

A Comprehensive Review of the Role of the Digital Economy for Women Empowerment in the Informal Service Sector

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ABSTRACT

The informal service sector in urban areas plays a crucial role in many developing economies, providing livelihoods for millions of people, particularly women in low-income urban areas. These women often work in low-wage, unregulated jobs that come with limited job security, poor working conditions, and restricted access to financial resources, services, training, and markets. Despite their significant contributions to economic activity, they face numerous challenges that impede their economic independence and security. In recent years, the digital economy has emerged as a powerful tool to help address these barriers, offering women the potential to improve their economic prospects. This research paper explores both the challenges and opportunities for empowering women through the use of digital technologies in the informal sector. It also examines how the adoption of digital assets can support women in the informal economy in achieving gainful livelihoods in the service sector. The paper concludes by providing policy recommendations aimed at reducing these barriers. These include promoting digital literacy programs, enhancing digital infrastructure, ensuring women's financial inclusion, and addressing cultural and gender-specific constraints. By fostering an inclusive digital environment, the digital economy can help reduce gender inequalities in the urban informal sector, empower women, and enable them to achieve greater economic independence and social mobility.

KEYWORDS: *Women Empowerment, Digital Economy, Informal service sector, Digital Divide, Financial inclusion, Gender gap*

1. INTRODUCTION

The informal sector in India is a complex and substantial part of the economy, characterized by a lack of regulation, social security benefits, and formal employer-employee relationships. It encompasses a wide range of activities and occupations, from street vendors and domestic workers to home-based manufacturers and agricultural labourers. While providing crucial livelihoods for millions, particularly women, it also presents significant challenges regarding worker rights and economic stability. According to ILO (2015), the informal economy refers to all economic activities, excluding illicit

activities, by workers and economic units that are, in law or practice, not covered or insufficiently covered by formal arrangements. Informal workers consist of persons working in unorganized, or informal, sector enterprises or households, excluding regular workers with social security benefits provided by their employer and the workers in the formal sector without any employment and social security benefits provided by their employer.

Enterprises that employ fewer than ten workers and are not government or public and public or private limited are in the unorganized, or informal, sector. These

enterprises can belong to any of the following five categories: proprietary; partnership; cooperative societies, trusts, or other non-profit organizations; employer's households (private households employing maids, watchmen, cooks, etc.); and others. As per the PLFS report, the percentage of workers engaged in proprietary partnerships in India is 76.8% male and 61.2% female. The informal service sector, in particular, is a crucial source of employment for women in India. Nearly two-thirds of the incremental employment after 2019 comprised self-employed workers, among whom unpaid (women) family workers predominate. The share of regular work, which steadily increased after 2000, started declining after 2018.

Women comprise a significant portion of the informal workforce, often occupying the most precarious and vulnerable positions. Home-based work, a common form of informal employment for women, remains largely invisible and unaccounted for in national statistics, further exacerbating the challenges they face. (Samantroy, 2019). Young women are more likely to engage in agriculture than young men. In tertiary sector activities, such as trade, hotels and restaurants, public administration, health and education transport, storage, and communication, there is a large gender gap in favor of men.

Overall, the Women's labour force participation rate is very low, at around 25 percent of the total female working-age population in 2022. India has one of the lowest female labour force participation rates in the world, which reflects its considerable gender inequalities.

2. LITERATURE REVIEW OF WOMEN IN THE INFORMAL SECTOR

The informal sector operates largely outside the purview of labour laws and regulations. This means workers often lack basic protections such as minimum wage guarantees, health and safety standards, and social security benefits. (Samantroy, 2019) focuses on the invisibility of home-based workers, who are often women, and their lack of social protection. This lack of regulation makes them vulnerable to exploitation and precarious working conditions. (JA & Yadav, 2017) states that a vast majority of India's workforce is engaged in informal employment. (ILO, 2023) notes that over 80% of non-agricultural employment is informal. This includes both traditional informal activities and the increasing informalization of formal sector jobs. (Kerswell & Pratap, 2018) further emphasizes the multilayered nature of informality, encompassing various vulnerable worker groups. They also point out that a significant portion of informal workers are self-employed, particularly in agriculture. Casual labor arrangements, with no fixed terms of employment, are also widespread. Informal workers typically earn low wages and face income insecurity due to the unpredictable nature of their work. (Maiti & Sen, 2010) discusses that the informal sector is a site of exploitation or accumulation, highlighting the complex labor relations within the sector.

A significant portion of informal work, especially for women, takes place within the home. (Samantroy, 2019) highlights the challenges in capturing data on home-based

work and the lack of visibility of these workers in official statistics.

Women are disproportionately represented in the informal sector and face specific challenges related to gender inequality. (ILO, 2023) notes the gender bias in informality, with women often concentrated in low-paying and precarious jobs. (Hiriyur, 2022) discusses how digital platforms are impacting informal workers, including women, in India.

(Lalrinsangi & Kharbiryumbai, 2024) explores how Information and Communication Technology can empower women. The study uses a descriptive and exploratory approach, reviewing existing research from 2002-2020 on the relationship between ICT and women's empowerment. It highlights the importance of empowering women for societal development and achieving Sustainable Development Goals, citing Warth and Koparanova. The paper emphasizes that ICT can empower women by providing access to technology, digital literacy training, and opportunities to participate in the digital world. It also discusses how such empowerment can lead to better economic opportunities, increased social and political participation, and solutions to prevalent issues like child marriage. The authors conclude that support from families, governments, and society is crucial for women to fully integrate into the national economy and contribute to its development, referencing Mishra & Kiran. Other research, such as (Çetin et al., 2020), also explores the relationship between ICTs, empowerment, and success from women's perspectives across different cultures.

3. LITERATURE REVIEW ON WOMEN EMPOWERMENT THROUGH DIGITAL ECONOMY

The integration of women into the digital economy, particularly within the informal service sector, is a subject of increasing scholarly interest. Several studies highlight the potential of digital platforms to empower women economically and socially. For instance, (Chatterjee et al., 2020) emphasizes the link between technology adoption and entrepreneurial intentions among rural women micro-entrepreneurs in India. Similarly, (Jain, 2020) underscores the positive role of Information and Communication Technologies in enhancing women's representation in the workforce. (Hiriyur, 2022) discusses how informal workers, including women, are harnessing the power of digital platforms in India. (Fu et al., 2021) provides a broader perspective on the role of digital platforms in development, including poverty reduction and capabilities building. (Ahmed & Hassan, 2023) explores the economic empowerment of women-owned MSMEs, acknowledging the challenges they face in resource acquisition and cultural limitations.

However, the literature also acknowledges the significant challenges that hinder women's full participation in the digital economy. (Samudra, 2022) discusses the gendered digital divide in India, highlighting disparities in access and usage of technology. (Bala & Singhal, 2018) further examines this divide through an inter-regional analysis of Uttar Pradesh, revealing differences in digital access and financial transactions between men and women. (Gurumurthy & Chami, 2018) provides a critical gendered lens on the Digital India program, pointing out the lack of gender-

disaggregated data and the need for further evaluation of its impact on women's empowerment. (Dhanamalar et al., 2020) examines the impact of digitization on women's empowerment in both rural and urban regions of India, emphasizing the need for increased access to technology and training for rural women. (Duvendack et al., 2023) focuses on the gender inclusivity of India's digital financial revolution, exploring both macro-level achievements and micro-level experiences of targeted initiatives. (Lalrinsangi & Kharbirymbai, 2024) offers a study on empowering women through ICT, while (Mohanty & Mishra, 2020) delves into the gendered nature of MSMEs' access and adoption of ICT4D. (Nath & Barah, 2017) specifically analyses the Digital India program and its impact on women, proposing a three-tier framework for measuring its effectiveness in promoting gender equality. Finally, (Agarwal, 2015) reviews the literature on career women in the new economy, identifying research gaps in the Indian context. These studies collectively underscore the need for targeted interventions to bridge the digital divide, address socio-cultural barriers, and ensure that the benefits of the digital economy are shared equitably by women in India's informal service sector.

India's informal service sector, a significant contributor to the nation's economy, is transforming due to the rise of digital platforms. The 'Internet in India Report 2024' reveals that active internet users reached 886 million in 2024, reflecting an 8% YoY growth. Rural India, with 488 million users, leads this surge, accounting for 55% of the total internet population. The digital gender gap is narrowing, with 47% of internet users now being women—the highest proportion. In rural India, women

represent around 58% of shared device users, marking considerable progress towards more inclusive digital access. This transformation presents both opportunities and challenges for women employed within this sector. This research paper examines the complex interplay between digitalization, women's empowerment, and the informal service sector in India. It explores how digital platforms can serve as tools for economic advancement and social mobility for women, while simultaneously acknowledging the potential risks and disparities they may exacerbate. This paper also aims to identify the strategies for harnessing the power of the digital economy to promote inclusive growth and empower women in India's informal sector.

4. OBJECTIVES

- To analyse the opportunities presented by digital platforms for women's economic empowerment,
- To identify the challenges faced by women in the informal service sector in accessing and utilizing digital platforms.
- To explore the role of government policies in bridging the digital gender divide and empowering women in the informal sector.

5. METHODOLOGY

This study is primarily descriptive and exploratory, focusing on the intricate relationship between the digital economy and the empowerment of women. Its objective is to investigate how various aspects of the digital economy contribute to enhancing women's social, economic, and

political status. The study accomplishes this by systematically reviewing secondary data from a diverse array of sources, including peer-reviewed research papers, scholarly articles, theses, and reputable online resources. Through this thorough investigation, a robust foundation of knowledge has been established regarding the impact of information and communication technology (ICT) on women's empowerment. The researchers precisely analyze existing data to uncover patterns and correlations, facilitating a deeper understanding of how ICT tools—such as the internet, mobile technology, and social media—can serve to empower women by providing access to education, employment opportunities, and platforms for advocacy. The conclusions drawn and inferences made throughout this study are grounded strictly in the examination of relevant literature, allowing for credible insights into the role of the digital economy in fostering gender equality and empowering women in contemporary society.

6. OPPORTUNITIES

- Increased income and economic independence: Digital platforms offer women in the informal sector access to wider markets and potential customers, increasing their earning potential (Hiriyur, 2022). These platforms can potentially increase their income and improve market efficiency. This is particularly relevant for those previously limited by geographical constraints or traditional intermediary systems. (Surie, 2017),
- Flexibility and autonomy: The gig economy, facilitated by digital platforms, provides flexibility in working hours and location, which can be particularly beneficial for women juggling multiple responsibilities (Singh, 2023), (Surie, 2017) This flexibility can empower women to balance work with family and personal commitments.
- Skill development and capacity building: Digital platforms can provide access to training and educational resources, enhancing women's skills and knowledge (Kar et al., 2018). This can lead to improved employability and higher income opportunities.
- Access to financial services: Digital financial services, such as mobile banking and online payment systems, can empower women financially by providing access to credit, savings, and insurance products (Duvendack et al., 2023). This can help women manage their finances more effectively and invest in their businesses.
- Networking and community building: Digital platforms can facilitate networking and collaboration among women entrepreneurs, enabling them to share experiences, knowledge, and resources (Hiriyur, 2022). This can create a supportive community and foster collective action.
- Promoting women-owned businesses: Initiatives like Udyam Sakhi (Udyam Sakhi, 2023) and Sochnapreneur (2023) specifically target women entrepreneurs, providing training, resources, and market access. These programs can help women start and

grow their businesses, contributing to economic empowerment.

- Meeting the growing demand: The increasing demand for ICT professionals presents a significant opportunity to integrate more women into the field. Filling these roles with qualified women can boost economic growth and innovation. (Kurti et al., 2024)
- Improving educational programs: Educational institutions have the opportunity to create more attractive and inclusive programs that cater to women's interests and learning styles. This can involve incorporating practical applications, mentorship programs, and addressing gender biases in the curriculum.

7. CHALLENGES

- Gender Digital divide: The gender digital divide in India (Samudra, 2022) limits women's access to digital technologies and the internet, hindering their participation in the digital economy (Barah & Nath, 2017). Factors such as lower mobile phone ownership among women (Kar et al., 2018) and limited digital literacy exacerbate this divide.
- Lack of infrastructure: Inadequate internet connectivity, particularly in rural areas (Hiriyur, 2022), poses a significant challenge for women seeking to leverage digital platforms for economic opportunities.
- Socio-cultural barriers: Patriarchal norms and gender stereotypes can restrict women's access to technology

and limit their mobility, hindering their ability to fully participate in the digital economy (Hiriyur, 2022).

- Precarity of work: The gig economy, while offering flexibility, can also lead to precarious work conditions, with limited job security, social protection, and fair wages (Hiriyur, 2022). This can exacerbate existing vulnerabilities for women in the informal sector.
- Data privacy and security: Women using digital platforms may face risks related to data privacy and security, including online harassment and exploitation.
- Lack of gender-disaggregated data: The absence of comprehensive gender-disaggregated data on access and usage of digital technologies makes it difficult to assess the true impact of the digital economy on women (Gurumurthy & Chami, 2018). This lack of data hinders effective policymaking and targeted interventions.
- Lack of unionization: The fragmented nature of platform work makes it difficult for workers to organize and advocate for their rights. (Hiriyur, 2022).

8. POLICY RECOMMENDATIONS

To overcome these challenges, the country requires a comprehensive approach, including bridging the digital divide, promoting digital literacy, ensuring affordable internet access, addressing socio-cultural barriers, and strengthening social protection mechanisms for women in the gig economy. By overcoming these

challenges and leveraging the opportunities presented by the digital economy, India can empower women in the informal service sector and promote inclusive economic growth.

1. Bridging the Digital Divide:

- Invest in infrastructure: Develop affordable internet access, particularly in rural areas, recognizing the disproportionate impact of the digital divide on women. (Barah & Nath, 2017) This includes not only internet connectivity but also access to devices and electricity.
- Promote digital literacy: Implement targeted digital literacy training programs for women, addressing both basic skills and advanced applications relevant to their livelihoods. (Hafkin & Huyer, 2008) consider incorporating digital literacy into existing educational programs and community centers.

2. Fostering Economic Opportunities:

- Support women entrepreneurs: Provide access to microfinance, business development services, and market linkages for women-owned businesses leveraging ICT. (Mahadi et al., 2017, 2014) Encourage the creation of online marketplaces and platforms that promote women's products and services.
- Promote decent work in the gig economy: Develop regulations and social protection mechanisms for platform workers, ensuring fair wages, safe working conditions, and access to benefits. (Hiriyur, 2022; Rani & Furrer, 2020) Address the gendered dimensions of platform work, such as online harassment and algorithmic bias.

3. Addressing Socio-cultural Barriers:

- Challenge gender stereotypes: Promote positive representation of women in STEM (Science, Technology, Engineering, Mathematics) and encourage girls' participation in ICT education and careers. (Peláez-Sánchez et al., 2023) address gender biases in curricula and educational materials.
- Empower women in leadership: Support women's leadership in the ICT sector through mentorship programs, networking opportunities, and leadership training. Encourage the participation of women in policymaking and regulatory bodies related to ICT.

4. Strengthening Data and Research:

- Collect gender-disaggregated data: Invest in collecting and analyzing gender-disaggregated data on ICT access, usage, and impact. (Hafkin & Huyer, 2008) This data is crucial for evidence-based policymaking and targeted interventions.
- Support research on gender and ICT: Fund research that explores the complex relationship between gender, ICT, and development. This research should inform policy development and program implementation.

5. Promoting Collaboration and Partnerships:

- Foster public-private partnerships: Encourage collaboration between government, private sector, civil society organizations, and academia to promote women's empowerment through ICT. (2023) Leverage the expertise and resources of different stakeholders.

- Support international cooperation: Share best practices and lessons learned on promoting gender equality in the digital economy through international cooperation and knowledge exchange.
- Several other sources offer policy recommendations for empowering women in the informal sector through the digital economy. (2021) specifically addresses policy support for women's enterprises in digitalizing agri-value chains and manufacturing, also touching upon care work burdens and unequal access to the digital economy. (E-Commerce From a Gender and Development Perspective, 2023) guides designing policies that enhance women's participation through e-commerce, emphasizing the importance of addressing the gender digital divide. (Marsan & Sey, 2021) focuses on maximizing access to skills, entrepreneurship, and leadership positions for women in the digital economy across ASEAN. (Inclusive Digital Economies and Gender Equality Playbook, 2023) offers a collection of research and interventions focused on women in emerging economies. (2023) presents a range of recommendations for stakeholders in various sectors to support women in ICT. Many of these sources stress the need for a multi-pronged approach, including bridging the digital divide through infrastructure investment and digital literacy training (Key Recommendations, 2023; Mariscal et al., 2019), promoting women's entrepreneurship (Lalrinsangi & Kharbirymbai, 2024, 2024), and addressing socio-cultural barriers (Gurumurthy & Chami, 2018). Additionally, they highlight the importance of collecting gender-disaggregated data to inform policymaking (Gurumurthy & Chami, 2018).

Furthermore, (Kar et al., 2018) emphasizes the importance of education and state intervention to improve digital access for women, while (Informal Workers Harnessing the Power of Digital Platforms in India, n.d.) discusses the challenges of infrastructure and socio-cultural barriers for informal women workers in India.

- These recommendations are interconnected and require a holistic approach. By addressing the digital divide, fostering economic opportunities, tackling socio-cultural barriers, strengthening data and research, and promoting collaboration, policymakers can create an enabling environment for women to fully participate in and benefit from the digital economy.

9. CONCLUSION

The digital economy has the potential to revolutionize society and empower women in many ways. By providing training in digital literacy and skills, women can benefit from ICT platforms that enhance communication, facilitate information access, and enable online participation. A crucial aspect of promoting gender equality is closing the gender gap in digital spaces and ensuring equitable access to digital infrastructure. Encouraging women's participation in ICT-related sectors, not only improves female representation but also fosters innovation and professional growth. Furthermore, supporting female entrepreneurs in the digital economy can lead to economic empowerment, business growth, and financial independence. To address issues such as violence against women and online harassment, it is essential to create and maintain safe online environments through effective regulations

and awareness efforts. The digital economy also serves as a powerful tool for advancing social change and gender equality by amplifying women's voices and supporting advocacy initiatives. Lastly, it enhances women's political involvement and empowerment by providing access to political information and enabling remote participation in political activities. Overall, the digital economy emerges as a dynamic force in empowering women, bridging gaps, and advancing society through its diverse opportunities.

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