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Digital Inclusion and Women's Empowerment in India: Evidence from NFHS-5 and NFHS-6

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ABSTRACT

Digital inclusion has increasingly been recognised as an important component of women's empowerment, providing opportunities for access to information, financial services, communication and economic participation. However, access to digital technologies does not necessarily translate into equivalent improvements in women's economic empowerment. This study examines changes in women's digital inclusion and selected dimensions of economic empowerment in India by comparing data from the National Family Health Survey (NFHS-5), conducted during 2019–21, and NFHS-6, conducted during 2023–24. Using published national fact-sheet data, the study adopts a comparative descriptive approach to analyse changes in women's internet usage, personal mobile phone access, financial inclusion, paid employment and participation in household decision-making. The findings indicate considerable improvement in women's digital inclusion between the two survey rounds. The proportion of women who had ever used the internet increased from 33.3 per cent in NFHS-5 to 64.3 per cent in NFHS-6. Women's use of personal bank accounts also increased from 78.6 to 89.0 per cent. However, improvements in economic empowerment indicators were comparatively modest. The proportion of women who had worked in the previous 12 months and received cash payment increased from

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25.4 to 30.8 per cent, while participation in household decision-making remained almost unchanged. Rural women recorded substantial improvements in digital access, although differences between rural and urban women continued to exist. The study highlights an uneven pattern of progress in which improvements in digital and financial inclusion have not been accompanied by equally substantial changes in paid employment and household decision-making. It emphasises the importance of complementing digital inclusion initiatives with broader measures that strengthen women's economic opportunities and decision-making autonomy.

1. Introduction:

Digital transformation has grown to be a significant aspect of modern economic and social growth, impacting how people communicate, access information, engage in economic activity, and use basic services. New potential for social inclusion and economic engagement has been made possible by the growth of digital platforms, mobile technology, and internet connectivity. Digital inclusion has become a crucial aspect of inclusive development in this scenario. According to Olphert and Damodaran (2013), digital inclusion refers to making sure that everyone has fair access to the internet and related digital technologies, as well as opportunities to use and profit from them. Therefore, digital inclusion encompasses people's capacity to use digital resources efficiently and reap significant benefits from them, going beyond the availability of technology infrastructure. Digital technology plays an important role in enhancing women's empowerment by improving their access to information, education, employment opportunities, financial services, and decision-making. However, barriers such as limited digital literacy, affordability, inadequate infrastructure, and socio-cultural constraints continue to restrict women's effective participation in the digital ecosystem. (Palanichamy & Farsath 2026).

The increasing significance of digital technologies has also brought the gender digital divide into focus, referring to inequalities between men and women in access to, use of and benefit from digital technologies. While digital connectivity is rapidly expanding around the world, women, especially in developing and underdeveloped countries, still encounter considerable obstacles to meaningful digital participation. Digital inclusion can play a significant role in promoting rural women's entrepreneurship and economic empowerment by providing access to digital tools, skills and technology-driven opportunities. It can also help overcome the digital divide, strengthen entrepreneurial capabilities and contribute to rural development

and poverty alleviation in India (Yadav and Chatradhi,2022). According to UN Women (2022), digital inequalities continue to exist in low- and middle-income countries, where women are often disadvantaged in terms of access to and use of digital technologies. Similarly, the International Telecommunication Union (2022) notes gender gaps in internet use in various regions including Africa, the Arab States and the Asia-Pacific region. These inequalities demonstrate that the benefits of digital transformation are not evenly shared across gender groups.

Numerous interrelated institutional and social issues have an impact on the digital gender gap. Women's access to and use of digital technologies are constrained by gender conventions, the cost of digital devices and internet services, poor digital infrastructure, and low digital literacy. These obstacles are also highlighted in the USAID (2022) report, which emphasises that digital exclusion is tightly linked to broader social and economic disparities rather than being merely a technical problem. Women's access to digital devices and the internet may also be impacted by their education level, household income, geographic location, and degree of technological autonomy.

Another important element of significant digital inclusion is digital literacy. It means more than just the fundamental capacity to use digital devices, and covers the abilities needed to successfully traverse digital environments, acquire and assess information, and produce and convey information. Therefore, increasing women's ability to use digital technologies independently and productively is just as important as enhancing internet availability and device access. The promise of digital inclusion as a tool for advancing women's empowerment is becoming more widely acknowledged. Opportunities for communication, education, financial services, information sharing, and economic engagement can be increased with access to digital technologies.

The digital inclusion of women as a tool for advancing women's empowerment is becoming more widely acknowledged. Opportunities for financial services, education, communication, information sharing, and economic engagement can all be increased with access to digital technologies. According to Palanichamy & Farsath, (2026), women's empowerment, particularly the growth of entrepreneurial traits, is facilitated by digital inclusion. By giving women access to financial services, business networks, livelihood opportunities, and market knowledge, digital platforms may help lower some of the informational and geographic obstacles preventing them from participating fully in the economy. Internet-based information networks, agricultural websites, rural information kiosks, databases, and online learning platforms can help people in rural regions access pertinent information and establish connections with larger social and economic networks.

However, economic empowerment does not always follow from having access to digital tools. Factors such as educational attainment, digital skills, work prospects, financial autonomy, and the current social and institutional climate affect women's ability to transform digital potential into real economic gains. Therefore, it is necessary to look at digital inclusion in conjunction with more general measures of women's economic engagement and autonomy in making decisions.

The connection between women's economic empowerment and digital inclusion is especially important in the Indian setting. Initiatives for financial inclusion, mobile connectivity, and digital infrastructure have all significantly expanded in India. Women now have more access to information, financial resources, and digital services because to these advancements. However, women's access to and use of these opportunities are nonetheless impacted by enduring socioeconomic disparities. In the Indian economy, issues including structural unemployment, underemployment, unequal income distribution, and differences in access to skills continue to be major challenges.

In the context of employment and economic development, Patil and Jadhav, (2017) highlighted the importance of skill-related limitations and digital illiteracy. These issues are especially pertinent to women, whose economic engagement may be influenced by gender stereotypes, domestic duties, educational disparities, and restricted access to resources.

The problem of digital inclusion and empowerment is further complicated by the gap between rural and urban areas. Because of differences in infrastructure, pricing, educational prospects, and socioeconomic conditions, rural women may face more obstacles when trying to use the internet, personal mobile phones, and digital services.

Even while increased digital connectivity may lessen these disparities, it's crucial to assess if advancements in internet access have coincided with increases in women's financial inclusion, paid work, and autonomy in making decisions. Determining the degree to which digital expansion is promoting more inclusive development requires an understanding of these distinctions. An essential source of data for analyzing specific aspects of women's digital inclusion and empowerment in India is the National Family Health Survey (NFHS). Indicators of women's internet usage, personal mobile phone access, bank or savings account use, paid employment, and involvement in household decision-making are all included in the poll.Comparing NFHS-5 (2019–21) and NFHS-6 (2023–24) provides a chance to look at how these metrics have changed over time and find disparities in the advancement of rural and urban women.

While the research now in publication acknowledges the potential contribution of digital inclusion to women's empowerment, it is equally crucial to determine whether advancements in digital access are followed by advancements in other aspects of empowerment. A more comprehensive view of the evolving status of women in India can be obtained by a comparative analysis of digital inclusion, financial inclusion, paid employment, and household decision-making. In order to solve this issue, this study examines a few indicators from NFHS-5 and NFHS-6. Instead of assuming a direct causal relationship between economic empowerment and digital access, it looks at how much these aspects have changed concurrently.

In light of this, the study's goals are as follows:

1. To assess how women's digital inclusion in India changed between NFHS-5 and NFHS-6, especially with regard to internet usage and personal mobile phone access.

2. To examine shifts in women's participation in home decision-making, paid work, and financial inclusion.

3. To investigate variations in digital inclusion and specific aspects of women's economic empowerment between rural and urban areas.

4. To determine whether advancements in certain measures of economic empowerment have coincided with increases in women's digital inclusion.

2. Methodology:

2.1 Data sources:

The study is conducted on the basis of secondary data of the published national fact sheets of the National Family Health Survey (NFHS). We look at two rounds of the survey:

• NFHS-5 (2019–21): Provides information on demographic, health and some socioeconomic indicators of women and households in India.

• NFHS-6 (2023–24): Corresponding information for the next survey period, allowing for a comparison of changes in selected indicators. The analysis is based on percentages at the national level as reported in the India fact sheets. Separate figures for rural and urban women are also presented to explore differences in progress by residential settings. This study does not involve the collection of primary data or the independent extraction of individual-level survey records. It is entirely dependent upon published aggregate statistics.

2.2 Selection of Indicators:

The indicators have been chosen to reflect two broad dimensions, digital inclusion and economic empowerment.

a) Access and digital inclusion:

1. Women who have used the internet at any time.
2. Women who own and use a mobile phone.

b) Financial Inclusion:

1. Women with a bank or savings account that they use themselves.

c) Economic empowerment and self-determination:

1. Women who have worked in the last 12 months and were paid in cash.
2. Women who are married and who usually participate in three household decisions.

These indicators provide a descriptive portrait of women's access to digital technologies, financial services, paid employment and participation in household decision-making.

NFHS-5 also captures individual or joint ownership of a house or land. However, there is no equivalent of NFHS-6 in the data used in this study, and hence it is excluded from the direct comparison of survey rounds.

2.3 Analysis Techniques:

The study uses a descriptive comparative analytical approach. The changes over time in the chosen indicators have been determined by comparing the percentages reported in NFHS-5 and NFHS-6. The change in each indicator is calculated in percentage points by applying the formula:

Percentage point change = NFHS-6 percent - NFHS-5 percent

Separate figures for rural and urban areas are examined to see how far the improvement differs. The rural-urban gap is the difference between the urban and rural percentages in each round of the survey.

The study does not estimate individual-level relationships or establish causal effects because it uses aggregate national fact-sheet data from two survey rounds. The findings are understood to represent descriptive changes in selected indicators, rather than evidence that digital inclusion directly leads to economic empowerment.

3. Results:

3.1 Changes in Women's Digital Inclusion:

Digital inclusion is measured by two indicators: women's use of the internet and access to a personal mobile phone. The results indicate a marked increase in women's internet use from NFHS-5 to NFHS-6. The proportion of women who ever used the internet increased from 33.3 per cent in NFHS-5 to 64.3 per cent in NFHS-6, a 31% point increase at the national level.

The improvement was especially marked among women in rural areas. The use of the internet among women in rural areas increased from 24.6 per cent to 58.6 per cent, a jump of 34 percentage points. The comparable ratio for women in urban areas increased from 51.8 per cent to 77.3 per cent, or by 25.5 percentage points.

The figures indicate that the rise in internet usage among women in rural areas was higher than that of women in urban areas during the period considered. But the gulf between the countryside and the cities was immense. The difference between urban and rural women has reduced from 27.2 percentage points in NFHS-5 to 18.7 percentage points in NFHS-6.

Women's access to personal mobile phones has improved similarly. The percentage of women owning and using a mobile phone increased from 54.0 per cent in NFHS-5 to 63.3 per cent in NFHS-6. Rural women's access went up from 46.6 per cent to 57.4 per cent, and urban women's access went up from 69.4 per cent to 77.6 per cent.

Urban women continued to report higher levels of personal access to mobile phones, although the improvement was larger in rural areas. The rural–urban gap decreased from 22.8 percentage points to 20.2 percentage points.

Overall, the results show significant progress in terms of internet use for women's digital inclusion. However, access to personal mobile phones and internet services differs across residential categories.

3.2 Changes in Women's Financial Inclusion:

Financial inclusion is defined as the percentage of women who have a bank account or savings account that they own themselves. The national proportion increased from 78.6 per cent in NFHS-5 to 89.0 per cent in NFHS-6, indicating an improvement of 10.4 percentage points.

The increase was especially sharp for rural women, with the proportion who had a bank or savings account they used themselves rising from 77.4 per cent to 89.3 per cent. The ratio among urban women increased from 80.9 per cent to 88.3 per cent.

A significant point is that rural women recorded a higher percentage than urban women in NFHS-6. The urban-rural gap turned from an urban advantage of 3.5 percentage points in NFHS-5 to a rural advantage of 1 percentage point in NFHS-6.

This indicates considerable progress in women's financial inclusion, particularly in rural areas. However, having a bank account that a woman herself uses does not necessarily establish complete financial autonomy or independent control over financial decisions.

3.3 Changes in Women's Paid Employment:

Women's participation in paid work is a measure of women's economic empowerment. The study looks at the proportion of women who worked in the last 12 months and received cash payment. At the national level, the proportion increased from 25.4 per cent in NFHS-5 to 30.8 per cent in NFHS-6, an improvement of 5.4 percentage points. In rural areas it rose from 25.6 percent to 31.2 percent, while in urban areas it rose from 25.0 percent to 29.8 per cent.

While rural and urban women improved, the gains were relatively small compared with the progress seen in internet usage and financial inclusion. In both rounds of the survey the slightly higher proportion of participation in paid work was still reported by rural women, compared to urban women.

3.4 Changes in Women's Participation in Household Decision-Making:

Women's participation in household decision-making is an important measure of their agency and autonomy. The findings show that women's participation in NFHS-5 and NFHS-6 remained relatively stable with the national figure rising from 88.7 per cent to 89.0 per cent. In urban areas, participation increased from 91.0 per cent to 91.4 per cent and in rural areas, it rose from 87.7 per cent to 88.0 per cent. Slightly higher participation was reported by urban women than rural women in both rounds of surveys. The progress in household decision-making was minimal compared to the substantial improvements in digital and financial inclusion. This means that even greater access to digital technologies and financial resources does not necessarily translate into greater decision-making autonomy within households.

3.5 Rural–Urban Differences in Women's Digital Inclusion and Economic Empowerment:

Comparison between rural and urban areas shows differences in the rate of progress in the selected indicators. Rural women had higher increases than urban women in internet usage, ownership of a personal mobile phone, use of a bank account and paid employment. The increase in internet use was particularly robust, increasing 34 percentage points among rural women, compared with 25.5 percentage points among urban women. Consequently, the rural-urban gap in internet use dropped from 27.2 to 18.7 percentage points. Similarly, the gap in access to a personal mobile phone decreased from 22.8 to 20.2 percentage points. Financial inclusion also saw improvement, with rural women slightly ahead of urban women in owning a personal bank account in NFHS-6. But household decision-making showed little progress in either area, which illustrates the unevenness of women's empowerment**.**

3.6 Comparative Summary of Changes Between NFHS-5 and NFHS-6

The following table summarises the changes in selected indicators between the two survey rounds.

Indicator	**NFHS-5 Total (%)**	**NFHS-6 Total (%)**	**Change (percentage points)**
Women who ever used the internet	33.3	64.3	+31.0
Women who use their own mobile phone	54.0	63.3	+9.3
Women who use their own bank account	78.6	89.0	+10.4
Women who worked and were paid in cash	25.4	30.8	+5.4
Currently married women participating in three household decisions	88.7	89.0	+0.3

Source: NFHS-5 & NFHS-6

The analysis shows that internet usage experienced the most significant enhancement between NFHS-5 and NFHS-6. There were also notable gains in financial inclusion and access to personal mobile phones. On the other hand, the shifts in paid employment and household decision-making were quite limited. This trend suggests that advancements in digital inclusion have outpaced improvements in certain key aspects of women's economic empowerment.

4. Discussion:

The findings show a very uneven pattern of progress in terms of women's digital inclusion and economic empowerment in India between NFHS-5 and NFHS-6. There has been a significant improvement in access to digital devices and financial services, but progress on paid employment and on household decision-making has been very limited.

Internet use saw the largest increase (by 34% for rural women compared to 25.5% for urban women) and the rural/urban gap in this respect therefore narrowed from 27.2 to 18.7%. Personal mobile phone access also increased in both urban and rural areas. However, access to technology doesn't in itself mean that it is being used effectively and so issues of digital literacy, affordability and individual control of the device remain key.

Financial inclusion also saw an improvement with the share of women using their own bank or savings accounts rising from 78.6 to 89.0%. The number of rural women is seen to be increasing more than urban women in this case in NFHS-6. Of course, access to a bank account in itself doesn't equate to financial independence, as it is also essential that women have independent control over their finances.

Paid employment has shown some improvement, increasing from 25.4 per cent to 30.8 per cent, while women's participation in household decision-making has remained almost unchanged, rising only from 88.7 to 89.0 per cent. This indicates that progress in women's economic participation and decision-making has been much slower than the improvements in digital and financial inclusion. There is still considerable scope for improvement, as limited job opportunities, the burden of unpaid household and care work, and existing gender norms continue to pose challenges to women's empowerment.

The bottom line is that digital inclusion in itself is not enough to lead to economic independence or greater autonomy in decision making. Digital access initiatives need to be paired with those which promote digital literacy, job creation, entrepreneurship, financial independence and the removal of structural barriers. Special attention must be paid to rural women if we are to ensure that the expansion of digital opportunities actually leads to real economic and social empowerment.

5. Conclusion:

The study looked at changes in women's digital inclusion and various dimensions of economic empowerment in India, using the NFHS-5 and NFHS-6 data for comparison. There's been a significant improvement in the level of internet use by women, personal mobile phone ownership and financial inclusion between the two survey rounds. The improvements are particularly pronounced in the rural areas, which has helped to reduce some of the rural–urban gaps.

Progress across the various dimensions of women's empowerment has not been even. Internet usage rose by 31% nationally, the proportion of women who worked and received cash payments increased by just 5.4% and participation in household decision-making remained virtually flat (up by 0.3%).

These findings really do underline the difference between digital inclusion and broader economic empowerment. Digital inclusion and access to digital financial services can open up all sorts of opportunities for women, but that in itself doesn't necessarily lead to employment, or to greater autonomy in the way they make decisions. Therefore, to improve women's economic empowerment, a holistic approach is needed that incorporates digital inclusion with employment generation, financial autonomy, skills development and the removal of all sorts of social and institutional barriers that exist.

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