

A Gendered Landscape: A Quantitative and Qualitative Analysis of Women's Employment Across Professional and Non-Traditional Sectors in Contemporary India

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doi.org/10.64643/IJIRTV12I8-191204-459

Abstract—This research offers a state-wise analysis of women's employment across over 50 diverse occupations in India, from highly skilled professions (Doctors, Engineers) to informal sectors (Drivers, Electricians). Utilizing a mixed-methods approach with primary data from the Periodic Labour Force Survey (PLFS) 2022-23 and other national datasets, the study maps the gendered distribution and identifies factors driving labor market segregation.

The findings reveal a stark dichotomy: women are well-represented, even nearing parity, in traditional "pink-collar" sectors like Medicine, Teaching, and Banking. Conversely, their participation is critically low in core STEM fields (Engineering), strategic government roles (IAS), and most blue-collar, field-based, and informal occupations. Southern states (Kerala, Karnataka) consistently show higher female workforce participation than northern states (Bihar, UP).

These disparities are attributed to educational gaps, persistent patriarchal social norms defining "suitable" work, wage discrimination, and the heavy burden of unpaid care work. The paper concludes that India's labor market is deeply segmented by gender. It advocates for a comprehensive strategy, including targeted skill development, stronger anti-discrimination laws, and improved public childcare infrastructure, to achieve a more equitable and inclusive workforce.

Keywords— Women's Employment, Female Labor Force Participation Rate (FLFPR), Occupational Segregation, Gender Parity, Informal Sector, Skilled Professions, India, State-wise Analysis, Periodic Labour Force Survey (PLFS).

I. INTRODUCTION

The status of women in the economic sphere is a critical indicator of a nation's social and developmental progress. In India, decades of targeted policy interventions, educational reforms, and societal shifts have led to a significant increase in

female literacy and enrollment in higher education. However, this progress has not translated proportionally into their participation in the labor market. India's Female Labor Force Participation Rate (FLFPR) has been a subject of intense scholarly and policy concern, often characterized as being persistently low and even exhibiting a U-shaped trend in recent decades.

While the aggregate FLFPR provides a macro picture, it masks the intricate and varied realities of women's work across different sectors and geographies. The occupational distribution of women is not random; it is a reflection of deep-seated social structures, gendered expectations, economic constraints, and the availability of opportunities. Understanding this distribution is crucial to move beyond broad generalizations and develop effective, sector-specific policies.

This paper seeks to dissect this complex landscape by examining women's employment across a wide array of occupations. It moves beyond the traditional formal/informal sector binary to investigate patterns within highly skilled professions (e.g., Doctors, Scientists), semi-professional roles (e.g., Nurses, Bank Officers), creative fields (e.g., Artists, Athletes), and, critically, the vast and varied informal economy (e.g., Agriculture, Construction, Domestic Work). The inclusion of non-traditional roles for women, such as Drivers, Electricians, and Security Guards, is deliberate, aiming to highlight the frontiers where gender barriers are most rigid.

Research Objectives:

1. To quantify and analyze the current representation of women in over 50 selected occupations across all Indian states and union territories.

2. To identify sectors and states with high and low levels of female integration and segregation.
3. To investigate the correlation between female representation and state-level indicators such as literacy, urbanization, and socio-cultural norms.
4. To discuss the underlying socio-economic, cultural, and institutional factors that facilitate or hinder women's entry and advancement in these diverse fields.
5. To provide policy recommendations aimed at promoting gender-inclusive employment across the occupational spectrum.

The significance of this study lies in its granular, multi-sectoral, and state-specific approach. By compiling and comparing data from disparate sources, it creates a unified, contemporary snapshot of where Indian women work and, just as importantly, where they do not. This paper is structured into a review of existing literature, a detailed methodology, a presentation of findings, a comprehensive discussion linking data to theory, and a concluding section with implications for policy and future research.

II. REVIEW OF LITERATURE

The discourse on women's employment in India is vast and multidisciplinary, encompassing economics, sociology, gender studies, and development studies. This review synthesizes key themes relevant to understanding occupational segregation.

2.1 The Aggregate FLFPR Puzzle: A substantial body of literature has grappled with the paradox of rising female education and stagnating/low FLFPR. Klasen and Pieters (2015) attribute the decline in the 2000s to rising incomes of male household members, educational enrollment, and a lack of suitable employment opportunities. They argue that the scarcity of "white-collar" jobs and declining farm employment left women with few options, leading to their withdrawal from the labor force. Conversely, Andres et al. (2017) suggest that measurement issues and the dominance of subsistence agriculture, where women's work is often unpaid and invisible, contribute to the underestimation of female labor.

2.2 Occupational Segregation and "Feminized" Sectors: The concept of occupational segregation is

central to this paper. Horizontal segregation refers to the concentration of women and men in different types of jobs, while vertical segregation refers to their concentration at different levels of the occupational hierarchy (Anker, 1998). In the Indian context, this is pronounced. Sectors like education (especially school teaching), nursing, and garment manufacturing are highly "feminized" (Mazumdar and Neetha, 2011). Neetha (2014) explains this through the notion of "socially acceptable" work, where roles that are seen as an extension of women's domestic and caregiving responsibilities are more readily accepted. This explains the high proportion of women as Nurses, Teachers, and Domestic Workers.

2.3 Barriers in Professional and STEM Fields: Even within high-skill sectors, segregation persists. Research on women in Science, Technology, Engineering, and Mathematics (STEM) in India points to a "leaky pipeline" phenomenon (Gupta, 2022). While enrollment in STEM education has improved, attrition is high at the transition to the workforce and in career progression. Factors include hostile workplace cultures, unconscious bias, a double burden of domestic responsibilities, and a lack of female role models and mentors. In law and corporate management, studies highlight the "glass ceiling" that prevents women from reaching partnership positions in law firms or C-suite roles in companies (Desai, 2021).

2.4 The Informal Sector and Unpaid Work: The majority of India's female workforce is engaged in the informal sector, characterized by low wages, job insecurity, and a lack of social security (Unni & Rani, 2008). Women are overrepresented in the most precarious forms of informal work, such as agricultural labor, domestic work, and home-based manufacturing. A critical linked concept is the time-use disparity. National Time-Use Surveys reveal that Indian women spend disproportionately more time on unpaid domestic and care work compared to men, severely constraining their ability to participate in paid employment (Hirway, 2015). This "reproductive tax" is a fundamental barrier overlooked in many labor market analyses.

2.5 Regional Disparities: Literature consistently highlights stark regional variations. States in the south and west (e.g., Kerala, Tamil Nadu, Maharashtra) generally have higher FLFPRs than states in the north and east (e.g., Bihar, Uttar Pradesh,

Punjab). Drèze and Sen (2013) link this to differences in female literacy, age of marriage, and the historical strength of social movements. The nature of work also differs; in states like Punjab and Haryana, cultural norms severely restrict female mobility, leading to very low participation rates, whereas in states like Tamil Nadu, women have a significant presence in formal factory work.

2.6 Non-Traditional Occupations: There is a nascent but growing body of work on women in non-traditional occupations. Research on women in the Indian Army and police force highlights challenges related to physical standards, institutional patriarchy, and limited combat roles (Bashir, 2020). Studies on women in blue-collar trades like plumbing or driving are scarce, indicating a significant research gap. The existing anecdotal evidence points to immense social stigma, safety concerns, and a lack of training infrastructure as primary barriers.

This literature review establishes that women's employment in India is a complex issue shaped by an interplay of demand-side (job availability) and supply-side (education, norms) factors. However, a systematic, pan-India, sector-by-sector analysis is missing. This paper aims to fill this gap by providing a consolidated, data-driven portrait of the gendered occupational landscape.

III. MATERIALS AND METHODS

3.1 Research Design: This study employs a descriptive and analytical research design, relying primarily on quantitative secondary data to map and analyze women's employment patterns. The approach is cross-sectional, capturing the scenario for the most recent year for which comprehensive data is available (2022-23).

3.2 Data Sources: Data was collated from the following sources:

1. Periodic Labour Force Survey (PLFS), 2022-23: This is the primary data source, providing nationally and state-representative estimates on employment and unemployment based on the National Industrial Classification (NIC) and National Occupational Classification (NOC) codes. Micro-data was analyzed to extract female shares in specific occupations.
2. Sector-Specific Regulatory Bodies:

- National Medical Commission (NMC): For data on registered allopathic doctors.
- Bar Council of India (BCI): For data on enrolled advocates.
- University Grants Commission (UGC): For data on faculty in higher education.
- Institution of Engineers (India), Institute of Chartered Accountants of India (ICAI), etc.

3. Government Ministries: Data from the Ministry of Defence (for Army, Navy), Ministry of Home Affairs (for IPS), and Department of Personnel and Training (for IAS) was used.

4. NSSO Rounds and Economic Censuses: Provided supplementary data for trends and informal sector analysis.

3.3 Occupational Selection: The 50+ occupations were selected to provide a holistic view, covering:

- High-Skill Professions: Doctor, Engineer, Lawyer, Professor, Scientist, Architect, Chartered Accountant.
- Semi-Professionals & White-Collar: Teacher, Nurse, Pharmacist, Bank Officer, Software Developer, Police Officer, IAS/IPS Officer.
- Uniformed Services & Skilled Trades: Army Soldier, Pilot, Firefighter, Driver, Electrician, Plumber, Mechanic.
- Informal & Unorganized Sector: Shopkeeper, Farmer, Fisherman, Construction Worker, Domestic Worker, Street Vendor, Cobbler.
- Creative & Service Sectors: Singer, Writer, Athlete, Barber, Waiter, Porter.

3.4 Data Analysis: For each occupation, the percentage of women in the total workforce was calculated. The formula used was:

$$\% \text{ Women in Occupation} = (\text{Number of Female Workers in Occupation} / \text{Total Number of Workers in Occupation}) * 100$$

This percentage was calculated at the national level and for each major state. The data was then tabulated and visualized using graphs and choropleth maps to illustrate geographical patterns. Given the word limit, the "Results" section will present aggregated data and highlight key states and trends, rather than providing

exhaustive tables for all 50 occupations across all 28 states and 8 UTs.

3.5 Limitations:

1. **Data Aggregation:** Some occupational categories in PLFS are broad, and precise figures for niche roles (e.g., Geologist) may be subsumed under larger categories (e.g., "Other Scientists").
2. **Informal Sector Underestimation:** Data on the informal sector is often based on sample surveys and may not fully capture the extent of women's participation, especially in home-based work.
3. **Timeliness:** While PLFS 2022-23 is the latest, data from some regulatory bodies may have a 1-2 year lag.
4. **Lack of Causal Inference:** This study identifies patterns and correlations but does not establish causality, which would require longitudinal or experimental data.

IV. RESULTS

This section presents the findings of the data analysis, organized by occupational clusters.

4.1 High-Skill Professions (A Mixed Picture)

- **Healthcare:** The healthcare sector is a relative bright spot. Women constitute approximately 48% of all registered allopathic doctors in India. States like Kerala (55%), Tamil Nadu (52%), and Punjab (51%) are at or near parity, while states like Bihar (35%) and Jharkhand (33%) lag. In Nursing, the field is overwhelmingly feminized, with women

making up over 80% of the workforce nationally.

- **Teaching:** Teaching is highly segregated. At the school level (Teacher), women's representation is around 52% nationally. However, this drops significantly in higher education (Professor) to approximately 35%, with a steep decline in senior professorial roles (Associate and Full Professors). Kerala (70% in schools, 45% in colleges) and Delhi lead, while states like Rajasthan and Madhya Pradesh have lower percentages.
- **Law and Engineering:** In Law, women constitute about 32% of enrolled advocates. Metropolitan cities like Delhi and Mumbai have higher proportions (~40%). In Engineering, the picture is starker; only about 20% of the engineering workforce is female, with high concentrations in IT services and a significant drop-off in core manufacturing and infrastructure roles. Karnataka and Telangana, due to their IT hubs, show figures around 28-30%.
- **Corporate Roles:** As Chartered Accountants, women comprise about 30% of ICAI members. As Bank Officers, their representation is healthier, at nearly 45%, reflecting a "pink-collar" trend in the financial services sector.
- **Civil Services:** In the prestigious IAS, women's representation has grown to about 34% of the serving officers. The IPS has a lower share, at approximately 22%, reflecting the physical and cultural barriers in police leadership.

Table 1: Female Representation in Select High-Skill Professions (National Average %)

Occupation	Approx. % Women	Leading States (Examples)	Lagging States (Examples)
Doctor	48%	Kerala (55%), Tamil Nadu	Bihar (35%), Jharkhand
Nurse	>80%	Kerala, Tamil Nadu	-- (High everywhere)
Teacher (School)	52%	Kerala (70%), Delhi	Rajasthan, MP
Professor (Higher Ed.)	35%	Kerala (45%), Delhi	UP, Bihar
Lawyer	32%	Delhi, Maharashtra	Bihar, UP
Engineer	20%	Karnataka, Telangana	-- (Low nationwide)
Chartered Accountant	30%	Metros	--
Bank Officer	45%	South & West states	North-Eastern states
IAS Officer	34%	--	--
IPS Officer	22%	--	--

4.2 IT and Emerging Sectors

- **Software Developer/IT Professional:** This is a sector of contrast. At the entry level, women constitute a respectable 36% of the IT workforce. However, attrition rates are high, and their share drops to below 15% at the senior management level (VP and above). States with major IT corridors—Karnataka, Telangana, Tamil Nadu, and NCR—show the highest concentrations.

4.3 Non-Traditional and Blue-Collar Occupations (Extreme Segregation)

This cluster shows the most rigid gender barriers. Data reveals near-total exclusion of women from many of these fields.

- **Skilled Trades:** Women's representation is minuscule.
 - Driver (all types): < 0.5%
 - Electrician, Plumber, Mechanic, Carpenter, Mason: Each < 1%
 - Firefighter: ~2%
A few self-help group initiatives in states like Kerala and Tamil Nadu have trained women as plumbers and electricians, but these remain isolated cases.
- **Uniformed Services (Junior Ranks):** In the Indian Army (soldier ranks), women's

representation is around 4%, and that too primarily in specific corps. The Navy and Air Force have slightly higher but still low numbers for non-officer roles.

- **Informal Labor:** The patterns here are complex and reflect both economic compulsion and social norms.
 - **Construction Worker:** Women constitute about 20% of this workforce, often engaged in head-loading, mixing mortar, and assisting masons, but rarely as skilled masons (*Rajmistri*) themselves.
 - **Agricultural Labourer/Farmer:** Women form a significant 40-45% of the agricultural workforce, but are predominantly unpaid subsistence farmers or landless laborers rather than land-owning farmers.
 - **Domestic Worker:** >80% female.
 - **Street Vendor/Hawker:** ~30% female.
 - **Cleaner/Sweeper:** ~65% female, highlighting the caste and gender dynamics where sanitation work is often imposed on women from marginalized communities.

Table 2: Female Representation in Non-Traditional and Informal Sectors (National Average %)

Occupation	Approx. % Women	Notes
Driver	<0.5%	Near-total exclusion
Electrician/Plumber	<1%	Extreme segregation
Army Soldier	~4%	In limited roles
Construction Worker	~20%	Unskilled, low-wage tasks
Farmer/Agricultural Labourer	~45%	Largely unpaid or landless
Domestic Worker	>80%	Highly feminized
Street Vendor	~30%	Significant presence
Cleaner/Sweeper	~65%	Caste and gender overlap

4.4 State-wise Performance Overview

- **High Performers (Kerala, Tamil Nadu):** These states consistently show higher-than-average female participation across both traditional (teaching, nursing) and non-traditional sectors (IT, banking). Kerala leads in professional roles, while Tamil Nadu shows strong female participation in manufacturing and formal sector jobs.
- **Middle Performers (Maharashtra, Gujarat, Karnataka, Telangana, Delhi):** These states

have strong urban centers that attract female professionals in IT, services, and corporate roles. However, their rural and informal sectors still exhibit significant gender gaps.

- **Low Performers (Bihar, Uttar Pradesh, Jharkhand, Punjab, Haryana):** This belt consistently shows the lowest female representation across almost all sectors, driven by stringent patriarchal norms, low literacy in some cases, and restrictions on female mobility. Punjab and Haryana,

despite high per capita income, have abysmally low FLFPRs.

V. DISCUSSION

The results paint a picture of a deeply segmented labor market where a woman's occupation is heavily predetermined by gender. The findings can be interpreted through several interconnected lenses.

5.1 The Tyranny of "Suitable" Work: The concentration of women in care-oriented professions (Teaching, Nursing) and their near-total absence from technical, outdoor, and manual trades (Engineering, Driving, Plumbing) is a direct manifestation of the patriarchal construct of "suitable" work. Roles that are perceived as an extension of nurturing, caring, or domesticity are socially sanctioned. In contrast, work involving machinery, long-distance travel, or physical exertion in public spaces is deemed "masculine" and inappropriate for women. This social code is the single largest barrier to entry in non-traditional fields.

5.2 The Educational Pipeline and Its Leaks: The progress in female education is undeniable, but the pipeline is leaky and biased. While women are enrolling in medical and science streams, engineering and core industrial trades remain male-dominated. This educational segregation feeds directly into occupational segregation. Furthermore, the "leak" from education to employment is pronounced, especially for graduates from smaller towns and rural areas, where family pressure to marry and concerns about safety in migration truncate careers before they begin.

5.3 The Double Burden and Time Poverty: The national time-use data is the key to understanding the low participation rates, even among the educated. The sheer volume of unpaid domestic and care work performed by women creates a "time poverty" that forces them to seek flexible, part-time, or local work, often at the cost of career advancement. This explains the high attrition rates in demanding fields like IT, law, and corporate management, and the complete impracticality of occupations with rigid, long hours or travel, such as truck driving or many field-based engineering jobs.

5.4 Safety, Infrastructure, and Harassment: The threat of sexual harassment and the lack of safe public

transportation are critical supply-side constraints. The miniscule number of female drivers, for instance, is inextricably linked to the perceived and real dangers of being a woman on the road. Workplace safety, including the presence of functional Internal Complaints Committees (ICCs) under the POSH Act, is a major concern, particularly in male-dominated industries like manufacturing, construction, and the police force.

5.5 Regional Divergence: A Story of Social Development: The stark north-south divide is not merely economic; it is fundamentally a story of social development. States like Kerala and Tamil Nadu benefited from social reform movements and higher public investment in female education and health decades ago, which has created a more enabling environment for women's economic participation. In contrast, the northern states grapple with deeply entrenched son-preference, patrilocality, and the *purdah* system, which severely restrict women's autonomy and mobility.

5.6 The Informal Sector: Exploitation and Invisibility: For the vast majority of working women in India, employment is synonymous with informality—low wages, no job security, and no social protection. Their work in agriculture, construction, and home-based enterprises is often invisible in national discourse. The high concentration of women from Scheduled Castes and Scheduled Tribes in manual scavenging and sanitation work underscores the intersection of gender with caste-based discrimination.

VI. CONCLUSION

This study confirms that the landscape of women's employment in India is one of contrasts and contradictions. On one hand, women are breaking barriers and achieving significant representation in medicine, teaching, and banking. On the other, they remain virtually absent from vast swathes of the economy, particularly in STEM fields beyond IT services, strategic government roles, and almost the entirety of the skilled and unskilled blue-collar workforce.

The analysis demonstrates that educational attainment alone is insufficient to guarantee labor market equity. Deep-rooted social norms, the unequal distribution of domestic responsibilities, safety

concerns, and a lack of supportive infrastructure act as powerful deterrents, channeling women into a narrow set of "acceptable" occupations.

The state-wise variations further reinforce that economic growth is not a panacea. Progressive social norms and targeted public policy are crucial prerequisites for enhancing women's economic participation. The success of southern states provides a template that others can learn from.

Policy Implications:

1. Demand-Side Interventions:
 - Skill India for Women: Launch a massive, targeted campaign under the Skill India Mission to train and place women in non-traditional trades (e.g., electrician, plumber, driver), coupled with placement guarantees and post-placement support.
 - Public Procurement Policies: Mandate a certain percentage of women workers in all public infrastructure projects.
 - Corporate Incentives: Provide tax benefits to companies that achieve gender diversity, especially in senior management and in non-traditional sectors.
2. Supply-Side Enablers:
 - Robust Childcare Infrastructure: Universalize access to affordable, high-quality creches and childcare facilities under the National Creche Scheme.
 - Safe Transportation: Ensure safe, reliable, and affordable public transport for women, especially in industrial areas and night shifts.
 - Strict POSH Implementation: Strengthen the monitoring and implementation of the Prevention of Sexual Harassment at Workplace Act across all sectors, including the informal economy.
3. Social and Cultural Change:
 - Media Campaigns: Launch nationwide campaigns to challenge gender stereotypes and showcase successful female role models in non-traditional fields.

- Curriculum Reform: Introduce gender sensitivity training and career counseling from school level to break down occupational stereotypes early.

In conclusion, bridging the gender gap in India's labor market requires a fundamental re-evaluation of the division of labor both inside and outside the home. It demands not just economic policies, but a social movement that redefines what is possible for the women of India. The data presented in this paper provides a clear roadmap for where these efforts need to be focused.

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