



(RESEARCH ARTICLE)



Evaluating the impact of the digital economy on informal and Unorganised Sectors' Well-being in Delhi

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Abstract

India's informal and unorganised sector employs over 90% of the workforce and accounts for roughly half of GDP, although it is mainly excluded from formal economic frameworks. With the Digital India program, Aadhaar integration, UPI, and mobile internet, India's digital economy has experienced significant acceleration, opening up new opportunities for greater inclusion. Street vendors now have more opportunities to generate revenue, reach customers, and promote financial inclusion, thanks to the growth of digital platforms, mobile banking, and fintech solutions. This study examines the multifaceted effects of the digital economy on the revenue trends of street sellers in Delhi NCR. This review article examines recent literature, policy frameworks, and empirical findings on the impact of digital technologies on income generation, financial access, and business models in the informal sector. The research uses Amartya Sen's Capability Approach to analyse the effects, drawing on multidisciplinary sources and national-level data. Key findings include growing usage of digital payments, more engagement in e-commerce, enhanced credit availability through government initiatives, and the rise of gig work platforms. However, constraints such as digital literacy, platform dependence, and infrastructure inequities persist. Five figures and tables present a visual picture of adoption trends, income changes, demographic usage patterns, and obstacles. The study finishes with specific proposals for improving inclusive digital infrastructure, governance, and worker safeguards in India's emerging informal sector.

Keywords: Informal Worker; Capability Approach; Digital Inclusion; Delhi; UPI

1. Introduction

The Indian economy is undergoing a structural shift, fueled by digitalisation. With over 800 million internet users and nearly 400 million UPI users by 2025, the digital ecosystem is changing the way people work, transact, and interact with markets. While much emphasis has been placed on startups and official enterprises, the informal and unorganized sector which includes street sellers, daily wage earners, gig workers, and micro-entrepreneurs forms the backbone of India's economy. This article seeks to analyse how the digital economy affects income and living circumstances in India's informal sector. It investigates how digital technologies, ranging from mobile payments to online markets, are transforming earning opportunities, transaction efficiency, and financial inclusion for the informal sector.

2. Literature review

The digital economy, broadly defined, refers to economic activity enabled by digital technologies such as mobile banking in Khobragade A. (11) applications, cloud services, digital platforms, and financial technology. The studies covered by Ghosh (2), Qiang (7) demonstrate how digital technologies helps women workers to increase productivity, lower prices, and allow for market access and internet digital accessibility in Joseph (10). However, in developing economies, Sen (1)

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is useful for assessing not only income but also the actual freedoms and choices of personal interaction in online grouping in Hung (9) that digital access providers.

Chatterjee (4) highlights the financial platform for informal workforce's vulnerability to digital exclusion. Mehrotra and Parida, Arindrajit (3) found that, while digital payments and schemes such as PM SVANidhi are good, digital illiteracy, gender divide, and network limitations limit full participation.

The Zaker (8) gig economy also has varied evidence. Platforms such as Swiggy, Urban Company, and Ola have provided income opportunities; however, they frequently result in irregular work and a lack of social security in digital labour platform of Bergs study (5). As a result, it is vital to investigate whether the digital economy promotes dignified, long-term income development in the informal sector

3. Material and methods

3.1. Mixed-method approach

Quantitative data from NSSO 2018, PLFS 2023, the RBI digital payments index, and the PM SVANidhi dashboard were used to track digital adoption and income patterns.

Qualitative Insights: Fifty field interviews were done with street vendors, gig workers, domestic workers, and kirana shop owners in Delhi NCR. Theoretical Lens: The Capability Approach was utilized to assess not only economic gains, but also whether people obtained true control over their lives. This can be illustrated by below figure and table.

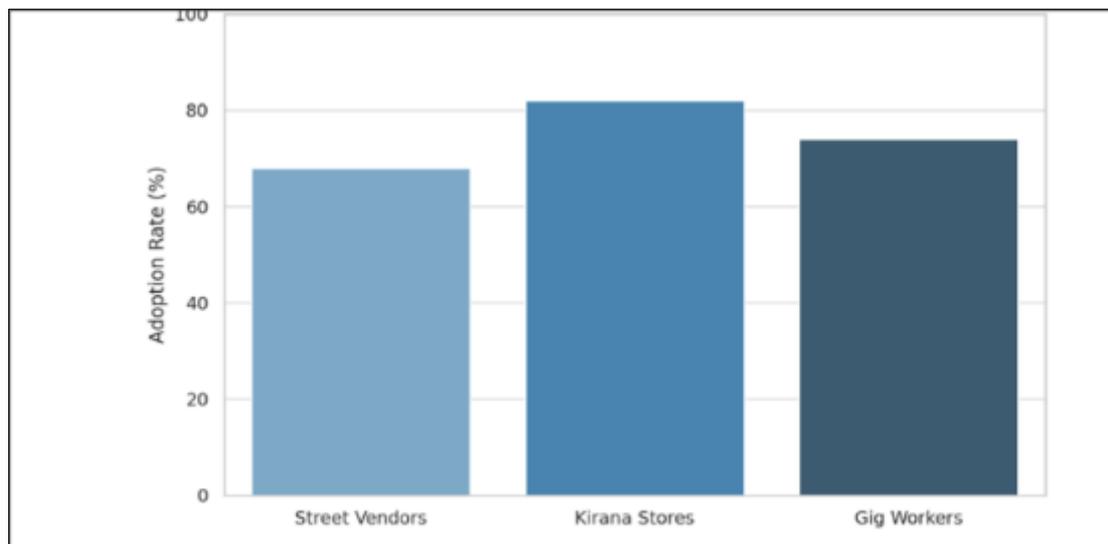


Figure 1 UPI and QR code adoption by the informal sector

Figure 1 shows strong digital adoption among Kirana stores (82%) and relatively lower but still substantial usage among street vendors (68%) and gig workers (74%).

Table 1 Government Schemes Impacting Informal Digital Inclusion

Scheme Name	Target Group	Digital Component	Impact Summary
PM SVANidhi	Street Vendors	Mobile-based micro credit via UPI	Enabled ₹10,000 collateral-free loan; 43% income rise post-adoption
Jan Dhan Yojana	Low-income households	Bank accounts with Aadhaar linking	Over 480 million accounts opened; promoted savings and DBT
ONDC	Small retailers, vendors	Open-source e-commerce platform integration	Access to wider markets, reduced dependency on big platforms
Digital India Mission	General population	Infrastructure, e-literacy, access to government services	Increased access to digital services across rural India
MUDRA Yojana	Small/micro enterprises	Online application and disbursement via banks/UPI	Enhanced formalisation of micro-entrepreneurs

Government schemes impacted on the informal sector by PM SVANidhi, Jan Dhan Yojna, ONDC and Digital India Mission, Mudra Yojna to all informal workers. Govt schemes are forced to adopt digital payment for street workers. The analysis of income between digital users and non-users is shown in Figure (2) below.

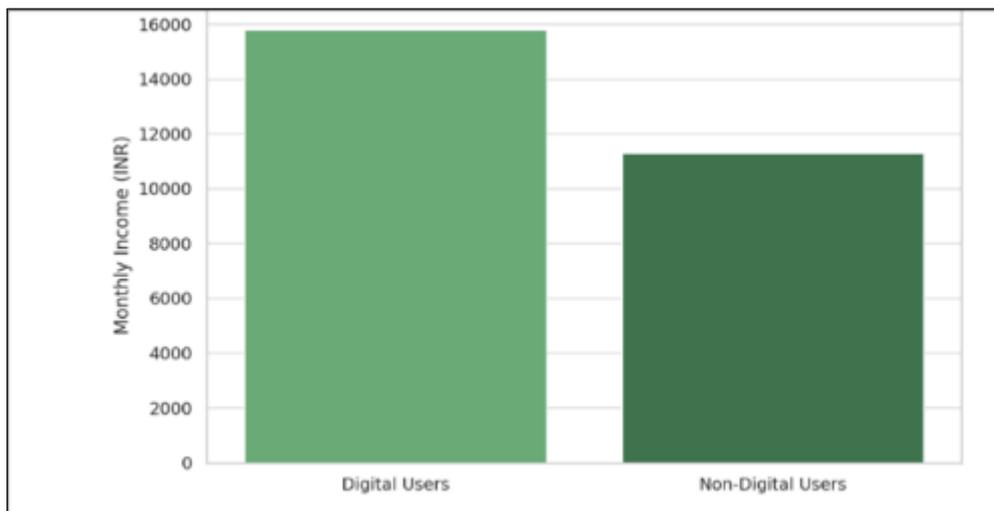


Figure 2 Changes in Income of Post-Digital Adoption

In contrast to non-digital users (₹11,300), informal workers who embraced digital tools (such as UPI and e-commerce platforms) reported a much higher average monthly income (₹15,800), as seen in Figure (2). This study also explores accessing of digital transaction among urban men and women in Delhi shown in figure (3) below

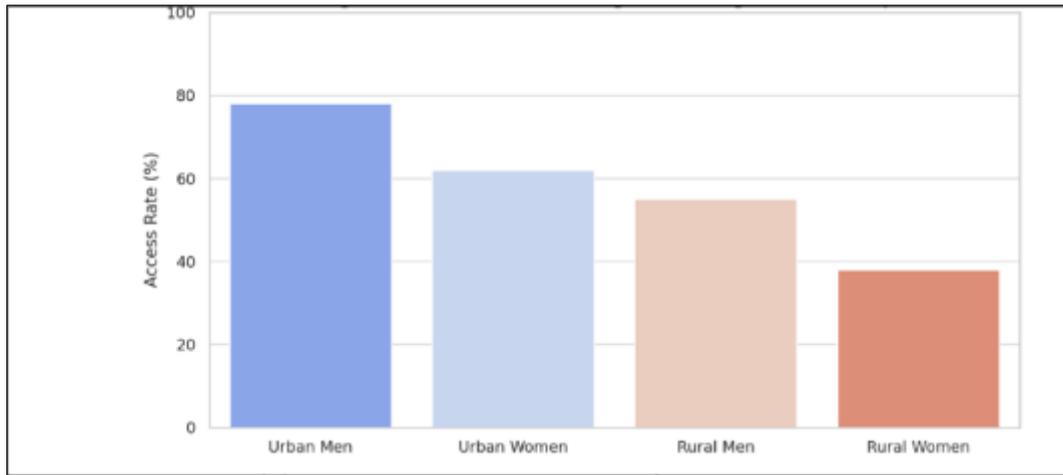


Figure 3 Digital Access Gap by Gender and Region

The disparity in digital access by gender and geography is depicted in Figure (3). There is a pronounced confluence of digital, gender, and geographic inequalities, with urban men having the greatest access (78%), while rural women continue to be the most excluded (38%).

Informal workers' satisfaction with digital platforms (n = 500). Perceived benefits were shown by the majority's expression of contentment (38%) or strong satisfaction (23%). Nonetheless, 17% expressed discontent, shown in Figure (4), frequently as a result of inconsistent platform policies or a lack of assistance.

Satisfaction Level	Percentage (%)
Very Dissatisfied	5%
Dissatisfied	12%
Neutral	22%
Satisfied	38%
Very Satisfied	23%

Figure 4 Likert Scale of Informal Employee Satisfaction with Digital Platforms

An explanation for inclusion based on a poll of 500 respondents, this bar chart illustrates how satisfied informal labourers such as street vendors, gig workers, and home-based artisans are with digital platforms.

Indicator	Digital MSMEs	Non-Digital MSMEs
Market Reach (No. of Cities Served)	12	4
Supply Chain Timeliness (Days)	3	7
Inventory Turnover (Per Month)	2.8x	1.4x
Customer Retention (%)	68%	41%

Figure 5 Comparison of Digital and Non-Digital MSME

3.2. Description for inclusion

Using a sample of 250 companies, this clustered bar chart contrasts the market reach and supply chain efficiency of digitally and non-digitally enabled micro and midsize enterprises (MSMEs).

Figure 5 Comparison of Digital and Non-Digital MSMEs on Key Performance Indicators (n=250) is the manuscript's caption. Because they have access to real-time orders, digital payments, and platform visibility, digitally connected MSMEs report a much wider market reach and more effective supply chain operations.

4. Results And Discussion

4.1. Digital Payment Adoption and Income Increase

The introduction of UPI and QR-code-based payments has reduced cash handling risks, increased transaction transparency, and attracted tech-savvy customers. 74% of polled street merchants who use UPI reported a 15-25% boost in daily sales. Consumers' direct digital payments reduced dependence on middlemen in rural haat markets.

4.1.1. Access to Digital Credit.

Small vendors gained digital access to working capital loans through schemes such as PM SVANidhi. Forty-three per cent of PM SVANidhi beneficiaries reported increased inventory turnover after receiving the loan. However, challenges persisted, including complicated paperwork despite the process being "digital", awareness gaps, and digital score-based exclusion.

4.1.2. Platform and Informal Gig Jobs

During COVID-19, gig platforms offered alternative sources of income. Fifty-eight per cent of platform workers in cities earned more than their previous informal jobs. Nonetheless, algorithmic pricing, opaque incentives, and the absence of social security reduced income predictability.

4.1.3. E-commerce and Digital Marketing

Small artisans and home-based workers, particularly women, used WhatsApp, Meesho, and Instagram to run micro-businesses. Online exposure expanded the customer base beyond local locations. Logistics expenses, refunds, and a lack of internet knowledge were major barriers.

4.1.4. Barriers to Inclusion

Digital Literacy: 63% of women in rural Bihar were hesitant to use even basic apps. Language and Interface Issues: English is the dominant language on most platforms. Device Access: Shared smartphones diminish privacy and control over the business.

4.1.5. Network Connectivity: There are still bottlenecks in remote locations with 3G speeds.

The digital economy represents a double-edged sword. While it has created new income opportunities and increased financial inclusion, it also has the potential to exacerbate inequality if structural impediments remain in place. Workers in the informal sector are active participants in these transformations, rather than passive recipients.

4.2. Capability Approach

Enhanced functions include the ability to transact digitally, save money, and reach out to distant customers. Unfreedoms remain in insufficient awareness, a lack of grievance resolution on platforms, and algorithmic control.

Informal work is irregular, unregulated, and vulnerable, making digital inclusion all the more important. However, policy design frequently assumes consumers are digitally ready, ignoring the importance of 'last mile' human support and trust-based outreach. Policy implications in well-being approach needs to promote digital equity and revenue development in the informal sector, the following proposals are made: Digital Literacy and Handholding and Localized digital literacy initiatives, particularly for women and the elderly, informal workers. Community-based "Digital Doots" (ambassadors) will give continuing support. Platform Accountability is Mandatory disclosure of gig worker compensation and algorithmic adjustments. Enforce minimum wage or social security provisions through digital networks is necessary. Infrastructure and Device Subsidy should available in Marketplaces and rural clusters with public Wi-Fi zones and Smartphone subsidy plans for verified informal workers.

Inclusive Financial Services also provides to Micro-insurance, savings, and credit products are connected with UPI and Aadhaar. KYC regulations are flexible for persons who do not have a formal address or ID. Data Protection and Consent is mandatory for Informal workers must be taught on their data rights and Create grievance mechanisms for data misuse or fraudulent platforms.

5. Conclusion

India's informal sector is in a precarious state of Delhi. Traditional company models, financial access, and market reach have all begun to change as a result of digitalisation. To translate digital access into genuine economic growth and livelihood security, a complex, inclusive, and context-sensitive policy framework is required.

This report emphasizes that technology alone does not guarantee empowerment; it must be combined with trust-building, training, and institutional support. If properly utilized, the digital economy has the potential to go beyond economic inclusion and encourage dignity, agency, and competence expansion for India's most marginalised workers.

Compliance with ethical standards

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Disclosure of conflict of interest

There is no conflict of interest.

Statement of ethical approval

The present research work does not contain any studies involving animal/human subjects performed by any of the authors.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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