

## Digital Platforms, the Digital Divide, and Women's Empowerment: A Rural-Urban Comparative Study of Digital Financial Inclusion

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### ABSTRACT

The objective of improving people's economic and living standards requires financial inclusion. To accelerate inclusivity, the government encourages the adoption of a digital pathway to Digital Financial Inclusion (DFI), so that people from different socio-economic backgrounds can be brought into the ambit of development. However, the impact of financial inclusion, even through a digital pathway, is not uniform across different sections of society. Disparity is observed with respect to use, place of residence, age and gender. The study identifies a rural-urban divide in DFI among women in Cuttack and Khorda districts in Odisha, India. The data for the study have been collected using a structured questionnaire and Focus Group Discussions (FGDs) in both Cuttack and Khorda. For analysing the dataset, qualitative analysis is done using MAXQDA software. The findings highlight that although women in both districts are using digital financial products and services, rural respondents report partial inclusion due to factors such as dependence on family and relatives, security concerns, and restrictions on access. In contrast, urban women showed higher levels of independent use. The study also highlights the marginal presence of trans women, underscoring persistent exclusion and highlighting the necessity of taking steps beyond a binary gender approach and inclusive development in a real sense.

**Keywords:** Digital Financial Inclusion (DFI), Women Empowerment, Focus Group Discussions (FGDs), MAXQDA.

### Introduction

The propagation of virtual technologies has created extraordinary opportunities for the inclusion of financial services and economic empowerment. The use of financial services through digital media has brought more users into the fold, thereby increasing financial inclusivity, or digital financial inclusion (DFI). Digital Financial Services are instrumental for developing a more financially inclusive society (Mishra, 2019)(Arandara and Gunasekera, 2020). Technological advances, internet penetration, and the use of mobile phones are instrumental in the growth of DFI in India (Tay, Tai and Tan, 2022). DFI is essential to achieving the Sustainable Development Goals (SDGs), which aim to promote gender equality. Gender equality is considered a fundamental right under SDG 5, and empowering women is an essential first step. This can be achieved through financial access and by encouraging them to use financial services digitally (Tripathi and Rajeev, 2023)

The benefits of DFI need to be equal for both genders, but the benefits of the digital revolution are not equal. The world faces barriers to financial inclusion due to a patriarchal societal structure (Manta, 2019). The plight is no different in India. In states with high gross domestic products and sound digital infrastructure, such as Karnataka, Uttar Pradesh, Maharashtra, Gujarat, and Tamil Nadu, a wider digital divide exists (Ghosh and Chaudhury, 2019a). Women were observed to be less financially

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inclusive than their male counterparts (Ghosh and Chaudhury, 2019b). The division is even starker between people residing in urban and rural areas. The socioeconomic divide has been proven to be a significant cause of the digital divide that exists between urban and rural populations (Laskar, 2023). Urban residents have access to better infrastructure than rural ones, further aggravating the divide. Education and the digital economy have been identified as key factors widening the digital divide between urban and rural areas. (Adeleke, 2024). Women are lagging in both scenarios when it comes to financial inclusion. They are identified as the vulnerable section lagging behind men in the financial ecosystem. Their empowerment is essential for their social and financial growth. The present paper, in this context, seeks to answer a central question: although there is a digital divide between men and women and between residents of rural and urban areas, does a digital divide persist between women residing in urban and rural areas? To empower women economically, it is imperative to bring them within the purview of financial inclusion and, moreover, within DFI. A positive and significant relationship is observed between DFI and the economic well-being of women (Tan and Lu, 2025). It is also crucial that all women, regardless of their place of residence, have access to the benefits of financial inclusion. The paper thus aims to determine whether digital disparity or digital-spatial divide exists between urban and rural women in the state of Odisha, an eastern Indian state. The study proposes a conceptual pathway to empowerment: the use of DFS to achieve DFI, and the state of digital financial inclusiveness empowers women both financially and digitally to the extent that they are not only capable of deciding their financial well-being but also users of many financial services and benefits offered digitally. The study will further highlight the causes for disparities in empowerment between urban and rural women.

### **Review of Literature**

Although there has been a remarkable increase in scholarly research on women's digital and financial empowerment, many facets of the urban-rural divide have received little attention.

The digital divide is a complex phenomenon encompassing disparities in relation to outcomes, skills, and access (van Dijk, 2006). For women, this divide widens even further than for men. This is termed as 'gender digital divide' (Gillwald and Partridge, 2022). Residents' geographical location further intensifies the gap. It has been observed that the rural areas lag behind the urban places in terms of internet penetration and ownership of mobile (Bai and Yang, 2025). The glimpse of such disparity between urban and rural areas can be seen in different parts of the world. In Nigeria, disparities were observed between these two sets of women, driven by spatial differences in socio-economic and enabling factors (Adeleke, 2024). For women in Bangladesh, perceived usefulness of elements such as cost, convenience of use, and time affects the digital use of financial products (Rahman, 2024). Rural women remain excluded from technology, which affects their livelihoods. (Chelliah, Christopher and Raj, 2023). The scenario in India is no different. It was observed that lower income, restricted mobility, and social norms hinder women's use of technology (Gupta and Kiran, 2024). Recent studies have emphasized the significance of users' financial literacy and its use, going beyond financial inclusion to encompass access to a formal bank account (Nationalbank, 2025). DFL greatly aids DFI. DFL is pivotal in promoting fintech adoption among women in India. DFL is essential to let the users navigate digital interfaces, assess risks, and choose appropriate products (Mishra *et al.*, 2025). Availability of user-friendly DFS is the quintessential of empowerment of women, thereby enhancing their reputation and leading to overall development (Aigbona, 2024). A study (Barik and Sharma, 2020) states that both demand-side and supply-side factors are responsible for the exclusion of transwomen in an economically inclusive society. Financial inclusivity for women is essential for poverty alleviation and economic empowerment (Manta, 2019). Women feel at high risk given their low income, limited knowledge of financial and digital skills and uneven laws and regulations. This needs to be addressed to empower (Jain, Kaur and Mehta, 2022). Necessary actions are needed to achieve financial inclusivity for women and to make them part of the economy (Arandara and Gunasekera, 2020). A study on women entrepreneurs highlighted that developing digital and financial skills is essential to encouraging women to become entrepreneurs (Oggero, Rossi and Ughetto, 2020). Financial inclusion through digital pathways facilitates women's economic empowerment (Ojo, 2022).

### **Methodology**

The proposed study employs an extensive and intensive survey methodology with comprehensive coverage. Description plus explanation, which tends to overcome the limitations of a survey as well as a case study taken up independently, is taken recourse to. Whereas description limits its focus simply to what happens, explanation takes the analysis to higher levels of understanding. The study is exploratory in nature, with data collected through instruments like a structured questionnaire and Focus Group Discussions (FGDs) in both districts, catering to urban and rural women.

Sample: "Populations" from which representative samples are drawn include SHG (Self-Help Group) members, women entrepreneurs, housewives, etc., having an active bank account. Data is intended to tap two major sources: primary and secondary sources. While primary sources cover women who are financially inclusive, secondary sources include literature and reference materials to be accessed. Purposive and snowball sampling techniques are used to reach the sample in two districts of Odisha- Cuttack and Khorda. Khorda is identified as the top-ranked district in terms of financial inclusion, with a CRISIL Inclusix score of above 65. Cuttack is not behind it. It also has a score above 65 for financial inclusivity ( Mishra, 2019). A total of 408 women were approached during the survey, but only 391 completed the questionnaire and provided the desired information. However, in Khorda, 405 women were approached, of whom only 400 provided information. While organising FGD in Cuttack district, 41 women came forward and actively participated in the discussion. While 42 women were present in the FGD conducted in Khorda district (Table 4).

**Table 1: Socio-Demographic Profile of Women in Khorda District**

	Rural	Urban	Total
<b>Age</b>			
15-20 Years	26	13	
21-40 Years	42	91	
41-60 Years	56	77	
Above 60 Years	58	37	
<b>Total</b>	<b>182</b>	<b>218</b>	<b>400</b>
<b>Education</b>			
Below Matric	47	35	
+2	50	23	
Graduate	49	84	
PG and above	19	39	
Professional	17	37	
<b>Total</b>	<b>182</b>	<b>218</b>	<b>400</b>
<b>Category</b>			
General	78	122	
ST	25	13	
SC	55	35	
OBC	24	48	
<b>Total</b>	<b>182</b>	<b>218</b>	<b>400</b>
<b>Occupation</b>			
Student	30	19	
Salaried	04	27	
Business	11	61	
Agriculture	18	20	
Home maker	81	64	
Others	38	27	
<b>Total</b>	<b>182</b>	<b>218</b>	<b>400</b>
<b>Monthly Income</b>			
Nil	2	3	
Up to Rs. 10000	90	40	
Rs.10001-20000	65	42	
Rs. 20001-50000	23	108	
Above Rs. 50000	02	25	
<b>Total</b>	<b>182</b>	<b>218</b>	<b>400</b>
<b>Gender</b>			
Trans women	14	15	
Women	168	203	
<b>Total</b>	<b>182</b>	<b>218</b>	<b>400</b>

Source- Authors' own work

### Findings

A clear glimpse of digital disparity can be seen in the socio-demographic profile of respondents in the Khorda district of Odisha, India. Rural women users, as shown in Table 1, classified by age, are primarily concentrated in the older age groups (41-60 years and 60 years and above), in contrast to urban users, who are predominantly in the 21-40 years age bracket, indicating a younger, more economically active user base in urban areas. Educational attainment also differs: urban Khorda has a high proportion of graduates, postgraduates, and professionals, while in rural Khorda, more women below matriculation and up to +2 level are seen. In terms of social category, urban Khorda has a larger number of general and OBC women, whereas rural Khorda has more SC and ST women. Occupationally, a large number of rural women are homemakers, while urban women are characterised by greater labour participation in salaried employment and business activities. Income patterns, with urban women, further reinforce the differences in the rural-urban setup, concentrated in higher monthly income brackets (Rs. 20,000-50,000 and above Rs. 50,000). In contrast, rural women are mostly below the Rs. 20,000 bracket. Gender-wise, the sample is overwhelming, reflecting the presence of trans women in both urban and rural areas, indicating a more inclusive society socially and economically.

**Table 2: Socio-Demographic Profile of Women in Cuttack District**

	Rural	Urban	Total
<b>Age</b>			
15-20 Years	16	64	
21-40 Years	53	62	
41-60 Years	35	61	
Above 60 Years	79	21	
<b>Total</b>	<b>183</b>	<b>208</b>	<b>391</b>
<b>Education</b>			
Below Matric	71	39	
+2	49	63	
Graduate	36	58	
PG and above	17	14	
Professional	10	34	
<b>Total</b>	<b>183</b>	<b>208</b>	<b>391</b>
<b>Category</b>			
General	56	77	
ST	35	33	
SC	54	51	
OBC	38	47	
<b>Total</b>	<b>183</b>	<b>208</b>	<b>391</b>
<b>Occupation</b>			
Student	30	66	
Salaried	18	50	
Business	39	43	
Agriculture	17	11	
Home maker	69	28	
Others	10	10	
<b>Total</b>	<b>183</b>	<b>208</b>	<b>391</b>
<b>Monthly Income</b>			
Nil	13	10	
Up to Rs. 10000	72	72	
Rs.10001-20000	54	40	
Rs. 20001-50000	28	57	
Above Rs. 50000	16	29	
<b>Total</b>	<b>183</b>	<b>208</b>	<b>391</b>
<b>Gender</b>			
Trans women	5	11	
Women	178	197	
<b>Total</b>	<b>183</b>	<b>208</b>	<b>391</b>

Source- Authors' own work

A distinct urban-rural divide is evident in the socio-demographic profile of women respondents in the Cuttack district of Odisha, India. As shown in Table 2, age-wise, rural Cuttack is dominated by women above 60 years, whereas young users dominate urban Cuttack in the 15-20 and 21-40 age groups. Educational attainment further confirms this divide. Rural Cuttack has more numbers of women below matriculation, while urban Cuttack has high numbers of +2 passed, graduates and professionals indicating better access to both education and skill development in urban spaces. In terms of social category, both urban and rural Cuttack display the presence of General, Other Backward Classes (OBC), SC and ST women, with only modest variations. Occupation wise, rural women are predominantly homemakers. In contrast, women's participation as students, salaried employees, and business owners reflects stronger engagement with formal employment and other activities. Income pattern reinforces these differences, as rural households are mainly concentrated in lower income brackets up to Rs 20,000, while the income of urban women in the district ranges from Rs 20,000-50,000 and above. Gender diversity is also observed in the district as it reflects participation of both women and trans women in the financial ecosystem. In the present study, their presence is notably more in Khorda (29) than in Cuttack (16). Although they have a marginal presence in the total sample, their inclusion is essential for understanding the gendered dimensions of the digital divide. Their higher visibility in the Khorda district may indicate better connectivity, outreach, urban proximity, or social network connectivity, yet their participation in the financial ecosystem is still not expected. This furthers the argument that marginalised gendered identities pave the way for "double digital divide" where social exclusion intersects technological and financial barriers.

**Table 3: Dependent and Independent Women Digital users in Cuttack and Khorda Districts**

Districts	Areas	Dependent Users	Independent Users	Implication
<b>Cuttack</b>	Rural	141	42	High dependence on friends and relatives for digital operations, limited access to DFS
	Urban	76	132	More autonomy, limited restrictions on access, and high digital usage
<b>Khorda</b>	Rural	150	32	Very high dependence on family members, substantial rural digital disadvantage
	Urban	97	121	More users are independent, with a marginal digital gap, and high digital usage

Source- Authors' own work

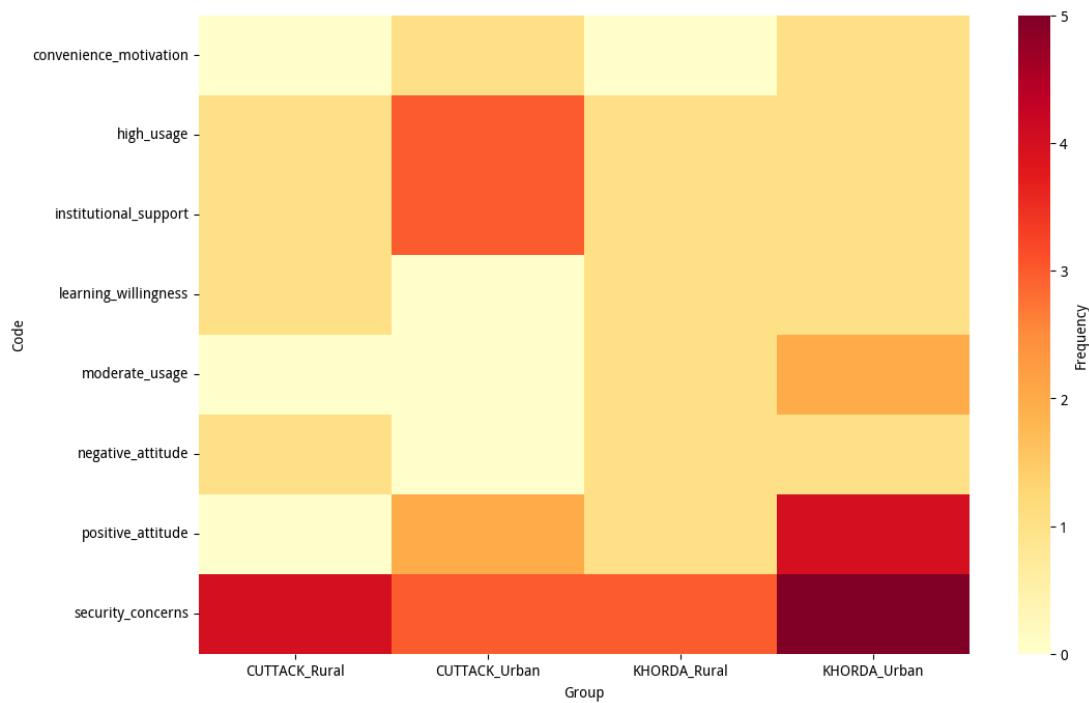
The dataset reveals that the dependency of women in rural areas of Cuttack is quite high as compared to the urban women users in the district. The condition is no exception in Khorda. The independent users in urban Khorda are predominantly higher than the rural users, as highlighted in Table 3. The digital spatial is clearly visible between urban and rural women in both districts. Urban women enjoy greater autonomy in accessing and using ICTs, while rural women depend more on family members, intermediaries, and shared devices. Khorda rural women show a high ratio of dependent to independent users, indicating a stark digital divide within that district. The preponderance of dependent users among rural women in both districts suggests that effective inclusion cannot be achieved solely through digital infrastructure. Women's reliance on family members reflects limited digital autonomy, constraining their ability to access the DFS, such as UPI transactions, online banking, and mobile wallets, independently. Urban women, in contrast, reflect a high level of independent digital usage, suggesting greater readiness to engage with DFS. This digital independence observed in both districts highlights the role of human capital and socio-economic positioning in converting digital access into digital financial empowerment.

The findings of the study highlight a pronounced digital spatial divide in women's access to and use of digital financial services across rural and urban areas of Cuttack and Khorda districts. This divide has direct implications for DFI and thus aligns with multiple SDGs, particularly SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 10 (Reduced Inequalities).

**Table 4: Participants of FGD in Cuttack and Khorda Districts**

District	Residence	Number of Participants	Percentage
Cuttack	Urban	18	21.7%
	Rural	23	27.7%
Khorda	Urban	22	26.5%
	Rural	20	24.1%
<b>Total</b>		<b>83</b>	<b>100%</b>

Source: Authors' own work



**Figure 1: Usage pattern and attitude of women participants in Using DFS**

Source: MAXQDA output

The FGD with both urban and rural women in Cuttack and Khorda districts placed greater emphasis on security concerns and the risk of fraud (Figure 1). Rural women had low levels of digital adoption with high levels of apprehension. Participants from rural Khorda emphasised the need for institutional support and expressed their willingness to learn and equip themselves for the digital use of DFS. They have a medium level of usage of DFS. The suggestions from the rural group in Khorda were more solution-oriented, such as training in the local language (Odia), and awareness workshops or camps with more practical demonstrations. The urban women, however, showed a positive attitude toward using DFS. In the FGD in urban Cuttack, there were 3 trans women, and in Khorda, there were 7 trans women. Their concerns were more about the economic identity as trans women, the convenience of use and security.

### Conclusion

Digital financial inclusion among women in Cuttack and Khorda remains uneven and deeply influenced by spatial and socio-demographic factors. The preponderance of dependent women digital users in rural areas of both districts underscores that the presence of digital infrastructure alone is not sufficient for meaningful inclusion. Women are, though, using the digital platform for various financial transactions, but this results only in partial or transformative inclusion. The plight of the urban women reflects a contrasting scenario. Urban women in both districts report higher levels of digital use. The sharper rural-urban disparity highlights that socio-demographic characteristics- particularly age, education, income, and employment status- have emerged as critical enablers of digital dependence, which links DFI to women's economic participation and empowerment. Another essential finding of the study worth highlighting is the participation of trans women across districts. The total population of transgenders according to the 2011 Census is 4.8 lakh; only 30,000 are registered with the Election Commission. However, estimates suggest there are 50 to 60 lakh transgenders in India, but most keep it a secret to avoid discrimination. This number reflects the fact that we have a long way to go. This journey to include the excluded definitely needs united efforts. The Supreme Court's landmark jurisdiction, combined with legislative and administrative measures, leaves a void that only civil society can fill. The initiatives of the government of Odisha are commendable, which the rest of the states can emulate. However, there is a need to sensitise people about the transgender population and their problems. The

much-needed united efforts would definitely contribute towards making the transgender community a part of the mainstream society, and in future, the initiatives would make us speak about the transgender population the way we speak about the women's movement today.

Policymakers need to fill this gap in a gender-neutral, inclusive digital finance framework, emphasising that DFI strategies should move beyond binary gender. The study further demonstrates that DFI among women is not merely a technological issue but issues related to locational disadvantage, gender and socio-economic characteristics, leading to digital and financial exclusion. Gender-sensitive capacity-building and awareness programs, and digital financial literacy training camps, can help reduce the digital gap. Reducing the digital spatial divide is a prerequisite for achieving inclusive growth, gender empowerment, and equitable access to and use of DFS.

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