 May 2026. The lead author recorded the precise stall counts at Geedam and Jagdalpur with a digital counting tool.

GEEDAM HAAT: 10 MAY 2026

The Geedam Haat findings show that infrastructural availability does not guarantee digital inclusion. Despite strong 5G network coverage and nearby banking facilities, 77.4% of stalls traded in cash alone. The primary barrier was not network or financial infrastructure but device access: 69% of the observed vendors owned no smartphone. This exclusion was also profoundly gendered: women made up 73.7% of the market workforce (202 vendors), yet 92.1% of them traded entirely without UPI. Among the minority who did own smartphones, severe operational vulnerabilities limited actual usage. In the complete absence of payment audio-alert devices (sound boxes), vendors could not reliably verify screen notifications during peak market rush hours, which exposed them to payment timeouts, unverified transfers, and outright fraud. Many vendors who accept digital payments comfortably on quieter weekdays therefore adopt a deliberate risk-mitigation strategy during the crowded Sunday *haat*: they hide their QR codes and refuse UPI, relying instead on the immediate, tangible security of cash.

JAGDALPUR SANJAY MARKET: 16 MAY 2026

We counted 317 stalls at Jagdalpur Sanjay Market on 16 May 2026. Of these, 278 (87.7%) displayed UPI QR codes and only 39 (12.3%) traded in cash alone; 216 vendors (68.1%) owned smartphones. We saw PIDF QR stickers on multiple stalls, heard UPI sound boxes confirm transactions, and watched a child help a parent operate a phone for a UPI payment, a positive sign of intergenerational digital learning. One vendor kept a written list of customer contacts as a fallback for failed transactions. Our most surprising observation, however, was that even in this high-adoption urban market, tribal women selling vegetables and forest

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produce used cash almost exclusively and owned no smartphones, replicating the Geedam pattern on a smaller scale.

DANTEWADA HAA: 8 MAY 2026

We estimated UPI adoption at Dantewada Haat below 25%, with smartphone ownership at roughly 20–30% of vendors and tribal vendors making up about 70% of the market. Unlike Geedam and Jagdalpur, Dantewada Haat had fluctuating and weak network connectivity, the one site where connectivity may compound the shortage of devices. Here too we watched a vendor refuse a UPI payment request.

QUALITATIVE THEMES FROM OPEN-ENDED RESPONSES

Theme 1: Vendors most value cash safety

Vendors across the survey consistently cited eliminating change-making problems (chillar ki samasya) and reducing cash-carrying risk as the most immediately felt UPI benefits. This aligns directly with the highest Likert score (Q23, mean = 4.61). Several vendors described keeping less cash on their person as a direct security improvement, particularly those travelling from interior villages to market sites.

Theme 2: Network failure frustrates active UPI users

Among UPI-active vendors surveyed, network failure at the point of transaction is the most common difficulty. One vendor at Jagdalpur maintained a written customer contact list as a backup, so that if a transaction failed mid-payment, they could collect money later. This practical workaround reveals both vendor resourcefulness and the infrastructure gap that persists even in urban Bastar.

Theme 3: Tribal women food vendors are universally excluded

At all three market sites we observed the same pattern: tribal women selling vegetables and forest produce, the largest seller group at haats, use cash almost exclusively and own no smartphones. At Geedam we quantified this as 92.1% of female vendors without UPI; at Jagdalpur we recorded it qualitatively as our most surprising observation. Its consistency across a rural haat with 22.6% overall adoption and an urban market with 87.7% adoption confirms that the gender–smartphone exclusion is structural rather than situational.

DISCUSSION

Smartphone Access, Not Network, Is the Primary Barrier

The prevailing assumption in rural digital payment literature is that network connectivity is the primary structural barrier [8, 7]. The Geedam Haat observation directly refutes this assumption. On 10 May 2026 we recorded strong 5G connectivity throughout the market, an ATM and bank counter at the entrance, and active PhonePe and Google Pay QR codes at 62 stalls, yet 77.4% of stalls remained entirely cash-based. The explanation is straightforward: 69% of Geedam vendors own no smartphone, and without a device, network quality, financial infrastructure, and policy initiatives are all irrelevant. Behera [4] and Praveen [15] identify structural exclusion as the central challenge in tribal digital inclusion; the Geedam count provides the first stall-level quantification of what that exclusion looks like in a Bastar Division tribal haat.

Women Vendors Represent the Deepest Exclusion

The gender finding is the single most important result of this study. Women form 73.7% of all vendors at Geedam Haat but only 7.9% of female vendors display a UPI QR code. We

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observed the same pattern at Jagdalpur, where tribal women food vendors use cash even in a market with 87.7% overall UPI adoption. IIPS and ICF [10] report 40.7% female mobile phone ownership in Chhattisgarh at the state level; this study shows the specific consequences at the haat level. The scale of this exclusion, with 186 of 202 women vendors at Geedam Haat standing outside the digital economy, makes the women-specific study proposed below (FR1) the most urgent research priority.

Peer Adoption Drives Engagement Among Adopters

The highest Likert statement score in the survey is 'The vendors around me also use UPI' (Q29, mean = 4.57). Among vendors who already own smartphones and use UPI, the strongest predictor of continued engagement is seeing peers in the same market do the same. The practical implication is direct: concentrating UPI onboarding camps at selected haats, rather than spreading individual outreach across the Division, would generate the critical mass of peer adoption that drives further uptake.

Selection Bias Why Survey and Observation Tell Different Stories

The survey records 100% UPI adoption (n=34); the Geedam observation records 22.6% (n=274 stalls). These figures do not contradict each other; they measure two different populations. Survey methodology can only reach vendors who are accessible, willing to participate, and sufficiently literate to engage with an enumerator. This systematically excludes the very vendors the study aims to understand. Our solution, a digital stall-counting tool deployed at two market sites, captured the full vendor population without consent bias and produced evidence that no survey can replicate. This methodological finding is itself a contribution: future research on digital adoption in tribal informal economies must integrate field observation alongside survey data.

CONCLUSION AND POLICY RECOMMENDATIONS

UPI adoption in Bastar Division is real but deeply unequal. Among educated, smartphone-owning vendors in market towns, adoption is high (100% in the survey sample and 87.7% at Jagdalpur Sanjay Market) and is associated with genuine benefits, particularly cash safety (mean = 4.61) and financial management (mean = 4.40). Conversely, at rural tribal *haats*, we recorded adoption of only 22.6% (Geedam, 10 May 2026) and below 25% (Dantewada). The primary barrier at Geedam is not network quality: most vendors simply do not own a smartphone. Within this excluded majority, tribal women food vendors are the most comprehensively left behind: 92.1% of Geedam's 202 female vendors trade entirely without UPI, a pattern we observed again, qualitatively, at Jagdalpur. Crucially, even for the minority of vendors who do own smartphones, the absence of audio payment alerts (sound boxes) creates severe operational vulnerabilities, exposing them to transaction timeouts and intentional fraud during overcrowded market rush hours. Network connectivity is not the primary barrier to UPI adoption in tribal Bastar. The absolute barriers are smartphone ownership and rush-hour transaction vulnerabilities. Until device access reaches tribal street vendors, especially women, and reliable, audio-based transaction verification becomes the standard, no awareness campaign, infrastructure investment, or policy scheme will achieve meaningful digital financial inclusion at rural haats.

Policy Recommendations

- **Government of India (PM-JANMAN):** Subsidise or provide basic smartphones to tribal street vendors earning below ₹5,000 per month in remote Bastar districts. Device access is the foundational enabler for digital inclusion; every subsequent intervention depends on it.

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- **NPCI and RBI:** Subsidise and deploy free UPI sound boxes to low-income tribal vendors. Audio payment confirmation eliminates screen literacy as a barrier and directly mitigates the severe transaction vulnerabilities and fraud risks vendors face during peak market rush hours.
- **Government of Chhattisgarh:** Integrate UPI literacy into *panchayat* sessions under the Bastar 2.0 initiative, delivering training in Gondi, Halbi, and Bhatri alongside Hindi. Furthermore, assign one "Digital Sakhi" (female digital guide) per weekly *haat* to provide ongoing, trusted assistance. This formalises the peer-learning channel that 91.2% of current adopters already rely upon, while directly addressing the severe digital exclusion of female vendors.
- **Fintech Companies (e.g., PhonePe, Google Pay):** Develop voice-guided app interfaces in Gondi and Halbi. Given that PhonePe holds a dominant 64.7% market share among surveyed vendors, the platform has both the structural reach and the corporate responsibility to lead tribal-language UPI design.
- **Banks and Business Correspondents (BCs):** Station mobile BCs at the five largest weekly *haats* per district specifically on market days. These representatives can assist the 69% of non-smartphone vendors in executing digital payments via the USSD *99# offline UPI channel using basic feature phones.

Future Research Directions

- **Intra-Household Phone Control:** Study how smartphones are shared within Bastar village households. Since 92.1% of women vendors lack UPI, research must determine if male relatives control the only device, preventing female digital inclusion.
- **Zero-Network Village Haats:** Conduct ground-level studies in deep-forest markets (e.g., in Abujhmad or Sukma). Research how digital inclusion can be achieved in villages where both 5G and grid electricity are completely absent.
- **Offline Digital Inclusion Tools:** Test the viability of offline payment technologies, like "UPI Lite X" or NFC smart cards, in remote Bastar villages. Assess if these tools can bypass the need for constant internet access.
- **Village-Level Digital Mentors:** Evaluate if trusted local figures (like *Mitanins*, Anganwadi workers, or Panchayat assistants) can be trained as grassroots digital guides to build trust and accelerate inclusion in their own villages.
- **Barter vs. Digital Economies:** Investigate interior Bastar villages where minor forest produce is still bartered for daily goods. Study how pushing digital inclusion impacts these deeply traditional, non-cash village economies.

Reflection from the Field

The systematic, stall-by-stall observations at Geedam Haat (274 stalls on 10 May 2026) and Jagdalpur Sanjay Market (317 stalls on 16 May 2026) produced the most valuable evidence in this study. Watching an older tribal woman refuse a customer's UPI request at Geedam because she had no phone, and then seeing the same pattern repeat in Jagdalpur's busy urban market, made the central finding unavoidable: the gender–smartphone gap is not merely a rural issue. It is a structural problem that persists across market types, connectivity levels, and overall adoption rates. We therefore plan to return to Geedam and Dantewada *haats* with

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female enumerators and Gondi/Halbi survey instruments to conduct this women-specific study as our immediate next research priority.

We intend to pursue the study of tribal women vendors (FR1) as our primary follow-up project, building directly on the field methodology, market relationships, and stall-counting data established in the present work. The ultimate goal is to produce the first dedicated primary evidence on the most excluded segment of Bastar Division's informal tribal economy, and to place these findings directly into the hands of policymakers executing the Bastar 2.0 and PM-JANMAN initiatives.

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