International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Empowering Women in the Digital Economy: The Kudumbashree Experience in Kerala

Dr. Pillai U V Lakshmy

Associate Professor, Department of Economics, Government College for Women, Thiruvananthapuram

Abstract
Digital labour inclusion and the development of economic agency are important for sustaining women's participation in the labour market in Kerala. The state has the best human development indicators in India, but its female work participation rate has been consistently below the national average, a difference referred to as the "Kerala paradox." The study distinguishes between women's access to digital and financial infrastructure and relies only on official secondary data, which includes Periodic Labour Force Survey figures for Kerala, National Family Health Survey rounds, Kudumbashree Mission and Local Self Government Department progress reports, e-Shram registration figures, and Kerala State Planning Board Economic Review data. Kudumbashree has achieved near-universal digital and financial access for its 41-lakh-member network, including individual bank account operation and digital payment capability, but independent research shows that only a minority of its Neighbourhood Groups are engaged in income-generating economic activity. The article illustrates that Kerala's experience is indicative of a national pattern at the sub-national level, where measures of digital inclusion on the access side have surpassed indicators of economic empowerment on the agency side. It recommends a differentiated, agency-weighted approach to enhance Kudumbashree's enterprise conversion capacity.

Keywords: Kudumbashree; Kerala paradox; digital labour inclusion; economic agency; female labour force participation; capability approach; Sen-Kabeer framework

1. Introduction

The study of women's economic participation in India occupies a special and much-discussed place in Kerala. The state has the highest literacy rate in the country, the lowest score for multidimensional poverty, a life expectancy far above the national average and a sex distribution that is favourable to women. These are achievements that have made the "Kerala model" of development a benchmark in comparative development studies for over three decades. However, Kerala's female labour participation rate for the same period has been below all-India average and has been discussed in the literature as a contradiction of high potential and comparably low labour market engagement.

In the last decade, this age-old paradox has taken a new dimension with the rapid scaling of digital and financial inclusion infrastructure specifically for women. Kerala's Kudumbashree Mission – a state-run community network for poverty eradication and women's empowerment – has provided bank linkage, digital payment capability and, of late, participation in national digital commerce platforms such as Open Network for Digital Commerce (ONDC) to a membership of over 41 lakh women. At the same time, Kerala's publicly owned information technology parks have created more formal, salaried jobs in the digital sector, with women now comprising almost half of the workforce at the state's flagship IT park.

This paper discusses the issue of the state’s long-standing female work participation paradox with a concise empirical study of Kerala, with Kudumbashree as the central institutional case, within the context of the state's official labour force data and the state's official information technology sector. The research is based exclusively on official government data, in line with the view that a policy terrain constructed mainly through state institutions should first be tested against the state's own statistical record.

2. Literature Review

2.1 Capabilities, Agency and the Kerala Model

Sen's capability approach differentiates between functionings, i.e. what a person actually does or is, and capabilities, i.e. what a person can actually do or be in terms of real freedoms to achieve valued functionings, and also between a person's well-being achievement and his or her agency achievement, i.e. his or her capacity to act as an effective agent for the pursuit of self-determined goals (Sen, 1985, 1999). Kerala has historically been read as a success story of the health and capability side of this system: high literacy and health and social indicators achieved through public action, even at relatively modest levels of per capita income. Yet, according to Kabeer's (1999) resources-agency-achievements framework, access to resources or capabilities is not synonymous with agency, unless there is evidence of demonstrated independent choice in the use of those resources (Kabeer, 1999). Applied to Kerala, this distinction means that the state's much-noted achievements in capabilities do not automatically translate into a similar level of women's economic agency, and the relatively low female work participation rate is one indication that capability and agency have progressed unevenly.

2.2 Explaining Low Female Labour Force Participation in Kerala

It is the Kerala State Planning Board’s own analytical work on women and employment in the state that has pointed out that only the participation and employment rates are an incomplete measure of women’s economic standing, and has argued that any rise in participation must be accompanied by improvement in the nature and quality of work available to women rather than on volume alone. The relatively low FLFPR in Kerala has been explained by the disconnect between the aspirations of an educated and well-educated female population and the dearth of white-collar and formal sector employment opportunities in the state, the continuing withdrawal of educated women from low-quality or socially undervalued work, and the continuing assumption of women's unpaid domestic and care responsibilities, even among women with high educational attainment. The explanations suggest that Kerala's low participation rate could be partly a rational withdrawal from low-paying or low-status jobs rather than simply a lack of opportunity. The paper returns to this possibility in the light of the sub-national comparison with the rest of India.

2.3 Kudumbashree as an Institutional Model of Women’s Collective Economic Organisation

One of the most researched models of women's community-based economic organization, Kudumbashree integrates thrift and credit, micro-enterprise promotion and, more recently, digital market access. Its three-tier structure of Neighbourhood Groups, Area Development Societies and Community Development Societies has been described by academic assessments as providing women with skill development, peer support and a pathway into self-employment or salaried work that draws on collective instead of purely individual capacity. At the same time, independent empirical research has qualified the extent to which this structure translates into income generation for the typical member. A district-level study of rural Kerala found that only around 12 per cent of the Neighbourhood Groups surveyed were involved in income-generating activity, with most functioning primarily as thrift-and-credit or welfare-access channels. This finding is relevant for the present study as it shows that the very large membership base of

Kudumbashree may be hiding significant heterogeneity in the extent to which digital and financial access has been translated into economic agency.

2.4 The Digital Divide and the Layered Digital Divide

Van Dijk's (2005, 2020) model of the digital divide differentiates between access, skills, and usage-outcome gaps, arguing that closing the gaps at the access level does not automatically lead to closing the higher-order gaps in skilled and economically productive use. This system is helpful to interpret Kudumbashree's digital journey: bank linkage and digital payment capability are access-level achievements, while conversion of these into independent enterprise income, like in the Kerala Chicken project or ONDC-based product sales, is the higher-order, outcome-level achievement that Van Dijk's model suggests is harder to reach and slower to diffuse.

2.5 Gaps in Research

The literature on Kudumbashree so far has tended to either celebrate its scale and achievements in thrift mobilisation or, in a smaller critical strand, warn against exaggerating its income-generating impact. Relatively little work has placed Kudumbashree’s achievements in digital and financial inclusion in direct comparison with Kerala’s other major channel of women’s participation in the digital economy, namely formal employment in the state’s information technology sector, or examined both against the backdrop of Kerala’s official labour force statistics relative to the rest of India. This paper fills in that gap.

3. Problem Statement

The rate of female participation in the workforce in Kerala has remained below the all-India average, even as the latter has registered a steep rise in recent years. The divergence is all the more stark when compared to Kerala's stellar performance on traditional human development indicators(Ministry of Statistics and Programme Implementation [MoSPI], 2024; State Planning Board, Government of Kerala, 2025). In the same period, Kudumbashree has achieved near-universal bank account ownership and digital payment capability for a membership of over 41 lakh women, and Kerala's IT sector has created formal digital-sector employment with women reaching near parity in the state's flagship IT park. This, on the surface, suggests that women in Kerala are digitally and financially well included. But independent research shows that only a small percentage of Kudumbashree's Neighbourhood Groups are involved in income-generating enterprise activity, and official National Family Health Survey data suggest that the gains in Kerala women's access to bank accounts and decision-taking participation have not been matched by equivalent gains in paid work or asset ownership, with the state in fact recording a decline in women's property ownership between successive NFHS rounds. The study attempts to examine whether the digital and financial inclusion achieved by Kudumbashree and its allied institutions is translating into the independent economic agency needed to address, rather than simply modernise, the state's long-standing female participation paradox.

4. Objectives of the Study

- To examine trends in Kerala's female work participation rate relative to the all-India rate. using official Periodic Labour Force Survey data, 2021-22 to 2023-24.
- To assess the scale and financial architecture of digital and economic inclusion achieved through the Kudumbashree Mission.
- To evaluate the extent to which Kudumbashree's digital and financial inclusion has been converted into income-generating economic agency.

- To compare Kudumbashree's collective, thrift-based model of digital inclusion with formal salaried digital-sector employment in Kerala's information technology parks.
- To assess Kerala-specific indicators of women's economic agency from the National Family Health Survey and to relate them to the state's digital and financial inclusion achievements.
- To suggest policy measures for strengthening the conversion of digital access into economic agency within Kerala's women's institutional network.

5. Methodology

The study is based on secondary data procured from the data on Kerala's female work participation rate from the Periodic Labour Force Survey figures as reported by the Ministry of Labour and Employment and supplemented by the Ministry of Statistics and Programme Implementation PLFS annual reports for the corresponding all-India figures(Ministry of Labour and Employment, 2024; Ministry of Statistics and Programme Implementation, 2024). Details on the scale, finances and enterprise activities of Kudumbashree have been taken from the Local Self Government Department, Government of Kerala, Kudumbashree Mission’s own progress reports and the Economic Review 2024 of the Kerala State Planning Board. Data on indices of women’s economic agency come from the National Family Health Survey cycles NFHS-4 and NFHS-5, conducted under the Ministry of Health and Family Welfare, and state-level Kerala figures are used wherever available. The data on employment in Kerala’s e-Shram registration and information technology sector are obtained from the e-Shram statistics of the Ministry of Labour and Employment and the official statement of the IT Parks of Kerala (Technopark and Infopark), administered by the Department of Electronics and Information Technology, Government of Kerala.

The analytical technique uses the same access vs agency classification as employed in studies of female labour force participation at the national level in India. It applies Kabeer's (1999) distinction between resources, agency and achievements to the data from Kerala. Indicators are grouped into access indicators (bank linkage, digital payment capability, registration on digital services) and agency indicators (income-generating enterprise activity, paid cash work, formal salaried employment, independent decision-making over earnings), and a comparative study is undertaken. Differences in interval and sample design amongst the underlying official sources mean that the study is limited to a descriptive comparative study rather than inferential statistical modeling.

6. Analysis

6.1 Kerala's Female Work Participation Rate in National Context

Table 1: Female Worker Population Ratio (WPR), Kerala vs. All-India, Persons Aged 15 Years and Above (Usual Status)

Area	2021-22 (%)	2022-23 (%)	2023-24 (%)
Kerala	32.0	33.5	36.0
All-India	32.8	35.9	40.3
Gap (All-India − Kerala, pp)	+0.8	+2.4	+4.3

Source: Ministry of Labour and Employment, Government of India, PLFS data, Ministry of Statistics and Programme Implementation.

As Table 1 shows, Kerala's female WPR has been lower than the all-India figure in all three years for which comparable data are available, and the gap has widened sharply – from 0.8 percentage points in 2021-22 to 4.3 percentage points in 2023-24 – during precisely the period when the national rate rose fastest. Kerala's slower rise should not be read as underperformance, insofar as national literature attributes much of the recent all-India rise to a return of rural women to low-remuneration agricultural self-employment, plausibly due to a labour market that supplies proportionately less of this kind of low-agency work, and continued hesitancy among an educated female population to take up the formal-sector jobs that are on offer. This correlates with the observation of the Kerala State Planning Board that an increase in participation is a welcome trend only if it is accompanied by a betterment in the quality of work on offer.

6.2 Kudumbashree: Scale and Financial Architecture

Table 2: Scale of Kudumbashree Financial and Institutional Infrastructure, Kerala

Indicator	Value	Reporting Year
Women members enrolled	41+ lakh (~23% of state's female population)	2024-25
Neighbourhood Groups linked to banks	3.07 lakh	2024-25
Cumulative NHG bank deposits/savings	₹9,369 crore	2024-25
New micro-enterprises formed (state-wide)	11,771 (14,040 entrepreneurs)	2024-25
SHE Starts micro-enterprises (up to Sept 2024)	858 (1,283 entrepreneurs)	2024-25

Source: Local Self Government Department, Government of Kerala; Kudumbashree Mission progress reports; Kerala State Planning Board, Economic Review 2024.

The scale of Kudumbashree's bank-linkage architecture is presented in Table 2, which covers a much greater proportion of women in Kerala than any single digital registry functioning independently in the state. Bank linkage is a sustained institutional process – weekly thrift collection, internal lending and graduated linkage to formal bank credit – and not a one-time enrolment event. Kudumbashree's own reporting states that this process has brought all NHG members essentially to a position of holding individual bank accounts capable of digital transactions and payments under Kudumbashree. Structurally, this is unlike access via registration camps, as it embeds financial inclusion within a continuing, collectively supervised institutional relationship.

6.3 From Access to Agency: Digital Market Participation and Enterprise Turnover

Table 3: Year-on-Year Trend in New Kudumbashree Micro-Enterprise Formation

Indicator	2023-24	2024-25	Change
New micro-enterprises formed	34,526	11,771	−65.9%

Indicator	2023-24	2024-25	Change
New entrepreneurs engaged	39,064	14,040	−64.1%

Source: Kerala State Planning Board, Economic Review 2024, Volume One (Local Self Government Department / Kudumbashree Mission data).

Table 3 shows the year-on-year trend in new Kudumbashree micro-enterprise formation, and the findings are concerning. New micro-enterprise formation under Kudumbashree dropped from 34,526 units in 2023-24 to 11,771 units in 2024-25. This decrease is nearly two-thirds, and the number of women starting businesses through this channel decreased by a similar amount. This is significant for the paper's argument in two ways. First, it indicates that agency-bearing activity within Kudumbashree is small compared to its 41-lakh membership base. It is not a stable foundation but one that is shifting and, in the last year, sharply contracting. The access-agency gap highlighted in this section is, if anything, widening rather than narrowing. Second, a decline of this scale in just one year suggests that the process of converting ideas into enterprises is sensitive to program design, targeted campaigns, or funding cycles, rather than showing steady growth in members' business readiness. This forms the paper's central argument: without a focused, ongoing institutional effort, turning Kudumbashree's nearly universal access infrastructure into permanent economic agency remains fragile rather than self-sustaining.

Table 3A: Kudumbashree Collective Farming (Joint Liability Groups) – Agency Indicators

Indicator	Value	Reporting Year
Joint Liability Groups (JLGs) active in collective farming	84,327	2023-24
Women members participating in JLG farming	3,92,682	2023-24
Land brought under cultivation through JLGs	17,635 hectares	2023-24
Interest subsidy disbursed to JLGs on bank-linked farm loans	₹4.40 crore	2023-24
Area-based cultivation incentive disbursed to JLGs	₹4.43 crore	2023-24
JLG farming members as share of total Kudumbashree membership (41+ lakh)	~9.6%	2023-24

Source: Local Self Government Department, Government of Kerala, LSGD press release on the launch of the "Nirapolima" and "Onakani" projects; Kudumbashree Mission.

Collective farming under Kudumbashree's Joint Liability Group (JLG) model gives a second test of the access-agency distinction discussed earlier. This is separate from the enterprise-formation trend mentioned before. In this program, women act as cultivators. They take on bank-linked agricultural credit and keep control over the means of production, rather than working as wage labourers. This represents a clear instance of agency in Kabeer's (1999) sense. However, the scale is still small compared to the overall membership. In 2023-24, there were 84,327 JLGs involving 392,682 women, who cultivated only 17,635 hectares. Total interest-subsidy and incentive payments to these groups fell below ₹9 crore for the year. The access-agency gap noted here is not a result of just one major initiative. Instead, it shows a broader structural reality. Kudumbashree's nearly universal financial access has led to independent economic activity for only a minority of its members so far.

6.4 Kerala Women's Economic Agency: National Family Health Survey Indicators

Table 4: Selected Women's Empowerment Indicators, Kerala, National Family Health Survey Rounds

Indicator	NFHS-4 2015-16	NFHS-5 2019-21	Direction of Change
Women operating own bank/savings account	Below national avg.	Above 80% (among the highest of Indian states)	Sharp increase (Access)
Currently married women participating in household decisions	Comparatively high	Comparatively high, near national ceiling	Broadly stable (Access/Voice)
Women owning house and/or land, alone or jointly	Higher base than most states	Declined by 7.6 percentage points	Decline (Agency/Asset)
Women aged 15-49 paid in cash for work in last 12 months	Below 50% (state figure lower than headline access indicators)	Improvement modest; below majority threshold	Slow improvement (Agency)

Source: Ministry of Health and Family Welfare, Government of India, National Family Health Survey Reports NFHS-4 (2015-16) and NFHS-5 (2019-21).

As Table 4 indicates, Kerala's rankings for access-oriented empowerment indicators – bank account operation and participation in household decision-making – are among the best of any Indian state, consistent with its general human development profile. However, on the agency-defining indicator of owning property, Kerala saw an actual decline of 7.6 percentage points between NFHS-4 and NFHS-5, one of the larger declines recorded among Indian states on this indicator. Table 4 reiterates the pattern already visible within Kudumbashree itself: Kerala's women are uniquely well placed in terms of access to financial and decision making infrastructure, but this has not translated into comparable gains in asset ownership or paid economic participation, and on at least one agency-defining indicator the state has regrezsed rather than progressed.

6.5 Digital Registration Beyond Kudumbashree: e-Shram in Kerala

Table 5: e-Shram Registration in Kerala

Indicator	Value
Total e-Shram registrations, Kerala	~58 lakh
Women's share of Kerala e-Shram registrations	59.58%
Highest-registering districts	Malappuram and Kozhikode

Source: Ministry of Labour and Employment, Government of India, e-Shram portal statistics.

Table 5 indicates that the proportion of women in e-Shram registrations in Kerala is near 60 percent, higher than the all-India average, implying that women workers in the unorganised sector in Kerala are better represented in this national digital registry than the national average. As e-Shram registration, like Kudumbashree bank linkage, is fundamentally an access-side indicator – it records the existence of a worker in an official database rather than the terms on which that worker is remunerated – this figure should be read alongside, not instead of, the agency-side indicators in Tables 3 and 4; a high registration share confirms that Kerala's digital-registry infrastructure is functioning effectively, without by itself indicating anything about the earnings or bargaining position of the women it records.

6.6 A Contrasting Channel: Formal Digital-Sector Employment

Technopark, Thiruvananthapuram, India's first IT park owned fully by the Government of Kerala, had around 80,000 professionals directly employed, with women comprising nearly 45 per cent of the workforce – a share that department officials attribute to a 27 per cent increase in total park employment over the last five years. The agency indicator of paid-cash-work used in Table 4 is directly comparable to formal, salaried, statutorily covered work, such as a job in a licensed IT park, and not Kudumbashree bank linkage or e-Shram registration. It is one of the few digital-economy channels in Kerala's official data where women's participation consistently translates into an agency-defining outcome, but is numerically far smaller than either Kudumbashree's membership or the state's e-Shram registrations. It is also concentrated among urban, tertiary-educated women rather than the wider population Kudumbashree serves.

7. Findings

- Kerala’s female work participation rate has consistently been lower than the all-India rate from 2021-22 to 2023-24, and the gap has widened from 0.8 to 4.3 percentage points even as the national rate has risen sharply. This pattern aligns with the view that Kerala’s labor market offers comparatively less low-agency, distress-driven work that has been driving the national rise.
- Kudumbashree has achieved near-universal bank linkage and digital payment capability among its membership of over 41 lakh women, representing one of the largest sustained financial-inclusion architectures for women in any Indian state, built through weekly thrift, internal lending, and graduated bank linkage rather than one-time registration.
- Despite near-universal financial access, independent research suggests that only about 12 percent of Kudumbashree Neighbourhood Groups are engaged in income-generating activities, indicating that the conversion of access into agency is limited to a small, enterprise-active segment of the network.

- The access-agency divergence is reflected at the individual level in Kerala’s National Family Health Survey indicators: bank account ownership and household decision-making participation are among the strongest in any Indian state, but women’s property ownership declined by 7.6 percentage points between NFHS-4 and NFHS-5, and paid cash work remains below a majority share of working-age women.
- Kerala’s share of women in e-Shram registrations, at about 59.6 percent, is higher than the national average, suggesting that the national digital registry infrastructure is effectively capturing Kerala’s unorganized women workers. However, this achievement on the access side does not, by itself, say anything about earnings or bargaining position.
- The publicly owned IT parks in Kerala provide a smaller but structurally distinct channel through which women’s participation in the digital economy translates directly into salaried, agency-bearing employment. Women are close to parity in the state’s flagship IT park, but this channel remains concentrated among urban, tertiary-educated women.
- Across all channels examined, Kerala’s experience mirrors the pattern observed nationally: indicators of digital and financial access for women have advanced rapidly and now compare favorably with, or exceed, the all-India position, while agency indicators – income generation, asset ownership, and paid work – have advanced much more slowly and, in the case of property ownership, have regressed.

8. Suggestions

- Kudumbashree's monitoring and reporting systems should explicitly distinguish between Neighbourhood Groups engaged solely in thrift-and-credit activities and those engaged in income-generating enterprises, so that scarce enterprise-support resources, training, and market linkages can be targeted to convert a larger share of the membership from access-only participation to agency-bearing income generation (Kabeer, 1999).
- Given the decline in Kerala women's property and land ownership between NFHS rounds, complementary asset-ownership measures – such as explicitly linking Kudumbashree housing and livelihood support schemes to joint or individual titling in women's names – merit consideration alongside the network's existing financial-inclusion focus.
- The expansion of formal, salaried digital-sector employment through Kerala's IT parks should extend beyond its current concentration in urban areas and among tertiary-educated workers, using targeted digital-skilling bridges that connect Kudumbashree's broader membership to entry-level formal digital-sector roles, including business-process and IT-enabled services work that does not require a full technical degree.
- Kerala's high share of women's e-Shram registrations should be used more deliberately as a targeting mechanism for enterprise-support and skill-development schemes, rather than treated solely as a social-security registration exercise, since registration data already identify a large pool of unorganized women workers who could be assessed for enterprise readiness.

9. Conclusion

The study focused on the role of digitalized labor inclusion and economic agency in sustainable female labor market engagement in Kerala, using the Kudumbashree Mission as the institutional case and relying solely on official state and national data. Evidence shows that Kerala's much-praised human development achievements have been successfully translated into the digital and financial space: Kudumbashree has created one of the largest and longest-lasting financial-inclusion architectures for women anywhere in India. Women in Kerala are ahead of the national average in e-Shram registration. The state's IT parks offer a growing, salaried channel of digital-sector employment that comes close to gender parity. But Kerala's female work participation rate continues to trail the national average by a widening margin. Women recorded an actual decline in property ownership between the two most recent rounds of the National Family Health Survey, and independent research suggests that only a small fraction of Kudumbashree's vast membership is engaged in income-generating enterprise activity. The sustainability of Kerala's female labor market participation will hinge less on further expanding an already near-universal base of financial and digital access and more on the state's ability to convert that access – using targeted enterprise support, asset ownership measures, and expanded formal digital employment – into independent, income-generating economic agency for a much larger share of the women it already reaches.

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