



ANALYZING THE STATUS QUO OF THE DIGITAL DIVIDE IN INDIA

Prakriti Gupta¹, Shehrebhanu Pipewala², Sneha Sarraju³, K.P. Manoranjan⁴

Abstract- This study examines the perpetuation of the digital divide in India despite the continuous efforts of the government to fix it. Using qualitative research methods and a review of existing literature, it is found that the digital divide goes beyond the access of having devices or the internet and is deeply linked with socioeconomic inequalities, educational disparities, and other forms of social exclusion. The Marxian and Weberian schools of thought throw light on how class, status and power influence digital access and power. Through a close evaluation of case studies and current government initiatives, this paper highlights how current policies prioritise connectivity over digital inclusion. This study concludes that bridging the digital divide in India requires a people-centric approach that penetrates beyond developing connectivity and Infrastructure and advocates for a more sustainable digital Inclusion that can only be achieved by focusing on building digital literacy, affordability, capability, and a meaningful skill set amongst Individuals, which enables them to use the existing resources optimally.

Index Terms- Digital Divide, India, Urban, Rural, Gendered differences, Digital divide and literacy rate

I. INTRODUCTION

Globally, the quick development of digital technology has completely changed how societies operate. A new technological system known as the "digital society" has emerged in the twenty-first century (*Laskar 2023*). The importance of having access to the internet, cell phones, and digital platforms has grown in relation to education, work, healthcare, governance, communication, and other areas. As a result, digital connectivity is now regarded as a necessity for social inclusion and growth rather than a luxury. Globally, digitalisation is frequently viewed as a way to boost public services, encourage economic growth, and increase citizen participation. Although India's infrastructure and connectivity have been greatly increased by government initiatives like BharatNet and different digital literacy programs, inequality still exists in the country.

This makes the digital divide a pressing issue and concern. According to research by *Laskar (2023)*, *Bansode and Patil (2011)*, *Bagchi (2019)*, and *IHDS-II analysis*, digital inequality frequently perpetuates rather than eliminates pre-existing disparities. Additionally, studies on the Digital India Mission and digital governance show that greater access does not equate to improved digital inclusion. Scholars contend that digital literacy, competence development, and social inclusion are just as vital as technology infrastructure and connectivity. The efficacy of existing policy initiatives and their influence on the causes of digital exclusion are being questioned in this debate. The literature also highlights a significant gap between policy intentions and actual outcomes, particularly among marginalised communities.

The analysed studies can be categorised into four primary themes: the conceptualisation of the digital divide, the socioeconomic factors contributing to digital inequality, the effects of digital exclusion on education and development, and the efficacy of governmental initiatives designed to close the gap. The Marxian and Weberian viewpoints offer a better understanding of how class, status, power, and social structures influence digital involvement in modern India. This study's main goal is to critically analyse the body of research on India's digital divide, pinpoint important trends and arguments, assess the success of ongoing programs, and talk about potential alternatives to make digital inclusion in India a practical and fair development.



II. LITERATURE REVIEW

The digital divide has drawn significant attention in recent years as societies have become deeply reliant on digital technologies. Digitisation has transformed various sectors like healthcare, communication, and employment. Yet, access to its benefits remains uneven. In India, the digital divide has emerged as a serious developmental concern, highlighting the underlying social and economic inequalities. Scholars explain the relation between digital exclusion and the non-technological factors like income, caste, gender, language and geographical location.

A persisting theme in the analysed texts is the understanding of the digital divide itself. The earlier studies define it as an unequal access to computers and the internet, while recent scholars argue that the issue extends beyond connectivity. *Bansode and Patil (2011)* emphasise that the digital divide includes both access to technology and the skills required to use it effectively. Similarly, *Lashkar (2023)* argues that digital inequality should not be viewed solely as a technological gap but as a reflection of the existing socioeconomic inequalities. Many studies now highlight the role of digital literacy and the ability to derive benefits from technology.

The relationship between digital inequality and social stratification was prominently seen in various studies. Several studies document that factors such as caste, class, education, and occupation have a substantial impact on access to digital resources. For instance, *the IHDS-II* study found that lower-income, lower-caste, and less educated families have fewer ICT assets and lower levels of digital involvement. Similar outcomes appear in studies in rural India, where weak infrastructure and low socioeconomic status limit access to digital opportunities. According to the literature, digital inequality frequently mimics existing patterns of social exclusion rather than introducing wholly new types of inequality.

Theoretical thoughts within the literature add further nuance. *Bagchi (2019)* applies a Marxian perspective to argue that digital resources are another form of capital, and those who already possess economic and educational advantages, along with the required digital skills, can benefit from it, while marginalised groups remain excluded. This pattern reinforces the dominance of privileged groups over vulnerable communities. A Weberian perspective complements this analysis by marking how access to digital technologies is a maker of status and prestige. Factors like education, cultural capital, and social position determine meaningful participation in the digital world, deepening social boundaries and exclusion.

The repercussions of the digital divide have also been extensively studied in the literature. According to studies on online education in Tamil Nadu and reports on digital inequality during the COVID-19 pandemic, pupils who did not have devices or reliable internet access experienced significant educational disruptions. Other works highlight unequal opportunities in employment, digital banking services, and e-governance platforms. These findings suggest that digital exclusion has far-reaching consequences for social mobility, economic involvement, and overall development.

The literature also examines government efforts to bridge the digital divide. Initiatives such as Digital India, BharatNet, Common Service Centres, and digital literacy campaigns have improved connectivity and digital infrastructure throughout the country. But many experts point out that these projects are still largely focused on access and infrastructure. Even though internet use is rising rapidly, issues like affordability, digital skills, language barriers, and meaningful engagement remain, thus hindering fair access and outcomes.

Despite increased research attention, notable gaps persist. Much of the existing work still centres around access and infrastructure, rather than the quality and long-term impact of digital engagement. There is also limited research on the role of caste, gender, disability, and class in shaping digital experiences. Moreover, while government measures are well documented, there is little critical examination of whether these policies have effectively decreased structural inequalities. These gaps point to the need for a more human-centred approach to digital inclusion - one that accounts for access, capabilities, empowerment and genuine equity.



III. RESEARCH AND METHODOLOGY

The Research mode that was chosen for this paper was qualitative in nature and was done independently by each author with the same search terms. Everyone reported their findings, and when they were all added together, the total number of articles was found to be 40.

This is the entire process depicted in Figure 1.

For this search, five academic databases were chosen: Google Scholar, Research Gate, SSRN, JSTOR, and SAGE Journals. These databases were selected because they have a significant body of published, credible work which addresses issues such as digital education policy and social development, specifically in the Indian context.

The parameters of the search were kept narrow, relating to the digital divide, literacy rates and the digital divide. Despite the differences between urban and rural populations in technology access, there is no clear distinction between the two.

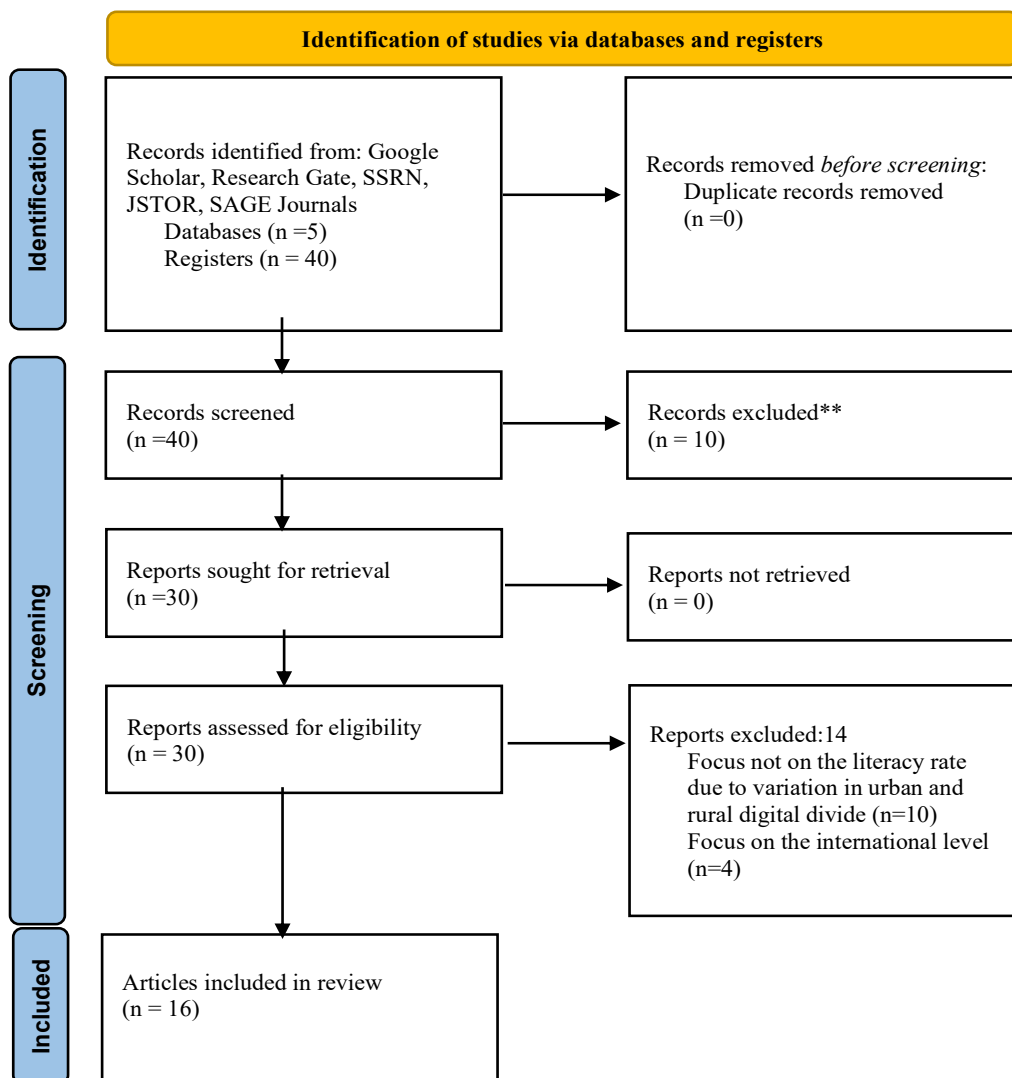


Figure 1



The 40 records altogether were advanced to the screening stage to check for any duplicate records. There was no loss at that time because there were no duplicates. As illustrated in Figure 1.

In the next stage of screening, 10 records were dropped due to them not meeting the basic criteria selected. The number of species was brought up to 30 with their study. Then all of these 30 were retrieved intact, with no irretrievable cases.

All 30 retrieved reports were then subject to an eligibility process, as shown in Figure 1.

The inclusion criteria followed were:

- (a) studies focusing on the digital divide between urban and rural areas,
- (b) direct connection to literacy rates or digital literacy in India,

At this stage, 14 more were removed, for not focusing on the answer of how literacy rates are relevant to the urban-rural digital divide, specifically, and 4 because their relevance to the digital divide is not clearly established. The scope was broader than dealing with India only.

At the end of this process, 16 articles were chosen for this review. These studies directly address the topic of this paper, and collectively they have contributed to its development. Supporting evidence on which the analysis and discussion sections are based



IV. CASE STUDY AND FRAMEWORK

Case Study 1: Online Education in Tamil Nadu during the Pandemic

Introduction

When schools in Tamil Nadu closed in 2020, the state government launched Kalvi TV—a televised instruction program—to sustain learning. Jafar et al. (2023) analyzed this initiative using data from the Tamil Nadu Covid Pulse Survey (TNCPS), a phone-based panel survey conducted jointly by the Madras Institute of Development Studies and the state government. Covering 8,100 to 8,300 students across three rounds between June 2020 and June 2021, the study goes beyond asking whether students accessed online education; it examines whether the state's intervention reduced existing inequalities or merely reshaped them.

Case Description

Access to online education fluctuated over time: it dropped from 59.3% in Round II to 52.5% in Round III—linked to a brief school reopening—then rose to 71.8% in Round IV, coinciding with the second wave. Despite these shifts, disparities remained stable. The rural-urban gap varied slightly—from 14.7 to 16.2 to 12.8 percentage points—but never disappeared. Similarly, while access improved for Scheduled Caste (from 50.9% to 66.5%) and Scheduled Tribe (46.7% to 69.8%) students, General-category students saw even greater gains (81.9% to 89.6%), leaving an absolute caste gap of 20–23 points. Viewed through a Marxian lens, where digital access functions as capital, the data show that the pandemic altered access levels without changing the underlying social hierarchy.

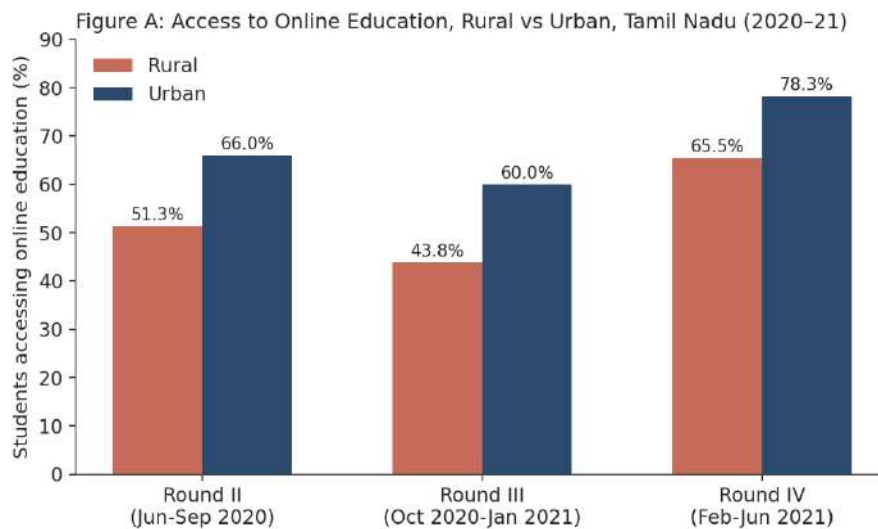


Figure 4.1: Access to online education, rural vs urban, across TNCPS rounds (Jafar et al., 2023).

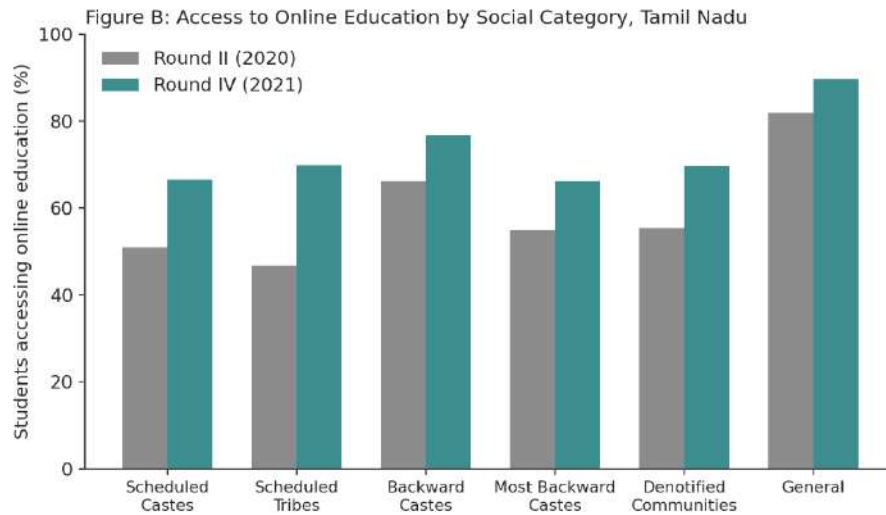


Figure 4.2: Access by social category, Round II vs Round IV (Jafar et al., 2023).

Mobile phones were the dominant access tool, increasing from 83.7% to 90.4%. Regression analysis revealed that device ownership boosted access odds by 4.5 to 6.5 times, depending on device type. However, technical difficulties reduced those odds by 1.57 times, and lack of household knowledge cut them by half. This demonstrates that access and capability are distinct factors, each independently affecting outcomes.

Proposed Solutions

- Expand Kalvi TV with recorded lessons and interactive content.
- Provide subsidized tablets and data plans to disadvantaged learners.
- Connect broadcasts to offline platforms like TN-DIKSHA and community learning centers

Discussion and Policy Evaluation

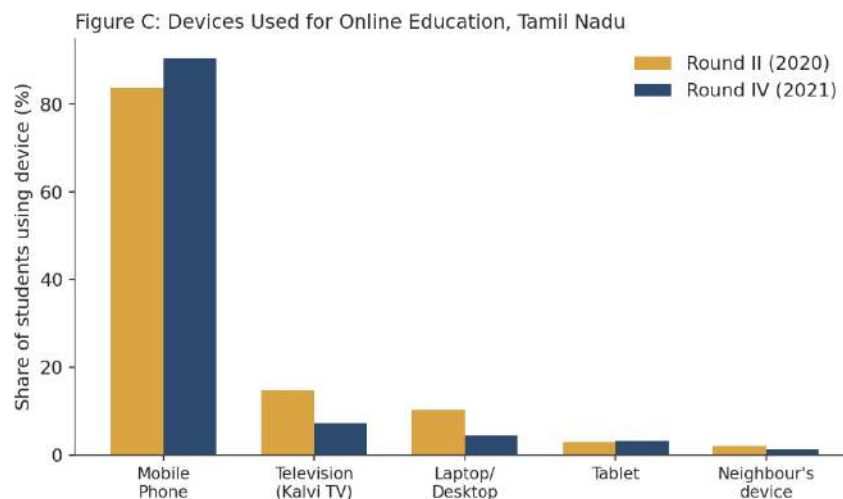


Figure 4.3: Devices used for online education — note the decline in Kalvi TV use despite near-universal TV ownership (Jafar et al., 2023).



Kalvi TV usage fell from 20.6% to 10.0% in rural areas, even though TV ownership remained high (94.6% rural, 96.3% urban). The bottleneck was not hardware but awareness of broadcast schedules, power and connectivity issues, and the passive nature of the format—findings that align with Jafar et al.’s recommendation for better outreach, not more equipment. Additionally, job loss reduced urban households’ access odds by about 0.64 units. Overall, the policy expanded opportunities for those already equipped but failed to address key barriers: income instability and gaps in digital literacy. Neither Kalvi TV nor the state’s laptop distribution tackled these root causes directly.

Case Study 2: Gender and the Digital Divide in India

Introduction

Samudra (2022) uses NFHS-5 data (2019–2021) from eighteen Indian states to distinguish between first-order (device ownership) and second-order (meaningful use) aspects of the gender digital divide. The study assesses what drives each and evaluates whether current gender-neutral digital policies can effectively bridge a gap rooted in social and household dynamics.

Case Description

Women’s mobile ownership increased by an average of 18% between NFHS-4 and NFHS-5, but growth varied widely—from 40% in Jammu & Kashmir to just 2% in Gujarat. By NFHS-5, ownership ranged from 49% in Andhra Pradesh and Gujarat to 91% in Goa. Meanwhile, the internet usage gap reached nearly 30 percentage points in Telangana, Manipur, and J&K, while remaining below 2 points in Sikkim.

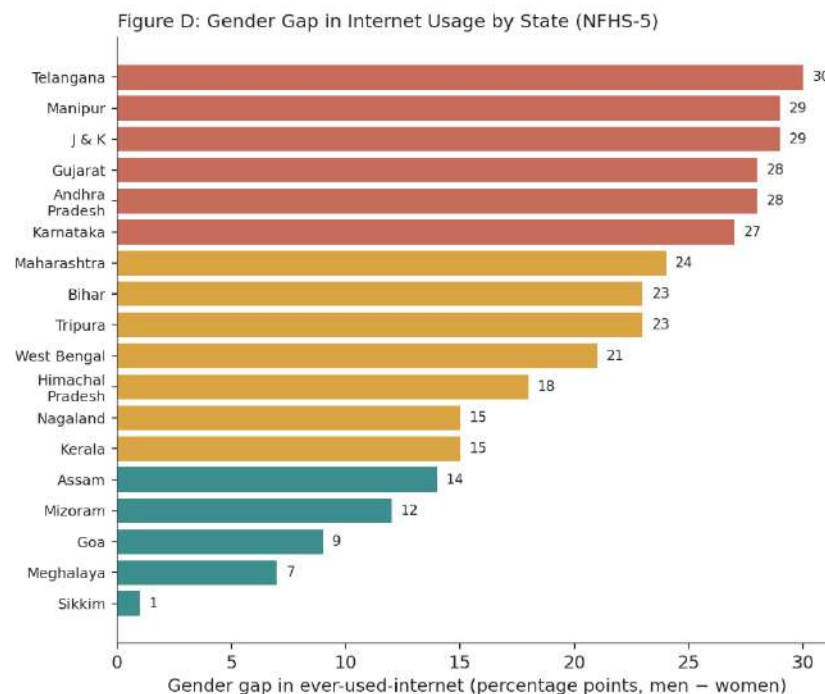


Figure 4.4: Gender gap in internet usage by state, NFHS-5 (Samudra, 2022).



Ownership correlated moderately with state income ($r = 0.487$, $p = .04$) but strongly with both male and female literacy ($r \approx 0.77$), suggesting household-level education matters more than individual schooling. More critically, the usage gap was significantly linked to women's own device ownership ($r = -0.615$), literacy ($r = -0.602$), share of female-headed households ($r = -0.498$), and their role in major household decisions ($r = -0.639$). In contrast, independent financial control showed no significant correlation ($r = -0.255$, $p = .307$), indicating that broader decision-making authority within the household is a stronger predictor than financial autonomy alone.

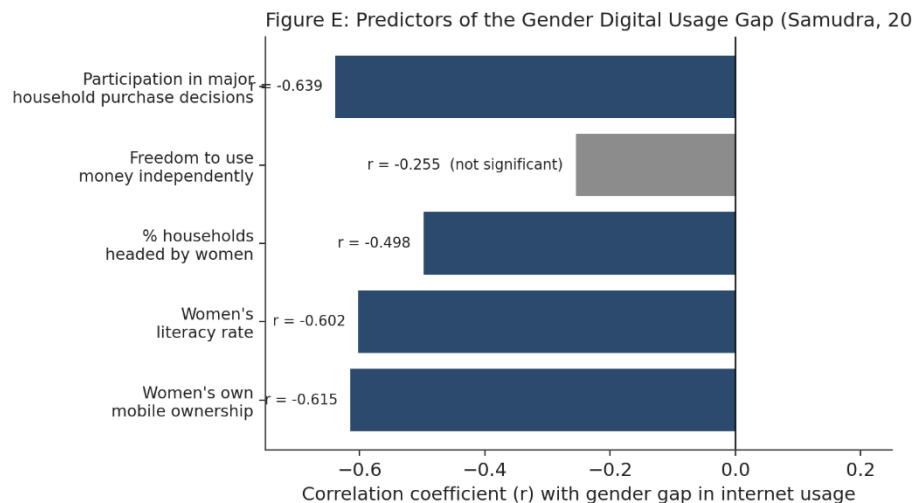


Figure 4.5: Predictors of the gender digital usage gap; the grey bar is not statistically significant (Samudra, 2022).

Discussion and Policy Evaluation

Samudra's four-category typology—based on ownership and use for financial transactions—reveals how policy metrics can mislead. “Laggard” states like Kerala and J&K have high ownership but low functional use, while “Rising Star” states such as Karnataka and Maharashtra show the opposite. A policy focused solely on distributing devices would wrongly label Kerala a success and Karnataka as falling behind—contradicting actual usage patterns. This helps explain why gender-neutral initiatives like the national digital literacy mission, despite prioritizing women, still report a 23-point gender gap among trainees. The strongest predictors—household decision-making power—are outside the scope of device-subsidy programs. Effective policy must differentiate between states with low ownership and low use (“Strugglers”) and those with high ownership but low use (“Laggards”), engaging directly with household dynamics rather than treating device access as a standalone solution.

Case Study 3: IoT Expansion and Social Inequality in India

Introduction

Nidadavolu and Sain (2025) investigate whether India's rollout of Internet of Things (IoT) applications in smart homes, cities, and healthcare repeats the access-capability-benefit divide seen in basic digital connectivity. Their analysis draws on real-world examples—not projections—including an IoT laundry system, a smart-city corridor, and a smart hospital.



Case Description

At NITK hostels, an app-controlled laundry service (Rs. 30 per wash) is affordable but serves only a small, digitally literate urban group, showing that affordability alone doesn't ensure inclusion when deployment is limited. In Vijayawada, the Golden Mile Project offers free Wi-Fi and smart infrastructure along a 2.9 km stretch, but excludes surrounding neighborhoods by design. This reflects a broader trend: Area-Based Development under the Smart Cities Mission targets less than 5% of urban populations in many cities and covers under 6% of urban land, while 37% of rural households still lack reliable internet compared to just over 32% of urban ones. In healthcare, a 200-bed smart hospital in Jhansi assumes stable connectivity, electricity, and tech literacy—conditions often absent among its rural patients. Conversely, low-bandwidth “fog” computing systems designed specifically for rural chronic disease monitoring achieve wider reach because they account for infrastructural constraints from the start.

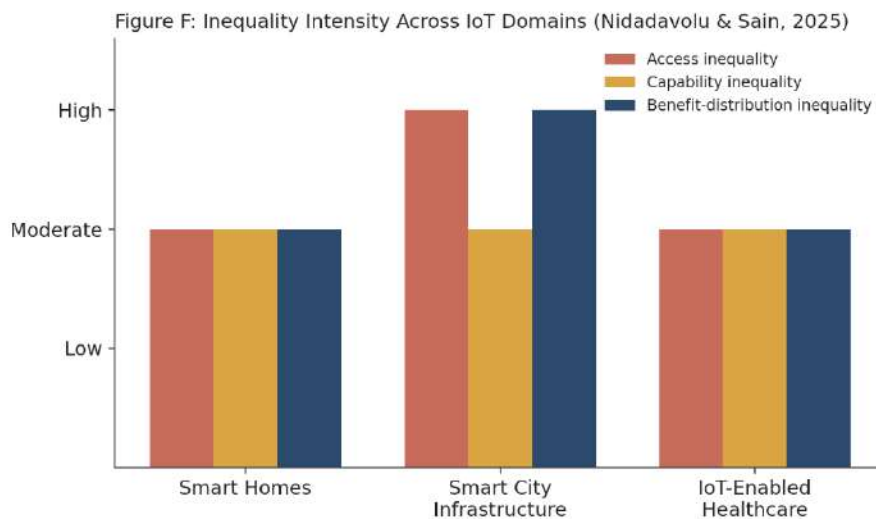


Figure 4.6 : Relative inequality intensity across IoT domains (adapted from Nidadavolu & Sain, 2025).

Proposed Solutions

- Require mandatory social impact assessments for smart city projects.
- Involve residents, especially from informal settlements, in co-designing solutions.
- Prioritize foundational infrastructure—electricity, water, connectivity—before layering on advanced IoT systems.

Discussion and Policy Evaluation

The authors rate inequality intensity as “High” in smart cities (due to spatial concentration and minimal public input), “Moderate” in smart homes (driven by cost and digital literacy), and “Low to Moderate” in healthcare, where simpler designs can mitigate disparities. The variation lies not in the technology itself but in how it is governed. Most smart city projects are managed by Special Purpose Vehicles with limited transparency and accountability, enabling concentrated investment without equity checks. As a result, the Smart Cities Mission has favored visible pilot projects over extending basic services to underserved areas. The authors propose a four-part Digital Equity Framework—emphasizing infrastructural fairness, skill development, economic access, and accountable governance—to address this structural gap.



Nationally, initiatives like Digital India, BharatNet, and PMGDISHA have made tangible progress: by 2023, BharatNet had connected over 180,000 of the targeted 250,000 Gram Panchayats, and PMGDISHA had trained more than 60 million rural individuals (Upadhyaya, 2024). Yet, 36.5% of rural households still lacked internet access compared to 62.4% of urban ones, only about 42% of women had ever used the internet versus 62% of men, and roughly 40% of school-age children could not access online learning during the pandemic. These figures mirror the case studies: infrastructure expansion has not led to proportional reductions in relative inequality. This reinforces the paper's central argument—that digital inclusion requires attention to capability and equitable outcomes, not just connectivity.



V. KEY FINDINGS

The three case studies highlight different exclusion mechanisms: economic and infrastructural (Tamil Nadu), social and household-based (gender), and governance-driven (IoT). Together, they support a clear conclusion: while expanding access consistently increases overall usage, it does not close the relative gap between the most and least included groups. The persistent barriers—technical and knowledge gaps, household decision-making power, and governance models—lie beyond the reach of connectivity-focused spending. This distinction between absolute gains and relative equity is often overlooked in policy reporting, where rising numbers (more students online, more women with phones, more smart cities) are presented as progress, even as disparities endure.

Case Study 1: Tamil Nadu (Jafar et al., 2023)

TNCPS data reveal consistent inequality patterns across rounds, rooted in pre-existing household conditions rather than temporary circumstances. Regression results confirm that while device ownership raised access odds by 4.5–6.5 times, technical problems and knowledge deficits independently reduced those odds by 1.57 and 2 times, respectively. Thus, a household with a device could still be less likely to access education than one with fewer barriers. The caste gap narrowed but persisted, and declining Kalvi TV usage despite widespread TV ownership points to implementation flaws, not hardware shortages. Job loss further reduced access in urban areas, highlighting a pathway of exclusion—household income—that education-specific policies cannot fully address.

Case Study 2: Gender (Samudra, 2022)

The statistical analysis strengthens the argument: the internet usage gap correlates strongly with women's involvement in household decisions ($r = -0.639$) and literacy ($r = -0.602$), but not with financial independence alone ($r = -0.255$). While national ownership grew by 18%, state-level variation (2%–40%) shows that averages can obscure stagnation in certain regions. The quadrant model reveals that device-distribution policies have plateaued in some states (e.g., Kerala) while succeeding in others (e.g., Karnataka). State-specific gaps—from under 2 points in Sikkim to 30 in J&K—underscore that local social context, not national trends, drives disparities. Uniform national targets may therefore be inadequate for some and excessive for others.

Case Study 3: IoT (Nidadavolu & Sain, 2025)

Real-world cases—the NITK laundry system, Vijayawada's Golden Mile, and the Jhansi hospital—confirm the access-capability-benefit divide. Smart cities exhibit the highest inequality due to geographic concentration and weak public engagement. Smart homes illustrate that affordability doesn't guarantee inclusion if access is socially or geographically restricted. Healthcare offers a counterexample: low-infrastructure “fog” systems outperform centralized facilities by design. Across domains, governance is the common thread—Special Purpose Vehicles with limited accountability allow inequitable deployment to persist. This mirrors the outreach failures seen in Kalvi TV and national digital literacy efforts, suggesting that governance structure, not technology itself, is the recurring obstacle.

Synthesis Across the Three Case Studies

In education, gender, and emerging technologies, access determines initial engagement with digital tools, but sustained and equitable use depends on separate factors: technical and knowledge skills, household decision-making authority, and governance design. National achievements—over 180,000 connected Gram Panchayats, 60 million trained citizens, 48 billion annual digital transactions—reflect real infrastructure gains (Upadhyaya, 2024). Yet none have been matched by equivalent reductions in relative disparities. This forms the empirical basis for the Marxian and Weberian interpretation in the Discussion: technological resources require complementary social, economic, and institutional supports—education, status, accountability—to become meaningful. Current Indian policy has largely neglected this conversion process. A more effective approach would move beyond one-



size-fits-all, connectivity-first strategies toward targeted interventions that address the specific capability barriers in each domain—a shift this paper advocates in its final sections.

VI.DISCUSSION

India's digital transformation has substantially expanded digital infrastructure, internet connectivity, and technology-enabled public service delivery over the past decade. However, the evidence presented in this study suggests that improvements in connectivity have not translated uniformly into equitable digital participation. This disconnect indicates that the digital divide is no longer solely an issue of technological access but one of capability, social opportunity, and institutional inclusion. While flagship initiatives such as **Digital India, BharatNet, PMGDISHA, DIKSHA, Common Service Centres (CSCs), and PM eVIDYA** have improved digital access across the country, the benefits of these interventions continue to be distributed unevenly across different social groups. This observation reinforces the argument advanced in the literature that digital inequality is deeply embedded within existing socioeconomic structures rather than arising only from deficiencies in technological infrastructure.

The evidence analysed in this study indicates that meaningful digital inclusion increasingly depends on individuals' ability to effectively access, utilise, and benefit from digital technologies. The Tamil Nadu education case demonstrates that the availability of smartphones alone could not ensure equitable learning outcomes when students encountered unreliable internet connectivity, shared devices, limited digital literacy, and restricted opportunities for interactive learning. Similarly, the gender case study illustrates that ownership of digital devices does not automatically translate into meaningful digital participation when social norms and household decision-making continue to limit women's autonomy over technology use. The analysis of Internet of Things (IoT) technologies further extends this argument by demonstrating that emerging digital systems require advanced digital competencies, institutional preparedness, and reliable infrastructure, thereby creating additional layers of exclusion beyond basic connectivity. Collectively, these findings indicate that the contemporary digital divide has evolved from a question of physical access to one of capability, participation, and equitable outcomes.

These patterns reinforce the explanatory value of the Marxian and Weberian perspectives adopted in this study. From a Marxian perspective, digital technologies increasingly function as forms of economic and social capital that are more readily accumulated by individuals and communities already possessing educational, financial, and institutional advantages. Consequently, technological expansion often reproduces existing inequalities by enabling privileged groups to derive disproportionate benefits from digital development. The Weberian perspective complements this interpretation by demonstrating that digital competence has become an important determinant of social status, influencing access to education, employment, public services, and civic participation. Rather than replacing traditional systems of stratification, technological advancement interacts with existing inequalities associated with class, caste, gender, educational attainment, and geographical location. The empirical evidence therefore supports the proposition that digital technologies operate within broader social structures instead of functioning independently from them. This theoretical interpretation also provides a basis for evaluating whether contemporary digital policies address the structural causes of exclusion or primarily expand technological access without substantially reducing underlying social inequalities.

An equally important insight emerging from the analysis concerns the effectiveness of contemporary digital policies. The evidence suggests that government initiatives have been more successful in expanding digital access than in ensuring equitable digital outcomes across diverse social groups. Educational interventions such as Kalvi TV played an important role in maintaining learning continuity during the COVID-19 pandemic; however,



disparities in household income, digital literacy, internet reliability, and access to personal devices continued to influence educational outcomes. Likewise, improvements in women's ownership of mobile phones have not fully translated into equitable internet use because household power relations, educational disparities, and prevailing social norms remain significant barriers to meaningful participation. Similarly, the expansion of smart-city initiatives and IoT-based technologies demonstrates that technologically advanced infrastructure may unintentionally concentrate benefits among populations already possessing greater economic and institutional advantages when equity considerations are not adequately incorporated into programme design and implementation. These observations suggest that evaluating digital policies solely through indicators such as internet penetration, device ownership, or infrastructure expansion provides only a partial assessment of their effectiveness. A more meaningful evaluation must also consider whether these interventions reduce structural inequalities and enable equitable participation across different sections of society.

The analysis also challenges the conventional assumption that the digital divide is primarily a rural–urban phenomenon. Although geographical disparities remain important, the findings indicate that socioeconomic status, educational attainment, caste, gender relations, household decision-making, and institutional capacity frequently exert a greater influence on meaningful digital participation than location alone. Rural communities continue to experience infrastructural disadvantages, yet economically and socially marginalised populations within urban areas often encounter similar barriers relating to affordability, digital capability, and effective technology use. Moreover, variations across states highlight the importance of local institutional contexts and governance capacities in shaping digital inclusion. These observations support an intersectional understanding of digital inequality in which multiple dimensions of disadvantage interact to influence opportunities for digital participation and social mobility.

Rather than viewing the digital divide as a single infrastructure deficit, this study demonstrates that digital inequality in India operates through multiple interconnected dimensions involving access, capability, social power, and institutional governance. This integrated perspective constitutes the principal analytical contribution of the study. By synthesising theoretical insights, contemporary literature, and empirical case studies, the analysis demonstrates that technological expansion alone cannot achieve equitable digital development when opportunities to access, use, and benefit from digital technologies continue to be shaped by broader social structures. The evidence further suggests that digital inequality is cumulative rather than isolated, with disadvantages relating to education, gender, income, governance, and institutional capacity reinforcing one another over time. Consequently, understanding the digital divide requires moving beyond technological indicators towards a broader analysis of capabilities, social justice, and institutional arrangements. This perspective not only strengthens existing scholarship on digital inclusion but also provides a more comprehensive framework for evaluating future digital policies and advancing inclusive digital development in India.



VII.CONCLUSION

This study critically examined the status quo of the digital divide in India by synthesising existing literature and analysing contemporary case studies through Marxian and Weberian theoretical perspectives. The findings collectively indicate that although India has made remarkable progress in expanding digital infrastructure through initiatives such as Digital India, BharatNet, PMGDISHA, DIKSHA, and other digital governance programmes, the benefits of digital transformation remain unevenly distributed across different sections of society. Persistent disparities based on income, education, caste, gender, occupation, and geographical location demonstrate that the digital divide is deeply embedded within broader social and economic structures rather than being solely a consequence of inadequate technological infrastructure.

The evidence synthesised from the literature and case studies further demonstrates that the digital divide has evolved beyond the question of physical access to technology. Meaningful digital participation is increasingly influenced by affordability, digital literacy, language accessibility, institutional support, household decision-making, and the capability to effectively utilise digital resources. The analyses of online education in Tamil Nadu, gender-based digital exclusion, and the expansion of Internet of Things (IoT) technologies consistently reveal that while government interventions have expanded access, they have not sufficiently addressed the structural inequalities that continue to influence digital participation and outcomes.

The theoretical framework adopted in this study provides important insight into these patterns. From a Marxian perspective, digital technologies increasingly function as forms of economic and social capital, enabling already privileged groups to derive greater benefits from technological advancement. The Weberian perspective complements this understanding by illustrating how digital competence and technological access have become markers of social status, influencing opportunities for education, employment, and participation in an increasingly digital society. Together, these perspectives suggest that technological advancement, when pursued without addressing underlying structural inequalities, may reproduce existing forms of exclusion rather than reduce them.

By integrating contemporary case studies with established sociological perspectives, this study contributes to the existing discourse by demonstrating that the digital divide in India is fundamentally a multidimensional developmental challenge that cannot be addressed through technological expansion alone. Addressing this challenge requires a transition from infrastructure-centred policies towards a people-centred and capability-based approach that combines investments in connectivity with affordable access, digital literacy, multilingual digital content, inclusive institutional design, and equitable governance. As India continues its digital transformation, the effectiveness of future digital policies will depend not only on expanding connectivity but also on ensuring that every citizen possesses the capability, opportunity, and institutional support to participate meaningfully in an increasingly digital society.



VIII. LIMITATIONS OF THE STUDY

This study is subject to certain limitations that should be considered while interpreting its findings. First, the research adopts a qualitative methodology based primarily on secondary sources, including academic literature, policy documents, and published reports. Consequently, the analysis relies on the scope, quality, and interpretations presented within the selected literature rather than on primary empirical evidence collected directly from participants. Accordingly, the findings should be interpreted as an analytical synthesis of existing evidence rather than as primary empirical generalisations.

Second, although the selected case studies capture important dimensions of the digital divide, they cannot fully represent the diversity of digital experiences across India's varied socioeconomic, cultural, and regional contexts. Differences in governance capacity, infrastructure availability, demographic composition, and local policy implementation may influence patterns of digital participation differently across states and communities.

Additionally, the purposive selection of literature and case studies may have resulted in the exclusion of other relevant perspectives on the digital divide, although every effort was made to include diverse, credible, and contemporary sources that aligned with the objectives of the study.

Finally, the digital ecosystem continues to evolve rapidly with the emergence of Artificial Intelligence (AI), Digital Public Infrastructure (DPI), Internet of Things (IoT), and new digital governance initiatives. As technological developments and policy interventions continue to evolve, some observations presented in this study may require further empirical validation and periodic reassessment.

Despite these limitations, the study provides a comprehensive synthesis of existing scholarship by integrating theoretical perspectives with contemporary policy analysis and case-based evidence, thereby contributing to a deeper understanding of the multidimensional nature of the digital divide in India.



IX. FUTURE SCOPE OF RESEARCH

The present study opens several avenues for future research on the digital divide in India. Future investigations may adopt mixed-method or empirical research designs that combine qualitative analysis with surveys, interviews, and field-based investigations to better understand the lived experiences of digitally excluded communities. Such approaches would provide richer insights into the social, economic, cultural, and institutional factors that shape meaningful digital participation.

Comparative research across Indian states, rural and urban regions, and different socioeconomic groups would further strengthen understanding of regional variations in digital participation and facilitate the identification of context-specific policy interventions. Greater scholarly attention should also be devoted to the intersection of caste, gender, disability, age, language, and socioeconomic status, as these dimensions frequently interact to produce multiple forms of digital exclusion.

Another important area for future inquiry lies in examining the implications of emerging technologies such as Artificial Intelligence (AI), Digital Public Infrastructure (DPI), Internet of Things (IoT), and platform-based governance. Evaluating these technological developments through the lenses of accessibility, affordability, capability, and equitable benefit distribution will be essential in determining whether they reduce existing inequalities or generate new forms of digital exclusion.

Future research may also undertake systematic evaluations of flagship government initiatives, including Digital India, BharatNet, PMGDISHA, and other digital inclusion programmes, by assessing long-term outcomes related to capability development, educational attainment, employment opportunities, and social inclusion rather than relying solely on indicators of infrastructure expansion or internet penetration.

Finally, developing comprehensive measures of meaningful digital participation, digital capability, and long-term social outcomes would strengthen evidence-based policymaking and support the design of more inclusive digital governance frameworks. Such research can contribute to ensuring that India's digital transformation advances not only technological progress but also social equity and inclusive development.



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