Gender Dividend in India

Progress, Gaps and Policy Pathways

Editors

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Preface

The present edited volume, *Gender Dividend in India: Progress, Gaps and Policy Pathways*, is an outcome of the ICSSR-sponsored National Seminar on "**Gender Dividend for Viksit Bharat: Interrogating Progress, Gaps and Opportunities**", organized by the Department of Economics, Assam University on 9th March 2026. The seminar was conceived against the backdrop of India's aspiration to emerge as a developed nation by 2047 and the growing recognition that the realization of this vision critically depends upon harnessing the country's gender dividend through greater economic, social, political, and cultural participation of women.

The concept of the gender dividend has gained increasing prominence in contemporary development discourse. It refers to the economic and social gains that societies can achieve through enhanced participation, empowerment, and inclusion of women in various spheres of life. While India possesses a substantial demographic advantage, the potential benefits of this demographic transition cannot be fully realized without addressing persistent gender inequalities that continue to constrain women's capabilities and opportunities. Achieving the vision of Viksit Bharat 2047 therefore requires not only sustained economic growth but also the creation of an equitable and inclusive society that enables women to participate as equal partners in the nation's development process.

Against this backdrop, the National Seminar provided an important platform for academicians, researchers, policymakers, and scholars from diverse disciplines to deliberate on the opportunities, challenges, and policy imperatives associated with realizing the gender dividend in India. The discussions highlighted that although significant progress has been made in several dimensions of gender development, substantial gaps remain in labour market participation, access to financial resources, educational attainment, health outcomes, social empowerment, and institutional representation. The seminar sought to critically examine these issues and explore pathways towards achieving gender-inclusive development.

This edited volume comprises fourteen carefully selected papers presented during the seminar. The papers were selected based on their originality, methodological rigor, empirical relevance, and policy significance. Collectively, the contributions provide multidisciplinary perspectives on gender and development by drawing upon diverse methodological approaches, including econometric analyses, primary surveys, case studies, policy reviews, doctrinal analysis, and theoretical explorations.

Several chapters in this volume examine the economic dimensions of the gender dividend. These include analyses of female labour force participation and employment trends in India, workplace stigma affecting women's employment opportunities, gender wage equality, financial literacy, women's access to rural credit markets, and the role of self-help groups in promoting women's economic empowerment. The volume also explores the broader developmental dimensions of human capital formation through an analysis of skill development, returns to labour, and the evolving structure of India's rural non-farm economy, highlighting their implications for inclusive growth and the realization of the demographic dividend.

The volume further explores broader socio-cultural and institutional dimensions of gender inequality. Important themes addressed include the persistence of patriarchal norms, intra-household inequalities in the allocation of daily time burden, determinants of women's physical health, socio-economic factors underlying early marriage practices, and the effectiveness of gender budgeting as an instrument for promoting inclusive development. Further, the volume expands the discourse on gender and inclusion through analyses of disability and resilience as well as women's participation in Sattriya dance, thereby emphasizing the multidimensional character of empowerment and social transformation.

A distinctive feature of this collection is its engagement with the socio-economic realities of North-East India, particularly Assam, while simultaneously situating these regional experiences within broader national debates on gender, development, and social justice. The empirical findings and policy insights presented in these chapters collectively reinforce the argument that harnessing India's gender dividend requires a comprehensive approach encompassing economic opportunities, social transformation,

institutional reforms, human capital formation, and inclusive public policies.

We express our profound gratitude to the Indian Council of Social Science Research (ICSSR) for sponsoring the National Seminar and for its continued commitment to promoting high-quality social science research in India. We also extend our sincere gratitude to the Honourable Vice-Chancellor of Assam University, Prof. RM Pant, for granting permission to organize the seminar, for his constant encouragement and support, and for generously sponsoring the publication of this edited volume through the University fund. His commitment to fostering academic excellence and promoting scholarly research has been instrumental in the successful completion of this endeavour.

We also express our heartfelt thanks to the authorities of Assam University for their institutional support and cooperation. Our sincere appreciation goes to all the authors whose scholarly contributions have enriched this volume. We are equally grateful to the reviewers, members of the organizing committee, faculty colleagues, research scholars, and staff members of the Department of Economics, Assam University, whose dedication and assistance contributed significantly to the successful organization of the seminar and the publication of this volume.

It is our earnest hope that Gender Dividend in India: Progress, Gaps and Policy Pathways will contribute meaningfully to the growing body of scholarship on gender and development and stimulate further academic inquiry, informed public discourse, and evidence-based policymaking. We also hope that the insights presented in this volume will contribute, in their own modest way, to India's collective journey towards realizing the vision of Viksit Bharat 2047 through the effective harnessing of its gender dividend.

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1

Reaping India's Gender Dividend: Female Labour Market Participation and Employment in India

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Abstract

This chapter examines the status and determinants of female labour force participation in India using unit-level data from the Periodic Labour Force Survey (PLFS). The findings show that Female Labour Force Participation Rate (FLFPR) in India increased substantially between 2017–18 and 2023–24, largely driven by a significant rise particularly in rural areas. Despite this improvement, substantial gender disparities persist in labour market participation and employment outcomes. The analysis highlights variations across educational groups, social groups, age categories and states, and identifies key demographic, socio-economic and skill-related determinants of FLFPR. The chapter argues that enhancing both the quantity and quality of women's employment is essential for realising India's gender dividend and achieving the broader goals of demographic dividend and women-led development.

Keywords: *Female Labour Force Participation; Gender Dividend; Demographic Dividend; Women-Led Development; Viksit Bharat; Employment.*

JEL codes: J16, J21, J46, O15

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1. Introduction

The period from 2022 to 2047 is being projected as the Amrit Kal for transitioning India from a developing economy to a developed one by the centenary of India's independence. An oft-quoted strategy for achieving this goal is the harnessing of India's demographic dividend. India's demographic structure is currently at a 'sweet spot', with nearly half of the population being less than 30 years of age. It is averred that this favourable age structure can pave the way for a demographic dividend (Bloom et al., 2003). Demographic dividend is defined as "the economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working-age population is larger than the non-working-age share of the population" (UNFPA, 2014). Apart from demographic dividend, another policy pathway being projected for achieving the goal of Viksit Bharat is 'women-led development'. In this development paradigm, women are viewed not merely as beneficiaries of economic and social progress, but as active agents in building a developed nation. The concept of gender dividend lies at the intersection of the two paradigms of demographic dividend and women-led development. As women constitute nearly fifty percent of the population, the full potential of the twin strategies can be realised only when women are fully integrated into the economy, thereby generating substantial economic and social returns in the form of higher productivity, improved household welfare and enhanced human capital formation (World Bank, 2012; Elborgh-Woytek et al., 2013). Similar to the demographic dividend, which emerges when a large share of the young population enters the workforce and contributes to economic growth, the gender dividend refers to the potential economic gains arising from the economic and social empowerment of all women, including the female youth population (Pellegrino et al., 2011). Therefore, the realisation of the demographic dividend and women-led development is contingent upon effectively tapping the gender dividend (Miller et al., 2016). While garnering the gender dividend hinges on progress across multiple dimensions of economic and social well-being, one important aspect relates to securing access to dignified work for women. This entails ensuring greater labour force participation among women, along with fostering favourable occupational outcomes for working women. This is because

the gender dividend can be realised only when the female population is effectively engaged in highly productive and well-remunerated employment. Restricting women's access to education and employment has significant negative effects on GDP by limiting factor accumulation and reducing productivity (Klasen & Lamanna, 2009). Thus, female participation in the labour market is essential for achieving macroeconomic gains and fully reaping the benefits of the demographic dividend and women-led development (Nawarathna, 2025; Elborgh-Woytek et al., 2013).

In India, the female labour force participation rate (FLFPR) has historically remained low. In keeping with the U-shaped hypothesis, FLFPR in both rural and urban areas continued to decline in India with rising per capita income and reached an abysmally low figure of 17 percent in 2017–18 (Goldin, 1995; Klasen & Pieters, 2015). Since then, concerted efforts have been made by the government to reverse this trend through proactive policies. Apart from labour market participation, the structure of employment also plays a crucial role in shaping women's position in the labour market. Over the years, with the expansion of the industrial and service sectors and the large-scale migration of males from rural to urban areas, there has been a trend towards the feminisation of agriculture in rural areas (Agarwal, 2018; Pattnaik et al., 2018). At the same time, FLFPR in urban areas has remained notoriously low due to a combination of factors including rising household incomes, limited availability of suitable jobs, persistence of gender norms and women's disproportionate burden of unpaid domestic work (Chatterjee et al., 2018; Mehrotra & Parida, 2017). In particular, as women continue to lag behind in education and skills, their access to jobs in the organised sector has remained limited. Against this backdrop, this chapter analyses the current state of the female labour market in India using unit-level data available from the Periodic Labour Force Survey (PLFS).The gendered trends in labour force participation across age, educational standards and social groups are examined. Inter-state variations in labour market participation rates among women are analysed. Also the employment structure of female workers is assessed with special focus on rural areas.

2. Review of literature

FLFPR has attracted considerable attention in the literature owing to its implications for economic growth, gender equality and labour market development. Despite significant economic progress and improvements in educational attainment, FLFPR in India has historically remained low. Using Population Census data, Motkuri and Naik (2016) examined the growth and structure of the Indian workforce and found a declining trend in workforce growth, particularly among women. They further observed that the proportion of marginal workers engaged in non-agricultural activities was higher than that of main workers. Several studies have identified factors such as prolonged participation in education, technological changes, rigid social norms, low social status of women, and inadequate educational attainment as important constraints on women's labour market participation (Banerjee, 2019; Boruah & Das, 2022; Sanghi et al., 2015).

Akhtar et al. (2020) while analysing the determinants of female labour force participation in Malaysia, identified factors such as age, education, family structure, and household financial conditions as significant influences. Their study revealed that educated women and those belonging to joint families were more likely to participate in the labour force. Chatterjee and Sircar (2021) found that women were 12–23 percentage points less likely to express a preference for a suitable job if a job required one hour of travel, suggesting that commuting time constitutes a significant barrier to women's labour market participation. Similarly, Mamgain and Khan (2022) reported a continuous decline in female labour force participation in India between 2004–05 and 2017–18, with the decline being widespread across social groups, income strata, states, and age categories.

These trends indicate that women continue to face unequal access to occupational opportunities, higher earnings, professional and managerial positions, and wage parity. Kapsos et al. (2014) argued that sectoral and occupational segregation significantly influence female labour force participation. Furthermore, several studies have shown that participation in both formal and informal vocational training enhances women's engagement in the labour market (Bairagya et al., 2021; Singh & Mukherjee, 2022). However, despite improvements in

women's educational attainment, labour force participation has not increased proportionately, as women continue to shoulder a disproportionate burden of unpaid domestic and care giving work (Ali et al., 2023). Although the government has implemented various initiatives to improve the socio-economic status of women through welfare programmes, reservation policies, and livelihood promotion schemes, female participation in the labour market continues to remain relatively low.

3. Data and Methods

The study is based on secondary data obtained from Periodic Labour Force Survey (PLFS). Unit level data available from 2017-18 which is the starting year of PLFS and the latest available PLFS survey viz. 2023-24 are used in the study. Although PLFS reports give figures on FLFPR for two specific age groups i.e. 15 years and above and 15-29 years, the present study includes women in the age group of 15-64 years. However, as women in the younger age group of 15-21 years and also in the older age bracket i.e. 60-64 years are likely to enter the labour force due to economic hardships, the descriptive statistics in the study are specifically compiled for women in the age group of 21-59 years although the other two age groups are also retained. The underlying age cohort is mentioned wherever necessary in order to avoid confusion. The status of FLFPR is calculated by taking both principal and subsidiary status into account. In order to ascertain the correlates of Female Labour Force Participation(FLFP), Logit model is estimated. The outcome variable in the Logit Model takes the value 1 if the woman participates in the labour market and is 0 otherwise. Description of the explanatory variables used in the regression analysis is shown in Table 1.

Table 1: Description of Explanatory Variables used in Logit Model

Variable	Description
AGE	Age of the woman (in completed years)
AGE2	Age squared
EDU	Education of the woman (in completed years)
SC	Caste dummy (=1, if the woman belongs to scheduled caste community; 0 otherwise)

ST	Caste dummy (=1, if the woman belongs to scheduled tribe community; 0 otherwise)
OBC	Caste dummy (=1, if the woman belongs to OBC community; 0 otherwise)
MPCE	Monthly Per Capita Consumption Expenditure of the household
HHS	Household size
SELF_ HEAD	Dummy (=1, if the respondent is herself the head of the household; 0 otherwise)
RURAL	Regional dummy (=1, if the women resides in rural area; 0, otherwise)
MS	Marital Status of the women (=1, if currently married; 0 otherwise)
HINDU	Religious dummy (=1, if woman belongs to a Hindu household; 0, otherwise)
MUSLIM	Religious dummy (=1, if woman belongs to a Muslim household;0, otherwise)
VOC1	Training dummy (=1, If woman has received formal training; 0, otherwise)
VOC2	Training dummy (=1, If woman has received informal training; 0, otherwise)

Source: Authors

4. Results

4.1 Trends in Female Labour Force Participation in India

In India, several studies have documented the declining trends in FLFPR despite the country's significant economic growth in recent decades (Lahoti & Swaminathan, 2013; Mahapatro, 2013). Women's employment plays a crucial role in promoting economic independence, empowerment, and overall social well-being. Therefore, examining the trends in FLFPR remains a critical policy concern for enhancing inclusive growth and improving societal well-being. Table 2 represents the Labour Force Participation Rate (LFPR) in India among individuals aged 15-64 years for 2017-18 and 2023-24. Significant gender and regional differences are evident from the table. It is observed

that the Male Labour Force Participation Rate (MLFPR) not only remained consistently high during this period but it also registered a marginal increase. In rural areas, MLFPR increased from 79.81 percent in 2017-18 to 83.98 percent in 2023-24, while in urban areas it increased from 78.06 percent in 2017-18 to 80.37 percent in 2023-24. At the all- India level, MLFPR increased from 79.44 percent wwwwwin 2017-18 to 82.85 percent in 2023-24. In contrast, the FLFPR was significantly lower in 2017-18, but experienced a substantial rise by 2023-24, particularly in rural areas. Rural FLFPR increased sharply from 26.11 percent in 2017-18 to 50.62 percent in 2023-24. Urban FLFPR also increased, though at a comparatively moderate pace, from 21.72 percent to 30.15 percent. At the all-India level, FLFPR increased from 24.77 percent in 2017-18 to 44.45 percent in 2023-24. The table also highlights the gender differential in labour force participation, measured as the difference between MLFPR and FLFPR. In 2017-18, the gender differential was extremely high across both rural and urban regions. In rural areas, the differential stood at 53.70 percentage points, while in urban areas it was even higher at 56.88 percentage points. At the all- India level, the gender differential was 54.67 percentage points. However, by 2023-24, the gender gap had narrowed considerably, particularly in rural areas. The rural gender differential declined sharply to 33.36 percentage points, reflecting substantial increase in rural female labour force participation. In urban areas, the gender differential also declined, but only moderately to 50.22 percentage points. This indicates that gender disparity in labour force participation remains much higher in urban India. At the all-India level, the gender differential decreased to 38.40 percentage points in 2023-24.

Table 2: Labour force participation rate (15-64) in India (ps + ss)

	2017-18			2023-24		
Region	**Male**	**Female**	**Differential**	**Male**	**Female**	**Differential**
Rural	79.81	26.11	53.70	83.98	50.62	33.36
Urban	78.60	21.72	56.88	80.37	30.15	50.22
India	79.44	24.77	54.67	82.85	44.45	38.40

Source: Based on authors' calculation from PLFS data

Table 3: FLFPR in India by age groups

Region	Year	15-21	21-31	31-41	41-51	51-64	21-59
Rural	2017-18	7.31	23.95	34.88	36.69	26.32	30.98
Rural	2023-24	17.56	42.92	64.17	70.23	54.26	58.33
Urban	2017-18	6.60	24.9	28.17	26.20	16.43	25.47
Urban	2023-24	8.84	33.18	38.37	37.35	23.52	35.02
India	2017-18	7.11	24.24	32.8	33.45	23.22	29.27
India	2023-24	15.23	40.00	56.19	60.00	44.70	51.15

Source: Based on authors' calculation from PLFS data

Table 3 presents the FLFPR in India across different age groups. The LFPR in the age group of 21-59 years is of particular interest as it represents the most economically productive phase of an individual's life. In rural areas, FLFPR increased markedly across all age groups during the period 2017-18 to 2023-24, in fact almost doubling across some cohorts. In contrast, urban FLFPR recorded comparatively lower growth. The table further reveals that FLFPR is comparatively lower in the 15-21 and 51-64 age groups than in the 21-31, 31-41, and 41-51 age groups. This may be attributed to higher engagement of young women in education during the ages of 15-21 and reduced labour market participation during the later years approaching retirement. Therefore, to better represent the economically active female population, FLFPR has been separately calculated for women in the age group of 21-59 years. It is seen that the FLFPRs are much higher for this group. In rural areas, it increased from 30.98 percent in 2017-18 to 58.33 percent in 2023-24. In urban areas, it increased from 25.47 percent to 35.02 percent, while at the all-India level it rose from 29.27 percent to 51.15 percent during the same period. Thus, the FLFPR for the economically active age group of 21-59 provides a more representative estimate of female labour force participation compared to the overall PLFS estimates which reports FLFPR for women aged 15 and above and 15-29 years.

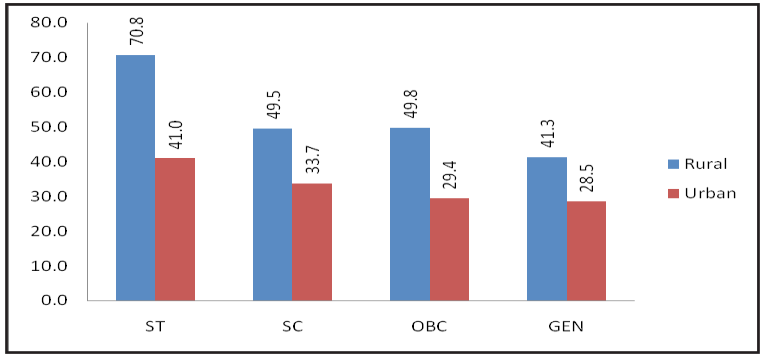
Table 4: LFPR (15-64) in India across educational categories, 2023-24

	Rural			Urban		
Years of Education	**Males**	**Females**	**Differential**	**Males**	**Females**	**Differential**
No Education	92.32	64.87	27.45	84.43	36.55	47.88
Up to 10 years	86.32	48.75	37.57	83.28	27.71	55.57
11-12 years	71.77	31.47	40.3	67.63	17.09	50.54
13-15 years	76.67	33.12	43.55	76.72	28.84	47.88
More than 15 years	88.7	55.55	33.15	91.6	52.26	39.34

Source: Based on authors' calculation from PLFS data.

Education is one of the most dynamic factors that influence a person's decision and ability to participate in the labour market. Table 4 presents the LFPR in India for the age group 15–64 years across different levels of educational attainment on the basis of PLFS, 2023-24. The central pattern emerging from the table is that higher educational attainment does not automatically translate into higher female labour force participation, particularly in urban India. While male participation remains consistently high across all educational categories, female participation is considerably lower, resulting in substantial gender differentials across both rural and urban areas. The table further indicates that gender disparity in labour force participation is generally wider in urban areas than in rural areas across all educational categories**.** Furthermore, FLFPR exhibits a U-shaped relationship with education, being relatively higher among women with low and high educational attainment and lower among those with intermediate levels of education.

Fig 1: FLFPR (15-64) by social group, 2023-24



Source: Based on authors' calculation from PLFS data

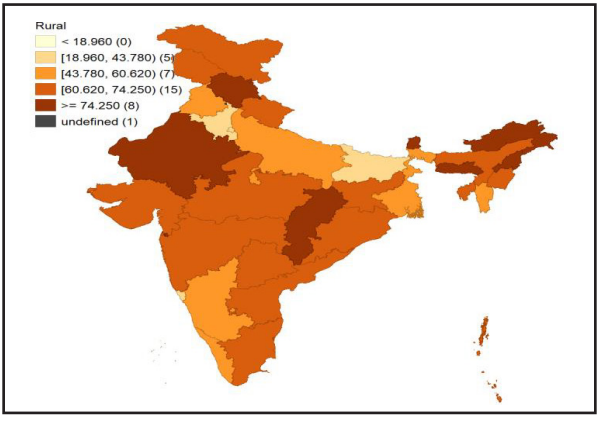
Figure 1 presents the FLFPR by social group among women aged 15–64 years in 2023–24. The results indicate that FLFPR is consistently higher in rural areas than in urban areas across all social groups. The highest FLFPR is observed among Scheduled Tribe (ST) women, reaching 70.8 percent in rural areas and 41.0 percent in urban areas. This is followed by Other Backward Class (OBC) women, with participation rates of 49.8 percent in rural areas and 29.4 percent in urban areas, and Scheduled Caste (SC) women, with participation rates of 49.5 percent in rural areas and 33.7 percent in urban areas. Women belonging to the General category exhibit the lowest participation rates, at 41.3 percent in rural areas and 28.5 percent in urban areas.

4.2 Interstate variation in FLFPR in India

In India, due to its diverse geographical, cultural, economic, and social conditions, the FLFPR varies significantly across states and regions. Differences in levels of development, educational attainment, availability of employment opportunities, and the structure of local economies all contribute to these variations. In several socio-cultural contexts, traditional norms and patriarchal values discourage women's participation in the labour market. Restrictions on women's mobility, early marriage, domestic responsibilities, and the perception that men should be the primary breadwinners often limit women's economic engagement. In some communities, concerns about safety, social prestige, and family honour further constrain women's access to paid employment, particularly in non-agricultural or formal sector jobs. At the same time, regional economic structures also

play an important role. In agrarian or informal economies, women's work is often unpaid or underreported, leading to lower measured participation rates. Conversely, regions with better access to education, self-help groups, microfinance initiatives, and government employment schemes such as MGNREGA tend to show relatively higher female labour force participation. Therefore, the variation in FLFPR across India reflects a complex interaction of socio-cultural norms, economic opportunities, institutional support, and regional development patterns.

Fig 2: Interstate variation in Rural FLFPR (21-59), 2023-24[1]



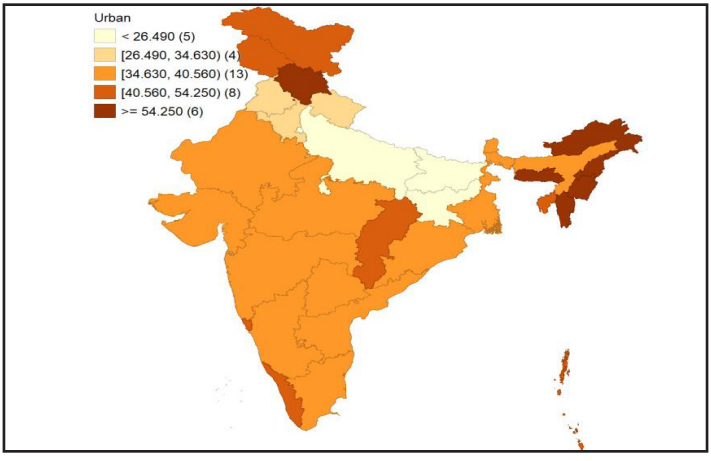
Source: Based on authors' calculation from PLFS (2023-24) data.

Figure 2 depicts the state-wise rural distribution of FLFPR for 2023-24 across India in the age group 21-59 years. The map highlights significant regional variations. Darker shades represent higher FLFPR, while lighter shades indicate lower levels of participation. Several Northern, Central, and North-eastern states including Meghalaya, Arunachal Pradesh, Sikkim, Himachal Pradesh, Chhattisgarh, Daman & Diu, Nagaland, and Rajasthan, show a notable concentration of high rural FLFPR close to 75 percent. This indicates that a significant portion of women in these states are engaged in economic activities, particularly in agriculture, self-employed or unpaid family labour, which are common in rural economies. States with moderate to high participation levels (between 60-74 percent) are

1 There is one undefined territory in the map as Chandigarh is considered to be a fully urban jurisdiction in PLFS 2023-24.

also visible across a wide geographical spread, including Jammu & Kashmir, Uttarakhand, Manipur, Tripura, Assam, Jharkhand, Odisha, Madhya Pradesh, Gujarat, Maharashtra, Andhra Pradesh, Tamil Nadu, Andaman & Nicobar Islands, Telangana and Ladakh. This indicates relatively strong female engagement in rural labour markets across these regions. A moderate level of female labour force participation (between 43- 60 percent) is observed in states such as Punjab, Uttar Pradesh, West Bengal, Karnataka, Kerala, and Puducherry. Although participation exists, it is comparatively lower than in the afore-mentioned states. In contrast, a few states, particularly parts of eastern and southern India, display comparatively low female labour force participation rate (18-43 percent) including Haryana, Delhi, Bihar, Goa, and Lakshadweep. These lower rates may reflect socio-cultural constraints, limited employment opportunities, or under reporting of women's economic activities. Overall, the map clearly demonstrates substantial inter-state disparities in rural FLFPR across India, shaped by differences in economic structure, cultural norms, and regional development patterns.

Fig 3: Interstate variation in Urban FLFPR (21-59 Years), 2023-24



Source: Based on authors' calculation from PLFS data

Figure 3 given above represents the state-wise urban distribution of the FLFPR for 2023–24 in the age group 21-59 years, highlighting

substantial regional variation across India. Compared to rural areas, the female labour force participation rate in urban areas is generally lower. The highest participation rate (67.55 percent) is observed in the Northeastern state of Nagaland, followed by Arunachal Pradesh, Meghalaya, Manipur, Mizoram, and Himachal Pradesh. This indicates relatively stronger female engagement in urban labour markets in these states. Several states fall within the moderate participation range of (40–54 percent), including Jammu & Kashmir, Chandigarh, Tripura, Chhattisgarh, Goa, Kerala, Andaman & Nicobar Islands, and Ladakh. A majority of states fall within the lower-moderate range (34–40 percent), including Rajasthan, Sikkim, Assam, West Bengal, Odisha, Madhya Pradesh, Maharashtra, Gujarat, Andhra Pradesh, Karnataka, Tamil Nadu, Puducherry, and Telangana. Urban female labour force participation below 35 percent is observed in states such as Punjab, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Bihar, Jharkhand, Daman & Diu, and Lakshadweep. These lower levels suggest that although women are present in urban labour markets, their participation remains constrained due to factors such as limited suitable employment opportunities, safety concerns, social norms, skill mismatches, and higher involvement in unpaid domestic responsibilities.

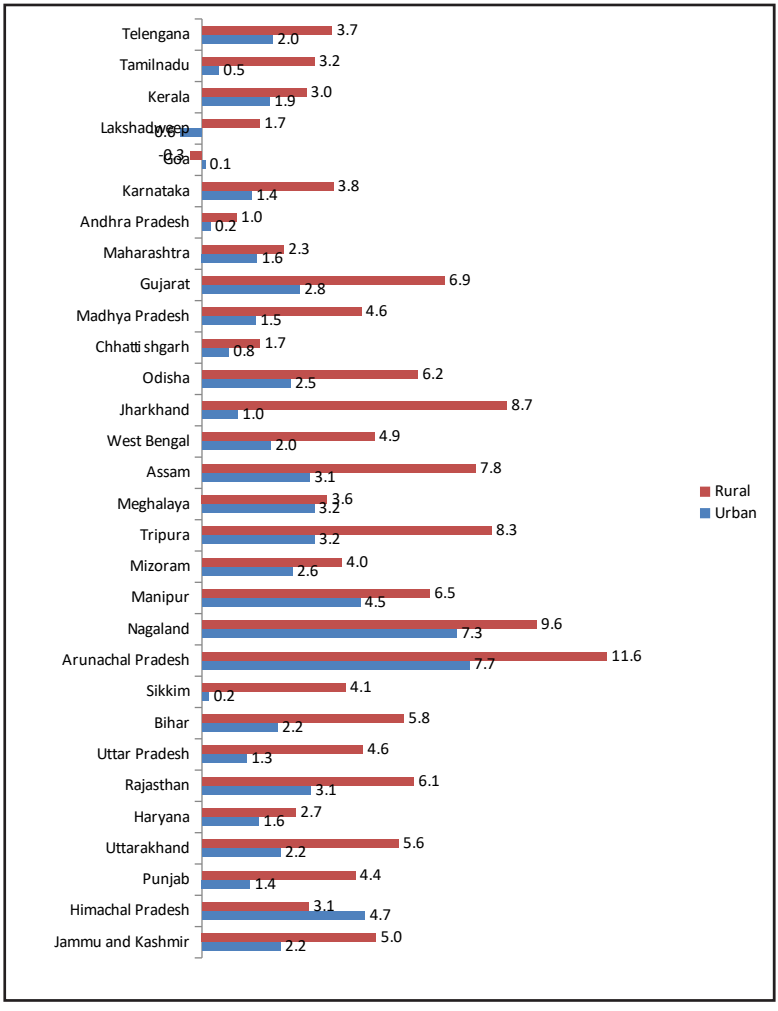
4.3 Spatial trends in FLFPR

Figure 4 presents the average annual increase in FLFPR across Indian states during 2017-18 to 2023-24 for the 21-59 age group. The results show that, in most states, the annual increase in rural FLFPR was higher than the increase in urban FLFPR during this period. The highest annual increase was observed in Arunachal Pradesh, where rural FLFPR increased by 11.6 percent and urban FLFPR increased by 7.7 percent. In rural areas, a high annual increase was also observed in Nagaland (9.6 percent) followed by Jharkhand (8.7 percent), Tripura (8.3 percent) and Assam (7.8 percent). Several states showed a moderate annual increase in FLFPR, including Gujarat (6.9 percent), followed by Manipur (6.5 percent), Odisha (6.2 percent), Rajasthan (6.1 percent), Bihar (5.8 percent), Uttarakhand (5.6 percent), Jammu & Kashmir

(5.0 percent), West Bengal (4.9 percent), Madhya Pradesh (4.6 percent) Punjab (4.4 percent), Sikkim (4.1 percent) and Mizoram (4.0 percent). However, relatively lower annual increases in female labour force participation were observed in Meghalaya (3.6 percent), Telangana (3.7 percent), Tamil Nadu (3.2 percent), Kerala (3.0 percent), Haryana (2.7 percent), Maharashtra (2.3 percent) Chhattisgarh (1.7 percent), Lakshadweep (1.7 percent), Andhra Pradesh (1.0), while Goa recorded a negative growth rate of 0.3 percent.

In contrast, in urban areas, the highest annual increase in FLFPR was observed in Arunachal Pradesh (7.7 percent), followed by Nagaland (7.3 percent), Himachal Pradesh (4.7 percent), and Manipur (4.5 percent). Several states fell into the category of moderate annual increase in urban FLFPR, including Assam (3.1 percent), Tripura (3.2 percent), Meghalaya (3.2 percent), Rajasthan (3.1 percent), Gujarat (2.8 percent), Mizoram (2.6 percent), Odisha (2.5 percent), Bihar (2.2 percent) Uttarakhand (2.2 percent), Jammu & Kashmir (2.2 percent), Telangana (2.0 percent), and West Bengal (2.0 percent). States with relatively lower annual increases in urban FLFPR included Kerala (1.9 percent), Maharashtra (1.6 percent), Haryana (1.6 percent), Madhya Pradesh (1.5 percent), Karnataka (1.4 percent), Punjab (1.4 percent), Uttar Pradesh (1.3 percent), Jharkhand (1.0 percent), Chhattisgarh (0.8 percent), Tamil Nadu (0.5 percent), Andhra Pradesh (0.2 percent), and Sikkim (0.2 percent), while Goa recorded the lowest increase at 0.1 percent.

Fig 4: Annual increase in FLFPR across states during 2017-18 & 20233-24



Source: Based on authors' calculation from PLFS data.

4.4 Determinants of FLFPR: Logit results

The marginal effects of the Logit regression FLFP as the outcome variable is shown in Table 5. The coefficient of AGE is positive and statistically significant indicating that as women grow older, their likelihood of participating in the labour market increases. However, the coefficient of AGE2 is negative, implying that although labour force participation

rises at younger ages, it begins to decline after a certain stage of life. This reflects a non-linear relationship between age and FLFP, resulting in an inverted U-shaped relationship between age and labour market participation. Secondly, women's education (EDU) has a negative and statistically significant effect on FLFPR. The marginal effect of education is -0.007, which indicates that as women attain higher levels of education, their participation in the labour market decreases. This may be because prolonged education delays entry into the workforce, while highly educated women may avoid low-paid, insecure and informal employment opportunities due to the lack of suitable jobs matching their qualifications. Thirdly, caste has a significant effect on FLFPR. The marginal effects for Scheduled Castes (SC), Scheduled Tribes (ST), and Other Backward Castes (OBC) are positive implying imply that women belonging to SC, ST, and OBC communities are more likely to participate in the labour market compared to women from General Caste. Moreover, household consumption expenditure (MPCE) is statistically insignificant, with marginal effect close to zero, suggesting that household consumption expenditure does not significantly influence women's labour force participation. The marginal effect of HHS is -0.010, indicating that household size has a negative and significant impact on FLFP. Women belonging to larger households are less likely to participate in the labour market due to increased domestic and care giving responsibilities. The marginal effect of regional variable (RURAL) is positive and significant, indicating that women residing in rural areas are more likely to participate in the labour market compared to urban women. This may be attributed to the greater involvement of rural women in agricultural and informal economic activities. Additionally, marital status (MS) has a negative and significant effect on FLFPR, with a marginal effect of -0.167. This suggests that married women are less likely to participate in the labour market than unmarried women, as marriage often increases domestic and care giving responsibilities. Religion also shows significant effects on FLFP. The marginal effect for the religious dummy relating to Hindu women, implying that women belonging to the Hindu community are more likely to participate in the labour market compared to other religious groups. In contrast, the marginal effect for Muslim women negative and significant, indicating a

lower likelihood of labour market participation among Muslim women. Finally, vocational training variables (VOC1 and VOC2) have strong positive and statistically significant effects on women's labour force participation, with marginal effects of 0.360 and 0.456 respectively. These findings suggest that women who receive vocational training are substantially more likely to participate in the labour market. Furthermore, the effect is stronger for women with more formal and advanced vocational training, highlighting the important role of skill development in enhancing employability and labour force participation among women.

Table 5: Marginal Effects of Logit Model

Variable	dy/dx	z	P>|z|
AGE	0.080***	89.76	0.000
AGE2	-0.001***	-84.26	0.000
EDU	-0.007***	-17.07	0.000
SC	0.221***	40.09	0.000
ST	0.029***	5.68	0.000
OBC	0.039***	9.73	0.000
MPCE	0.000	1.28	0.201
HHS	-0.010***	-11.81	0.000
SELF_HEAD	0.007	1.08	0.281
RURAL	0.234***	73.04	0.000
MS	-0.167***	-33.63	0.000
HINDU	0.024***	4.31	0.000
MUSLIM	-0.105***	-15.90	0.000
VOC1	0.360***	64.42	0.000
VOC2	0.456***	143.54	0.000

*** denotes significant at 1 percent

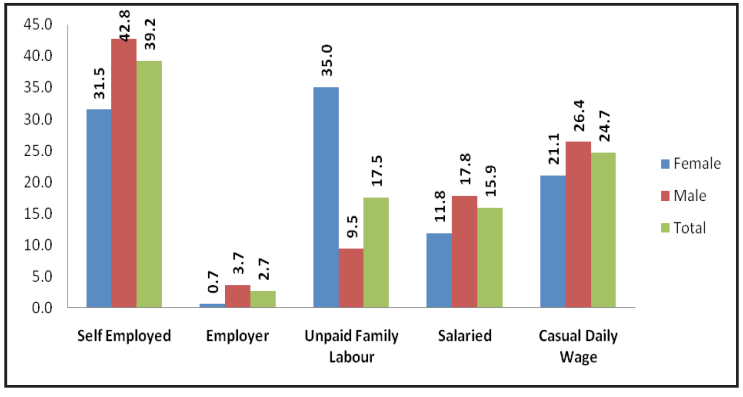
Source: Based on authors' calculation from PLFS (2023-24)

4.5 Occupational Structure of Female Workers in India

4.5.1 Occupational Distribution of female workers in rural Areas

In rural areas, workers are broadly divided into five categories- Self-employed, Employers, Unpaid family labour, Salaried and Casual daily wage earners.. The distribution of rural workers by the type of employment depicted in Fig 5 reveals notable gender disparities. A notable feature of the distribution is that most male workers are engaged in self-employment (42.77 percent), followed by casual daily wage earners (26.36 percent), salaried employment (17.76 percent), unpaid family labour (9.46 percent) and employers (3.66 percent). In contrast, female workers are predominantly engaged as unpaid family workers (35 percent), followed by self-employment (31.47 percent), casual daily wage earners (21.05 percent), salaried employment (11.82 percent), and employers (0.66 percent). This difference indicates that a large portion of rural women contribute to family enterprises without receiving direct wages. Men's higher engagement in salaried employment (about 17 percent), compared to women (about 11 percent) suggests that women's have limited access to stable and regular paid jobs. Similarly, casual daily wage work employs a higher percentage of men (approximately 26 percent) than women (around 21 percent). The employer category represents the smallest share for both genders, indicating that very few rural workers function as job providers.

Fig 5: Gendered Patterns in occupational distribution of rural workers



Source: Based on authors' calculation from PLFS data.

4.5.2 Distribution of rural workers by the type of employment with specific age groups

Table 6 and 7 present the age-wise distribution of rural female and male workers, respectively, by type of employment. In the case of female workers, as age increases, participation in the employer and casual daily wage earner tends to increase. Self-employment increases up to the 31-40 age group and then remains relatively stable between the ages of 41 and 59. An important observation is that unpaid family work constitutes the largest share across almost all age groups, particularly high in the 21-30 and 51-59 age groups This indicates that a significant proportion of rural women are engaged in family enterprises without receiving any direct wages. Self-employment is the second most dominant category and remains relatively stable across age groups (around one-third of workers). This suggests that many rural women are involved in own-account activities such as agriculture or small household enterprises.

Table 6: Distribution of rural female workers by age and employment, 2023-24

Type of Employment	21-30	31-40	41-50	51-59	Total
Self Employed	26.77	32.62	32.89	32.28	31.47
Employer	0.46	0.56	0.78	0.9	0.66
Unpaid Family Labour	38.74	32.23	34.95	36.42	35.00
Salaried	16.13	12.56	10.27	7.54	11.82
Casual Daily Wage	17.91	22.05	21.12	22.86	21.05

Source: Based on authors' calculation from PLFS data.

The proportion of female casual daily wage workers remains moderate and fairly consistent across age groups. The share of women working as employers is negligible in all age categories. There is also a declining trend in regular salaried employment with increasing age, and overall participation in salaried work remains comparatively low, particularly in the 41–50 and 51–59 age groups. Overall, the data indicate that rural female employment is largely concentrated in informal and family-based work, with limited access to regular salaried jobs or entrepreneurial roles.

Table 7: Distribution of rural male workers by age and employment, 2023-24

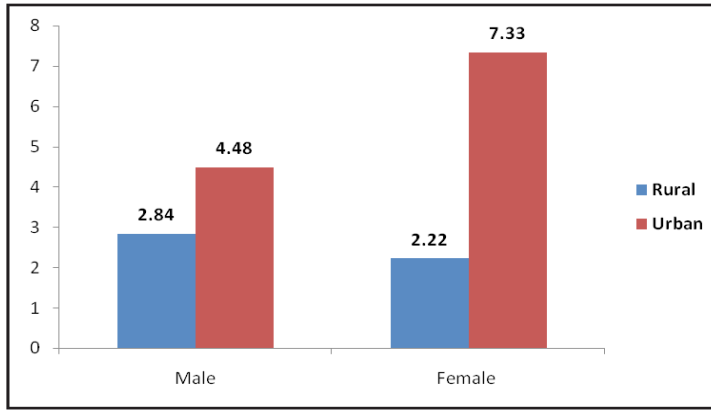
Type of Employment	21-30	31-40	41-50	51-59	Total
Self Employed	24.52	40.92	55.54	60.56	42.77
Employer	1.37	3.67	4.85	6.1	3.66
Unpaid Family Labour	21.69	7.67	2.22	1.72	9.46
Salaried	22.76	19.78	13.63	10.73	17.76
Casual Daily Wage	29.67	27.97	23.76	20.89	26.36

Source: Based on authors' calculation from PLFS data

In contrast, a comparison with the male distribution shown in table 6 presents a different pattern. Among male workers, participation in self-employment and in the employer increases with age. On the other hand, there is a consistent decline in participation rate in casual daily workers, salaried employment, and unpaid family labour as age increases. Self-employment is the dominant category across all the age groups, suggesting that men are more likely to operate their farms, businesses, or other enterprises, particularly during their middle and later working ages. Casual daily wage employment and salaried employment also constitute substantial shares, especially among younger males (21–30 and 31–40 age groups). Unlike females, the proportion of men engaged in unpaid family labour is relatively low across all age groups. Although the share of employers is small, it is consistently higher than that of females, indicating greater male participation in entrepreneurial or business ownership roles.

From the above data, a clear gender disparity emerges from the comparison. Rural women are heavily concentrated in unpaid family work and informal employment, whereas rural men are predominantly self-employed and have relatively better representation in salaried and employer categories. The data reflect structural gender inequalities in access to income-generating and formal employment opportunities. While men's employment patterns tend to shift toward greater economic independence with age, women remain largely confined to family-based and less remunerative work throughout their working life cycle.

Fig 6: Unemployment rate (ps+ss) among workers aged 15-64 years by gender, 2023-24



Source: Based on authors' calculation from PLFS data

Figure 6 represents the unemployment rate (principal and subsidiary status) among workers aged 15-64 years by gender in 2023-24. The results reveal wide regional disparities, particularly among females. The unemployment rate is considerably higher in urban areas than in rural areas. For males, the urban unemployment rate is approximately twice that of rural areas, while for females it is more than three times higher. In rural areas, the male unemployment rate is 2.84 percent, whereas, the female unemployment rate is 2.22 percent. In contrast, in urban areas, the male unemployment rate is 4.48 percent, while the female unemployment rate is 7.33 percent. Thus, the unemployment rate is slightly lower for females in rural areas, including greater participation of rural women in the agricultural and informal sectors.

5. Discussion

India's FLFPR increased substantially between 2017–18 and 2023–24 particularly in rural areas. The increase in rural FLFPR may be attributed to women's growing involvement in agriculture and allied activities, feminisation of agriculture due to male outmigration, expansion of self-employment and family enterprises, and greater participation through Self-Help Groups (SHGs) under the National Rural Livelihoods Mission (NRLM). Improved recognition of women's work in labour force surveys

may also have contributed to the observed rise. In contrast, urban FLFPR increased only modestly, reflecting persistent barriers such as limited suitable employment opportunities, occupational segregation, safety concerns, and unpaid care responsibilities.

Labour force participation also varies by educational attainment. Women's participation exhibits the well-known U-shaped relationship with education. Participation is relatively high among women with no education, largely due to economic necessity, and among highly educated women who have better access to skilled employment. In contrast, women with middle levels of education show lower participation, particularly in urban areas, owing to limited suitable employment opportunities, social norms, safety concerns, and occupational segregation.

FLFPR also varies across social groups. Participation is highest among Scheduled Tribe (ST) women, followed by Scheduled Castes (SCs), Other Backward Classes (OBCs), and General Castes, with rural rates consistently exceeding urban rates. Higher participation among women from disadvantaged social groups reflects greater dependence on labour-intensive and informal economic activities for household survival.

Age-wise analysis shows that FLFPR is highest among women aged 21–59 years and relatively lower among those aged 15–21 years and 51–64 years. Lower participation among younger women is associated with educational enrolment, while declining participation at older ages may reflect health-related constraints and withdrawal from economic activity. Considerable interstate variation is also evident. States such as Meghalaya, Arunachal Pradesh, Sikkim, Himachal Pradesh and Chhattisgarh record relatively high FLFPR, whereas Haryana, Delhi, Bihar, Punjab and Jharkhand exhibit comparatively low participation.

Analysis of employment structure reveals persistent gender inequalities. Men are more likely to be engaged in paid and relatively secure employment, while women remain disproportionately concentrated in unpaid family work and other vulnerable forms of employment. Although unemployment rates among women are generally lower than among men, particularly in rural areas, this often reflects their absorption into self-employment and unpaid family work rather than access to quality employment.

Overall, female labour force participation in India is shaped by demographic, social and economic factors, including age, education, social group, place of residence and vocational skills. At the same time, household responsibilities, marital status, socio-cultural norms and limited employment opportunities continue to constrain women's participation. The evidence highlights the need to address both economic and social barriers to achieve greater gender equality in labour market outcomes.

6. Summary and conclusion

The analysis presented in this chapter highlights both progress and continuing challenges in the female labour market in India. The findings show that FLFPR increased substantially between 2017–18 and 2023–24, particularly in rural areas, and was the principal driver of the increase in India's overall labour force participation rate. However, despite this improvement, significant gender disparities persist, with female participation remaining considerably lower than male participation across both rural and urban areas.

The analysis further reveals considerable variation in female labour force participation across educational groups, social groups, age categories and states. While rural women exhibit higher participation rates than urban women, much of this participation remains concentrated in informal, low-paid and vulnerable forms of work. Urban FLFPR continues to be constrained by factors such as limited suitable employment opportunities, unpaid care responsibilities and prevailing socio-cultural norms. The findings also indicate that age, education, vocational training and place of residence positively influence women's labour force participation, whereas larger household size, marital responsibilities and restrictive social norms act as important barriers.

From the perspective of India's aspiration to achieve Viksit Bharat by 2047, the recent increase in FLFPR is an encouraging development. However, the realisation of the gender dividend requires not only greater participation of women in the labour force but also improved access to productive, secure and well-remunerated employment. Harnessing the full benefits of the demographic dividend and women-led development will therefore depend on creating an enabling environment that

enhances women's economic opportunities and improves the quality of their labour market outcomes.

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2

Patriarchy and its Socio-Economic Correlates: A State Level Analysis Based on NFHS

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Abstract

Patriarchy is believed to be historically ingrained in the Indian society. It potentially affects women empowerment and widens gender inequality. The present study is based on multiple indicators of patriarchy based on NFHS-4 and NFHS-5 state level factsheet data. A modified state level Modified Patriarchy Index (MPI) is constructed on the basis of eleven chosen indicators assigning equal weights to each. The estimated results indicate that patriarchal norms are more prevalent in North Indian and BIMARU states than in the southern states. In case of North East India, except Assam all the remaining states have much lower levels of patriarchy. Two period state level panel regression results suggest that urbanisation, agricultural share, per capita net state domestic product, female education, female work-force participation rate and women and child health can be associated with patriarchy levels. Findings are suggestive of negative fallout of patriarchy on women empowerment.

***Keywords**: Patriarchy, National Family Health Survey (NFHS), Modified Patriarchy Index (MPI), Socio-Economic factors, and Women Empowerment.*

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1. Introduction

Patriarchy refers to a social system in which men hold primary power and authority in social, economic, political and familial spheres. In such a system, men generally dominate positions of leadership, control property and resources, and exercise decision-making authority within households and society. Historically, gender roles shaped by social norms have designated men as economic providers, while assigning women primary responsibility for care giving, domestic work, and child-rearing.Over time, this division of labour has developed into a hierarchical structure in which men occupy dominant positions, while women are relegated to subordinate roles.

Patriarchal norms continue to shape gender relations in many parts of the world, particularly in South Asia. In India, these norms are deeply embedded in social institutions, cultural practices and family structures, often privileging men over women in matters such as education, health care, inheritance and participation in public decision-making. These gendered power relations are reflected in outcomes such as son preference, early marriage, unequal access to education and healthcare, and limited participation of women in economic and political life.

Despite improvements in several development indicators in recent decades, gender inequality remains a persistent concern in India. According to the *Global Gender Gap Report 2023*, India ranks 127th out of 146 countries in terms of gender parity. Evidence from the National Family Health Survey (NFHS-5, 2019–21) also highlights continuing disparities. Female literacy and labour market participation also remain significantly lower than that of men, reflecting structural disadvantages faced by women in many spheres of life.

A growing body of literature has highlighted how patriarchal norms influence demographic and social outcomes in India. Studies have shown that gender bias often manifests through sex-selective practices and differential survival outcomes between boys and girls (Sen, 1990; Jayachandran, 2017). However, patriarchy is a multidimensional social phenomenon and cannot be captured through a single indicator. Consequently, researchers increasingly rely on composite indices that combine multiple indicators to measure the broader manifestations of gender inequality.

In this context, the present study constructs a Modified Patriarchy Index (MPI) using data from the fourth and fifth rounds of the National Family Health Survey (NFHS-4 and NFHS-5). The index combines indicators related to demographic outcomes, reproductive health, gender-based violence and women's empowerment in order to capture the multidimensional nature of patriarchal structures across Indian states and Union Territories. This study further examines the socio-economic determinants of patriarchy by analysing the relationship between the MPI and selected development indicators such as economic development, poverty, female education, urbanisation and household infrastructure. Using a state-level panel regression framework, the analysis explores how these factors influence variations in patriarchal outcomes across states. By identifying the structural factors associated with patriarchy, the study aims to contribute to the broader understanding of gender inequality and women's empowerment in India.

2. Review of Literature

The relationship between patriarchy and women's empowerment has been widely discussed in development economics, sociology and public health. Gender inequality is now understood not only as a social concern but also as a key factor influencing outcomes in health, education and economic growth. Earlier studies mainly examined patriarchal norms within family and kinship systems, while more recent work has focused on the institutional, economic and demographic factors shaping gender relations.

One important strand of literature highlights the role of political representation. Greater participation of women in governance is often linked with more inclusive decision-making and improved delivery of public services. Evidence from India suggests that women in political office tend to prioritise issues closely related to social welfare. Clots-Figueras (2008) shows that women legislators support policies that improve education and welfare outcomes. Duflo (2012) points out that women's empowerment and economic development are interconnected, although progress in one does not automatically ensure progress in the other. Similarly, Chattopadhyay and Duflo (2004) find that political reservations for women influence the allocation of public goods such as drinking water and infrastructure. Sen

(1999) further emphasises that women's agency is central to inclusive development.

Another set of studies focuses on education and economic participation. Access to education improves awareness, skills and employment opportunities, thereby strengthening women's bargaining power within households. demonstrate that improvements in women's economic status are associated with increased investments in children's health and education. In the Indian context, Kabeer (1999) argues, access to resources alone does not ensure empowerment unless it is accompanied by agency. In many cases, patriarchal norms continue to restrict women's mobility and control over income. Household dynamics also play an important role. Folbre (1986) highlights how intra-household bargaining affects decisions related to consumption, health and education. Greater decision-making power for women is generally associated with better outcomes for children. Studies such as Sethuraman (2006) provide evidence of a positive link between women's empowerment and child nutrition in India. At the same time, practices like domestic violence and social restrictions continue to limit women's wellbeing.

Measuring patriarchy remains difficult. Conventional indicators such as literacy and labour force participation capture only partial aspects. Composite measures have therefore been proposed. Szołtysek et al. (2017) develop a MPI focusing on family systems, while Singh et al. (2022) construct an India-specific index using demographic indicators, showing regional variation. Indices like the Gender Inequality Index provide broader comparisons but may not fully reflect social and cultural dimensions. Despite this literature, gaps remain. Most studies examine individual aspects rather than the combined effects of multiple factors. There is also limited work using panel data to analyse the determinants of patriarchy across Indian states. In particular, the role of infrastructure and energy access in shaping gender relations has not received adequate attention.

This study addresses these issues by constructing a Modified Patriarchy Index (MPI) using NFHS data and examining its

socio-economic determinants across states in a panel framework, with a focus on development and infrastructure-related factors.

3. Data and Econometric Methods

3.1. Data Sources

The present study relies on secondary data obtained from nationally representative sources. The MPI is constructed using data from the fourth (2015–16) and fifth (2019–21) rounds of the NFHS.The NFHS provides extensive information on demographic characteristics, women's status, domestic violence, reproductive health and household conditions across India.The NFHS surveys are widely used in empirical research on gender inequality and women's health in India due to their large sample size, consistent methodology and comparability across states (International Institute for Population Sciences & ICF, 2017; International Institute for Population Sciences & ICF, 2021).

The analysis covers 36 states and UTs and thereby enabling a comprehensive comparison of regional variations in patriarchal norms. Additional socio-economic variables used in the econometric analysis are compiled from official government sources. Data on per capita Net State Domestic Product are obtained from the Ministry of Statistics and Programme Implementation, while poverty-related indicators are taken from reports of the NITI Aayog. Information on infrastructure indicators such as sanitation, electricity and clean cooking fuel are also drawn from NFHS datasets.The final dataset is organised as a balanced panel consisting of 36 cross-sectional units and two time periods, corresponding broadly to the years 2015–16 and 2019–20.

3.2. Construction of the MPI

The present study seeks to examine the extent and variation of patriarchal structures across Indian states and UTs through the construction of a composite patriarchy index. Patriarchy, defined as a system of social relations that upholds male authority and constrains women's autonomy, manifests in several demographic, social, health and political outcomes. Measuring patriarchy directly is difficult because it is embedded in social institutions, norms and practices. Therefore, the study adopts

a composite index approach, combining a set of observable indicators that reflect different dimensions of gender inequality.

The construction of the MPI is guided by the conceptual understanding that patriarchal systems influence women's life situations through son preference, restricted autonomy, reproductive control, gender-based violence, unequal access to healthcare and limited participation in education and political institutions. Following this framework, a set of eleven indicators was identified to capture these dimensions: Sex Ratio atBirth (SRB), Overall Sex Ratio (SEXR), Maternal Mortality Ratio (MMR), No Family Planning Methods (NFPM), Non-Antenatal Care Visits (NACV), Non-Institutional Births (NIBR), Low Body Mass Index among women (LBMI), Spousal Violence (SV), Violence against Young Women (YWV), Female Adult Literacy Rate, and the Percentage of Female Members of Legislative Assembly (MLA).These indicators collectively reflect both structural and outcome-based manifestations of patriarchy. Demographic indicators such as sex ratios capture gender bias in survival and birth outcomes, while reproductive health indicators reflect women's autonomy and access to healthcare services. Indicators related to violence represent power imbalances within households, and education and political participation represent women's agency and empowerment within society.Data on Maternal Mortality Ratio (MMR) were compiled from official publications of the Ministry of Health and Family Welfare released through the Press Information Bureau (PIB), since state-level MMR estimates are not available in NFHS state fact sheets. Similarly, information on female Members of Legislative Assembly (MLA) was obtained from official records of the Election Commission of India and state legislative assembly data. The analysis uses state and UT level data, allowing comparison of patriarchal structures across different regional contexts in India.

Selection and Justification of Indicators

The selection of indicators for the MPI is informed by theoretical and empirical literature on gender inequality, demographic behaviour and women's empowerment.

Sex Ratio at Birth (SRB) and Overall Sex Ratio(SEXR) capture the extent of son preference and gender discrimination in survival. In patriarchal societies, strong cultural preferences for sons often

lead to practices such as sex-selective abortion and differential treatment of daughters. As a result, female births and survival rates decline relative to males (Sen, 1990). Empirical studies have shown that distorted sex ratios are closely linked with gender bias in South Asia, particularly in India (Dubuc & Sivia, 2018; Jayachandran, 2017).

Maternal Mortality Ratio (MMR) is an important indicator of women's health and access to maternal care. High maternal mortality often reflects limited autonomy, inadequate healthcare access and delayed care-seeking among women in patriarchal settings (Campbell & Graham, 2006). Evidence suggests that maternal mortality is closely associated with gender inequality and weak reproductive health services (World Health Organization, 2019).

Indicators related to reproductive health service utilisation. No Family Planning Methods (NFPM), Absence of Antenatal Care Visits(AACV), and Non-Institutional Births (NIBR)capture women's inability to access and utilise healthcare services. In patriarchal contexts, decisions regarding fertility and healthcare are frequently influenced by husbands or senior family members, limiting women's autonomy in reproductive matters (Jejeebhoy, 1995; Bloom, Wypij, & Das Gupta, 2001). Empirical research using NFHS data has demonstrated that women's autonomy and education are positively associated with contraceptive use and maternal healthcare utilisation (Bloom et al., 2001).

Low Body Mass Index among women (LBMI) reflects nutritional deprivation and unequal intra-household allocation of food and healthcare resources. Gender bias in nutrition has been widely documented in South Asia, where women often receive less food and healthcare compared to male members of the household (Ramalingaswami, et.al, 1996). Poor nutritional status among women also increases the risk of adverse reproductive and health outcomes (Black et al., 2008).

Gender-based violence indicators such as Spousal Violence (SV) and Violence against Young Women (YWV) represent another critical dimension of patriarchy. Domestic violence is widely recognised as a manifestation of unequal power relations within households and a mechanism through which male dominance is maintained (Heise, et. al, 1999). Studies based on NFHS data have highlighted the widespread prevalence of intimate partner violence in India and its strong association with gender

norms and socio-economic inequality (Kishor & Johnson, 2004; Abramsky et al., 2011).

Indicators reflecting women's empowermentFemale Literacy Rate and Women's Political Representation (MLA)were also included in the index. Education enhances women's ability to participate in economic and social activities, improves decision-making power and contributes to greater gender equality (Klasen & Lamanna, 2009). Similarly, women's representation in political institutions reflects their participation in public decision-making and has been shown to influence policy priorities related to welfare and gender equality (Chattopadhyay & Duflo, 2004).[1]Together, these indicators capture multiple dimensions of patriarchy, including gender bias in survival, restricted reproductive autonomy, health inequalities, gender-based violence and limited participation in education and political institutions.

Since the selected indicators are measured in different units, they were first standardised to ensure comparability across states. Min–max normalisation was used to transform each indicator into a dimension index ranging between 0 and 1.

The normalised value of indicator for state is calculated as:

$$Z_{ij} = \frac{X_{ij} - \min(X_j)}{\max(X_j) - \min(X_j)}$$

where X_{ij} represents the observed value of indicator j for state i, and $\min(X_j)$ and $\max(X_j)$ represent the minimum and maximum values of that indicator across states.

Indicators that represent favourable outcomes for women such as female literacy, sex ratio and female political representation were reversed using $1\text{-}Z_{ij}$ so that higher values consistently represent greater levels of patriarchy.

After standardisation, the MPI was calculated by taking the arithmetic mean of the normalised indicators.

$$MPI_i = \frac{1}{11}\sum_{j=1}^{11} z_{ij}$$

where Z_{ij} represents the normalised value of indicator j for state

1 Since literacy rates and political representation are positive indicators, they were adjusted before constructing the index. The details of these adjustments are provided in the relevant sections of the text.

i, and 11 denotes the total number of indicators. The resulting index ranges from 0 to 1, where higher values indicate stronger patriarchal structures and greater gender inequality, while lower values indicate relatively more gender-equitable conditions.

3.3. Correlation Analysis

Prior to estimating the regression models, a correlation analysis is conducted to examine the pair-wise relationships between the MPI and the selected socio-economic variables. The correlation matrix provides preliminary insights into the strength and direction of association among variables and helps identify potential multicollinearity issues that may affect the reliability of regression estimates. All variables used in the correlation analysis are given in appendix.

3.4. Econometric Model

To analyse the socio-economic determinants of patriarchy across Indian states, the study employs a panel regression framework. Panel data analysis allows the model to capture both cross-sectional differences across states and temporal changes between the two survey rounds.

The general form of the panel regression model is expressed as:

$$MPI_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \in_{it}$$

where:

- X_{1it}, X_{2it}, X_{3it} denote explanatory variables
- α is the intercept
- β represents coefficients of explanatory variables
- ϵ_{it} is the error term

Based on theoretical considerations and data availability, three alternative empirical models are estimated:

Model 1: Socio-economic development model

$$MPI_{it} = \alpha + \beta_1 PCNSDP_{it} + \beta_2 WORK_{it} + \beta_3 FSCHOOL_{it} + \beta_4 NFHS5_t + \in_{it}$$

Model 2: Poverty and social structure model

$$MPI_{it} = \alpha + \beta_1 BPL_{it} + \beta_2 WORK_{it} + \beta EM_{it} + \in_{it}$$

Model 3: Infrastructure and development model

$$MPI_{it} = \alpha + \beta_1 URBAN_{it} + \beta_2 CLEANFUEL_{it} + \in_{it}$$

The models are estimated using panel regression techniques with heteroskedasticity and autocorrelation consistent (HAC) standard errors in order to obtain robust estimates. All estimations are performed using EViews 10. Definitions of the explanatory variables used in the regression analysis are given in Table 1. Higher economic development, education, infrastructure access and urbanisation are generally expected to reduce patriarchal norms, whereas poverty and early marriage are expected to reinforce patriarchal structures.

Table 1: Description of Explanatory Variables Used in the Econometric Model

Variable	Description	Expected Sign
PCNSDP	Per capita Net State Domestic Product representing economic development	Negative
WORK	Female work participation rate	Negative
FSCHOOL	Female schooling level	Negative
NFHS5	Dummy variable for NFHS-5 survey round	Positive / Negative
BPL	Population below poverty line	Positive
EM	Early marriage among women	Positive
URBAN	Level of urbanisation	Negative
CLEANFUEL	Households using clean cooking fuel	Negative

Source: Authors' specification based on secondary data and literature

4. Results and Discussion

This section presents the empirical findings of the study and discusses the patterns of patriarchy across Indian states and UTs. The first subsection reports the calculated values of the MPI and the corresponding rankings of states and UTs for the two survey periods based on data from the NFHS-4 &NFHS-5. The table provides a comparative view of how the level of patriarchy varies across regions and how these patterns have changed between the two survey rounds. By examining the relative rankings of states and UTs, the analysis highlights the spatial disparities in patriarchal norms within the country. The subsequent subsections further explore the relationships between the MPI and selected socio-economic variables through

correlation analysis and panel regression models in order to understand the key factors associated with variations in patriarchy across states.

4.1 Patterns of patriarchy across Indian states and Union Territories

The state-wise MPI presented in Table 2 reveals substantial regional variation in gender inequality across India. Higher values of the index indicate stronger patriarchal structures reflected in adverse demographic outcomes, poorer reproductive health indicators, greater exposure to gender-based violence, and lower levels of women's empowerment. The results show that Bihar consistently records the highest MPI value in both periods (0.707 in 2015–16 and 0.648 in 2019–20), indicating the persistence of deep-rooted gender inequalities in the state. Similar patterns of relatively high patriarchy are also observed in Uttar Pradesh, Jharkhand and Madhya Pradesh, which broadly corresponds with earlier studies that have identified northern and eastern India as regions where patriarchal norms and son preference remain particularly strong (Sen, 1990; Jayachandran, 2017).

Table 2. State and UT wise Rank of MPI Values

Sl. No.	States and UTs	MPI (2015-16)	Rank	MPI (2019-20)	Rank
1	A & N Islands	0.367	26	0.358	26
2	Andhra Pradesh	0.439	17	0.418	15
3	Arunachal Pradesh	0.568	3	0.472	11
4	Assam	0.504	10	0.567	2
5	Bihar	0.707	1	0.648	1
6	Chandigarh	0.327	29	0.381	22
7	Chhattisgarh	0.445	16	0.410	16
8	D & N Haveli Daman & Diu	0.559	6	0.528	6
9	Delhi	0.438	18	0.307	31
10	Goa	0.292	34	0.297	32
11	Gujarat	0.456	15	0.435	13
12	Haryana	0.461	13	0.388	19
13	Himachal Pradesh	0.312	30	0.349	27

14	Jammu and Kashmir	0.368	25	0.379	24
15	Jharkhand	0.564	4	0.532	5
16	Karnataka	0.485	12	0.522	7
17	Kerala	0.173	36	0.209	35
18	Lakshadweep	0.339	28	0.198	36
19	Ladakh	0.347	27	0.407	17
20	Madhya Pradesh	0.562	5	0.507	9
21	Maharashtra	0.379	23	0.441	12
22	Manipur	0.492	11	0.371	25
23	Meghalaya	0.513	9	0.533	4
24	Mizoram	0.403	22	0.379	23
25	Nagaland	0.559	7	0.489	10
26	Odisha	0.459	14	0.421	14
27	Puducherry	0.239	35	0.231	34
28	Punjab	0.307	32	0.346	28
29	Rajasthan	0.436	19	0.406	18
30	Sikkim	0.311	31	0.273	33
31	Tamil Nadu	0.307	33	0.339	30
32	Telangana	0.537	8	0.538	3
33	Tripura	0.405	21	0.382	21
34	Uttar Pradesh	0.575	2	0.514	8
35	Uttarakhand	0.411	20	0.339	29
36	West Bengal	0.377	24	0.387	20

Source: Based on Authors' calculation from NFHS 4 and NFHS 5 State Factsheet Data and data released by PIB (Ministry of Health and Family Welfare)

A notable change is observed in Assam, where the index value increases from 0.504 to 0.567, resulting in a sharp rise in its rank from 10th to 2nd position. This suggests a relative deterioration in gender-related outcomes during the period. In contrast,

Arunachal Pradesh and Haryana show some improvement in index values between the two rounds, indicating modest progress in certain gender indicators. Such mixed trends reflect the uneven nature of gender development across Indian states, as also highlighted in studies using NFHS data (IIPS & ICF, 2017; IIPS & ICF, 2021).

At the lower end of the index, Kerala, Lakshadweep, Goa and Puducherry display relatively favourable outcomes, reflecting better performance in female literacy, maternal health and demographic indicators. Kerala, in particular, continues to record the lowest MPI values in both periods. This finding aligns with earlier research emphasising the role of education, health investments and social development in improving women's status in the state (Drèze & Sen, 2013; Klasen & Lamanna, 2009). Overall, the results indicate that although some progress has been achieved, patriarchal structures continue to shape gender outcomes across Indian states, highlighting the need for region-specific policy interventions.

4.2 Correlation Analysis Between MPI and State level Socio-Economic and Infrastructure Indicators

The relationship between the MPI and selected socio-economic and infrastructure indicators is first examined through simple correlation analysis. Table 3 presents the pair wise correlation coefficients among the variables for the 36 states and UTs.

Table 3. Correlations between MPI and State level Socio-Economic and Infrastructure[1]Indicators (N = 36)													
VARIABLES	**AGRI**	**BANK**	**BPL**	**CLEANFUEL**	**ELECT**	**EM**	**FSCHOOL**	**PCNSDP**	**PI**	**SANIT**	**SDW**	**URBAN**	**WORK**
AGRI	1												
BANK	-0.142 (0.256)	1											
BPL	0.24 (0.052)	-0.326 (0.008)	1										
CLEANFUEL	-0.239 (0.052)	0.588 (0.000)	-0.57 (0.000)	1									
ELECT	-0.264 (0.032)	0.584 (0.000)	-0.502 (0.000)	0.585 ((0.000)	1								
EM	0.172 (0.166)	-0.352 (0.003)	0.357 (0.003)	-0.488 (0.000)	-0.449 (0.000)	1							
FSCHOOL	-0.243 (0.049)	0.515 (0.000)	-0.56 (0.000)	0.75 (0.000)	0.535 (0.000)	-0.762 (0.000)	1						
PCNSDP	-0.235 (0.058)	0.447 (0.000)	-0.565 (0.000)	0.789 (0.000)	0.502 (0.000)	-0.462 (0.000)	0.676 (0.000)	1					

PI	0.259 (0.035)	-0.451 (0.000)	0.567 (0.000)	-0.555 (0.000)	-0.607 (0.000)	0.564 (0.000)	-0.715 (0.000)	-0.567 (0.000)	1				
SANIT	-0.06 (0.631)	0.607 (0.000)	-0.542 (0.000)	0.623 (0.000)	0.662 (0.000)	-0.58 (0.000)	0.675 (0.000)	0.588 (0.000)	-0.589 (0.000)	1			
SDW	-0.238 (0.054)	0.403 (0.001)	-0.414 (0.000)	0.505 (0.000)	0.259 (0.035)	-0.09 (0.470)	0.378 (0.002)	0.475 (0.000)	-0.345 0.005	0.314 (0.010)	1		
URBAN	-0.252 0.041	0.273 0.027	-0.38 (0.002)	0.802 (0.000)	0.412 (0.001)	-0.398 (0.001)	0.593 (0.000)	0.754 (0.000)	-0.501 (0.000)	0.432 (0.000)	0.411 (0.001)	1	
WORK	-0.184 (0.139)	0.159 (0.202)	-0.077 (0.539)	0.304 (0.013)	0.285 (0.020)	-0.046 (0.712)	0.111 (0.373)	0.144 (0.248)	-0.045 (0.719)	0.074 (0.554)	-0.201 (0.105)	0.183 (0.141)	1

Source: Computed by the authors on the basis of secondary data.

Table 3 presents the bivariate correlation coefficients between the MPI and selected socio-economic and infrastructure indicators for the 36 states and UTs of India. The correlation analysis is undertaken to examine the nature of association between patriarchal outcomes and different dimensions of economic development, social progress and infrastructure availability. The results indicate that the MPI is positively associated with AGRI, BPL and EM, suggesting that states with a higher dependence on the agricultural sector, a larger proportion of population living below the poverty line and a greater prevalence of early marriage among women aged 20–24 years tend to exhibit stronger patriarchal structures. These patterns may reflect the persistence of traditional social norms and gender roles in relatively poorer and agrarian regions where women's autonomy and access to opportunities remain limited.

In contrast, the MPI shows negative associations with several indicators of development and social infrastructure, including BANK, CLEANFUEL, ELECT, FSCHOOL, PCNSDP, SANIT, SDW and URBAN. In particular, female schooling (FSCHOOL) displays a strong negative relationship with the index, highlighting the important role of education in enhancing women's awareness, bargaining power and participation in decision-making. Similarly, higher per capita income and greater levels of urbanisation are associated with lower levels of patriarchy, indicating that richer and more urbanised regions of India tend to be less patriarchal due to better access to education, employment opportunities and public services.

Another notable finding relates to the role of energy transition. The negative association between the MPI and households using clean cooking fuels (CLEANFUEL) suggests that states with greater penetration of clean cooking energy exhibit relatively lower levels of patriarchy. In other words, the shift from traditional biomass fuels to LPG and electricity for cooking appears to be associated with a gradual weakening of patriarchal norms, possibly by reducing women's time burden and improving their health and well-being.

Overall, the correlation results indicate that economic development, infrastructure expansion and improvements in women's education are closely linked with lower levels of patriarchal structures, whereas poverty, agricultural dependence and early marriage tend to reinforce gender inequalities across Indian states. These relationships provide useful insights for understanding the broader socio-economic factors associated with patriarchal outcomes.

4.3 Panel Regression

A two-period state-level panel regression analysis is carried out to examine the influence of selected socio-economic and development indicators on the MPI. The panel framework enables an assessment of how variations in factors such as economic development, infrastructure access, female education and women's workforce participation are associated with differences in patriarchal outcomes across Indian states. The regression results are presented in Table 4. The models are estimated using the Panel Least Squares method with White's

cross-section robust standard errors, which correct for possible heteroscedasticity across states and provide reliable statistical inference. A family of alternative model specifications is employed to explain the MPI in order to examine the robustness of the results. Since several explanatory variables representing development, infrastructure and women's empowerment may be closely related, separate model specifications are estimated to minimise potential multicollinearity and to ensure stable and consistent coefficient estimates (Greene, 2018).

Table 4: The 2-period Panel Regression of PI on State Level Socio-Economic Factors

Dependent Variable: MPI

Variables	**Model 1**	**Model 2**	**Model 3**
Constant	0.437** (0.000)	0.271** (0.000)	0.551** (0.000)
PCNSDP	-4.677** (0.000)		
WORK	0.001** (0.000)		
FSCHOOL	-0.002** (0.000)		
NFHS5	0.020** (0.000)		
BPL		0.004** (0.000)	
WORK		0.0003 (0.187)	
EM		0.004** (-3.29)	
URBAN			-0.002** (0.001)
CLEANFUEL			-0.001** (0.049)
R-Squared	0.946	0.448	0.287

Adjusted R-Squared	0.880	0.415	0.255
F-Statistic	14.251**	13.589**	9.109**
Durbin-Watson Statistic	3.882	2.046	1.639

Source: Based on authors' calculation from NFHS-4 & NFHS-5 .[2]

Table 3 presents the results of the panel regression analysis examiningthe determinants of the MPI across Indian states. Three alternative model specifications are estimated to capture different socio-economic dimensions that may influence patriarchal structures. The F-statistics indicate that all models are statistically significant, suggesting that the models provide a good fit to the data.

Model 1 focuses on economic development and women's socio-economic characteristics. The results show that per capita net state domestic product (PCNSDP) has a negative and statistically significant relationship with the MPI, indicating that higher levels of economic development are associated with lower levels of patriarchy. Female schooling (FSCHOOL) also has a negative and significant effect, suggesting that improvements in women's education contribute to weakening patriarchal norms. Women's workforce participation (WORK) shows a small but statistically significant positive association with the MPI, highlighting the complex relationship between labour market participation and gender norms. The dummy variable for NFHS-5 is also positive and significant, indicating changes in the MPI between the two survey rounds. This model shows strong explanatory power with an adjusted R-squared value of 0.880.

Model 2 examines the role of poverty and empowerment-related factors. The results indicate that poverty levels (BPL) are positively and significantly associated with the MPI, suggesting that higher poverty tends to reinforce patriarchal structures. The women's empowerment indicator (EM) is also statistically significant, underlining the importance of empowerment-related factors in shaping gender relations. However, women's workforce participation (WORK) is not statistically significant in this model. The adjusted R-squared value of 0.415 indicates a

2 p values are in parentheses. HAC adjusted standard errors are used in all equations. * and ** respectively represent significance at 5 percent and 1 percent levels. Cross-section consists of 36 states and UTs. Results are EVIEWS 10 generated.

moderate explanatory power.

Model 3 focuses on structural development and household infrastructure. The results show that urbanisation (URBAN) has a negative and statistically significant effect on the MPI, suggesting that more urbanised states tend to exhibit lower patriarchal tendencies. Similarly, access to clean cooking fuel (CLEANFUEL) is negatively associated with the MPI, indicating that improvements in household energy access may contribute to better gender outcomes. Although the explanatory power of this model is relatively lower, it remains statistically significant.

Overall, the findings suggest that economic development, female education, urbanisation and improved household infrastructure are associated with lower levels of patriarchy, while higher poverty levels tend to reinforce patriarchal norms. By employing multiple model specifications, the analysis captures different dimensions of development and provides a more comprehensive understanding of the factors shaping patriarchal outcomes across states.

5. Conclusion:

The findings of this study underline the continuing relevance of patriarchal structures in shaping gender relations across Indian states and UTs. The MPI constructed using indicators from the NFHS reveals considerable regional variation. States such as Bihar, Uttar Pradesh and Jharkhand continue to exhibit relatively higher levels of patriarchal norms, whereas states like Kerala and several UTs show comparatively lower levels. These patterns broadly mirror wider differences in education, health outcomes and socio-economic development across regions.The empirical results further suggest that improvements in economic conditions, women's education and household infrastructure are closely associated with lower levels of patriarchy. In particular, access to clean cooking energy, improved sanitation and better living conditions appears to reduce women's time burden and improve their well-being. At the same time, persistent poverty, early marriage and limited educational opportunities continue to reinforce patriarchal norms in many parts of the country.From a policy perspective, the results indicate that efforts to reduce gender inequality must go beyond narrow welfare approaches. Expanding women education, strengthening women's economic participation and improving

basic household infrastructure can play an important role in gradually weakening patriarchal structures. At the same time, targeted interventions are necessary in regions where gender disparities remain particularly pronounced.Overall, the study highlights that patriarchy is not merely a cultural phenomenon but is deeply intertwined with broader processes of development and social change. Addressing it therefore requires sustained public policy efforts that combine improvements in education, health, infrastructure and economic opportunities for women. Such integrated efforts are essential for advancing meaningful and durable gender equality in India.

Appendix 1

Variable Definitions and Data Sources

PCNSDP – Per Capita Net State Domestic Product at constant (2011–12) prices, used as a measure of the level of economic development across states. Data are compiled from the Reserve Bank of India Handbook of Statistics on Indian Economy. Available at: https://www.rbi.org.in/scripts/AnnualPublications.aspx

FSCHOOL – Percentage of women aged 15–49 years who have completed ten or more years of schooling. Data are obtained from NFHS-4 (2015–16) and NFHS-5 (2019–21), conducted by the Ministry of Health and Family Welfare, Government of India.

WORK – Percentage of women aged 15–49 years who were engaged in work during the 12 months preceding the survey. The variable reflects women's participation in economic activity. Data are obtained from NFHS-4 and NFHS-5, available at https://nfhs.in/

EM – Early marriage defined as the percentage of women aged 20–24 years who were married before the age of 18 years. Data are compiled from NFHS-4 (2015–16) and NFHS-5 (2019–21).

BANK – Percentage of women aged 15–49 years who have a bank or savings account that they themselves use. Data are compiled from NFHS-4 and NFHS-5 surveys.

LPG – Percentage of households using clean cooking fuel (LPG/PNG/electricity) as the primary source of cooking fuel. Data are obtained from NFHS-4 (2015–16) and NFHS-5 (2019–21).

SANIT – Percentage of households with access to improved sanitation facilities. The variable reflects basic household infrastructure and sanitation conditions. Data are obtained from NFHS-4 and NFHS-5.

ELECT – Percentage of households having access to electricity. Data are compiled from NFHS-4 (2015–16) and NFHS-5 (2019–21).

DWATER (SDW) – Percentage of households with access to an improved source of drinking water. Data are obtained from NFHS-4 and NFHS-5 surveys conducted by the Ministry of Health and Family Welfare.

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3

Self-Help Groups as Drivers of Financial Inclusion, Female Autonomy and Social Inclusion: Insights from Bodoland Territorial Council

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Abstract

This present study investigates the impact of the Self-Help Group–Bank Linkage Programme (SHG-BLP) on financial inclusion, women's autonomy and social inclusion in the Bodoland Territorial Council (BTC), Assam. Financial Inclusion Index (FII), Women's Autonomy Index (WAI) and Social Inclusion Index (SII) were developed through Multiple Correspondence Analysis (MCA), while Propensity Score Matching (PSM) was applied to estimate the causal effects of SHG participation after controlling for selection bias.This study is based on a primary survey using a stratified multistage random sampling technique on 2640 respondents (880 Participants and 1760 Non participants). The findings reveal that SHG participation significantly enhances financial inclusion and women's autonomy, with positive and statistically significant average treatment effects. However, its influence on social inclusion remains positive but statistically insignificant. The study

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concludes that SHG-BLP effectively promotes financial empowerment and female decision-making capacity, but complementary policy interventions are required to overcome persistent social barriers and achieve broader social inclusion in the BTC region.

Keywords: *Self-Help Group–Bank Linkage Programme (SHG-BLP),Financial Inclusion, Female Autonomy,Social Inclusion, Bodoland Territorial Council (BTC).*

JEL Codes*: G21, O16, J16, D63, I32, R28*

1. Introduction

Financial inclusion has emerged as one of the major policy priorities for achieving sustainable and inclusive economic development across developing countries like India. Access to affordable financial services enables poor households to mobilise savings, obtain institutional credit, manage financial risks and invest in productive economic activities. However, millions of rural households, more specifically female, continue to face financial exclusion due to a lack of banking infrastructure, very low financial literacy, inadequate collateral and socio-economic disadvantages. Whereas, formal financial services have become an essential component of poverty reduction, female empowerment and inclusive development.

Microfinance has evolved as an effective strategy for addressing these types of challenges by extending small-scale financial services to economically disadvantaged households that are generally excluded from the formal banking system. Microfinance has expanded rapidly across developing economies as an instrument for promoting self-employment, entrepreneurship, income generation and social development since the pioneering success of the Grameen Bank model in Bangladesh during the 1970s. The microfinance sector is primarily represented by two institutional models in India: the SHG-BLP and Microfinance Institutions (MFIs). Among these, the SHG-Bank Linkage Programme has become the largest community-based microfinance programme in the world by integrating poor households, particularly rural women, into the formal financial system, which was initiated by the National Bank for Agriculture and Rural Development (NABARD).

The SHG-BLP has undergone a number of policy evolutions over the last three decades. Initially promoted under

the Swarnajayanti Gram Swarozgar Yojana (SGSY), the programme was subsequently integrated into the National Rural Livelihoods Mission (NRLM), which was later renamed the DeendayalAntyodaya Yojana–National Rural Livelihoods Mission (DAY-NRLM). These initiatives seek not only to improve the quality of institutional finance but also to strengthen opportunities for livelihood, enhance financial capability, encourage entrepreneurship as well as improve the socio-economic status of rural women. Consequently, SHGs have evolved beyond just simple savings relations into important community institutions that facilitate financial inclusion, capacity building, as well as collective empowerment.

Beyond providing access to credit, participation in SHGs is expected to generate broader developmental outcomes. Regular savings, institutional borrowing, insurance coverage, digital banking services, and financial literacy programmes improve financial inclusion among the SHG members. Simultaneously, collective participation in group activitiesincreases females' confidence, decision-making power, leadership skills and economic independence. Through regular meetings, social interactions and institutional linkages, SHGs may also strengthen social capital, improve community participation and reduce various forms of social exclusion. Thus, SHGs are increasingly seen as multidimensional institutions that can promote financial, economic and social transformation together.

This is especially relevant in BTC of Assam - Kokrajhar, Chirang, Baksa andUdalguri. Despite abundant natural resources and cultural diversity, the region continues to face challenges related to rural poverty, lack of employment opportunities, financial exclusion and socio-economic inequalities. Since the establishment of the Bodoland Territorial Council, the SHG-Bank Linkage Programme has expanded considerably under the DAY-NRLM framework and has become one of the principal mechanisms for promoting rural development and women's economic participation. Nevertheless, empirical evidence regarding whether SHG participation actually translates into improved financial inclusion, greater female autonomy and stronger social inclusion remains limited for the BTC region.

2. Literature review

Financial inclusion has become a fundamental component of inclusive economic growth and poverty reduction by providing disadvantaged households with access to formal financial services for savings, credit, investment as well as risk management (World Bank, 2001). The concept of development goes beyond income and encompasses multiple dimensions, including capabilities, social participation and opportunities for access (Anand & Sen, 1997; Atkinson & Bourguignon, 1982; Alkire, 2002; Alkire & Foster, 2011). In this context, microfinance has evolved into an important development strategy for integrating financially excluded populations into the formal financial system and improving their socio-economic status (Morduch, 1999).

The SHG-BLP implemented under the DAY-NRLM in India is a major policy for promoting financial inclusion, sustainable livelihoods and female empowerment through community institutions (Aajeevika, 2024). Financial inclusion also relies on financial literacy, which increases individuals' ability to make informed financial decisions and achieve better long-term financial outcomes (Lusardi & Mitchell, 2014; Angrisani et al., 2023).

Growing research shows that women's economic participation enhances autonomy and household well-being. Women's access to productive resources strengthens their bargaining power, decision-making capacity and socio-economic status (Dyson & Moore, 1983; Agarwal, 1992; Agarwal, 2000; Kabeer, 2005). Furthermore, SHGs encourage mutual support, collective learning and interaction in society, thereby strengthening social capital and community participation (Adamsen & Rasmussen, 2001).

The broader development literature emphasises that social justice, equalityand human capabilities are important for achieving inclusive development (Rawls, 1971; Sen, 1993). Multidimensional approaches have substantially improved the measurement of poverty and well-being (Alkire, 2002; Alkire & Foster, 2011). The SHGs contribute to addressing several socio-economic challenges in India, although their impacts vary across regions and institutional settings (Yadav et al., 2023). In empirical studies examining such development outcomes,

scientifically determined sample sizes are important to ensure reliable and representative findings (Krejcie& Morgan, 1970). Despite these contributions, empirical evidence simultaneously examining financial inclusion, females' autonomy and social inclusion in under-researched regions such as BTC of Assam remains limited, thereby justifying the present study.

3. Rationale of the study

Microfinance has emerged as one of the most effective instruments for promoting financial inclusion, poverty alleviation and female empowerment in developing economies like India. In India, the two dominant microfinance models are the SBLP and MFIs. The SBLP is among them, which was introduced by NABARD and has grown into the world's largest microfinance initiative by connecting poor rural households, particularly female, with formal banking institutions. The programme gained further momentum through government schemes like Swarnajayanti Gram Swarozgar Yojana (SGSY), later reorganised as DAY-NRLM, intending to create sustainable livelihoods, improve financial inclusion and empower economically disadvantaged households.

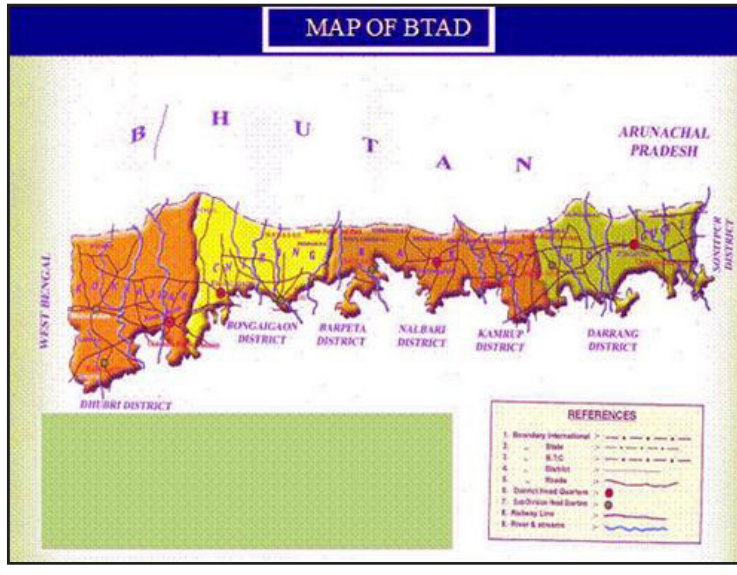
Over the last two decades, SHGs have substantially improved access to savings, institutional credit, income-generating opportunities as well as and financial services for rural women. Beyond economic benefits, participation in SHGs is expected to strengthen female's decision-making power, expand their social networks and promote greater participation in community and economic activities. As a result, SHGs have been recognized not only as financial intermediaries but also as drivers for female's autonomy and inclusive rural development.

In recent years, rapid digitalization has significantly transformed the microfinance ecosystem. The growth of digital banking, Aadhaar-enabled services, mobile banking, Unified Payments Interface (UPI), Direct Benefit Transfer (DBT) and digital Know Your Customer (e-KYC) has opened new opportunities for enhancing the accessibility, efficiency, transparency and outreach of microfinance services. Digital microfinance can substantially lower transaction costs, simplify loan processing and repayment, minimize paperwork and facilitate quicker delivery of financial services. These technological advancements are anticipated to speed up financial inclusion and promote

greater participation of rural households in the formal financial system.

Despite these developments, empirical evidence regarding the effectiveness of SHG participation in improving financial inclusion, female's autonomy, and social inclusion remains scarce, especially in the BTC of Assam districts- Kokrajhar, Chirang, Baksa andUdalguri. Most existing studies have focused on income generation or poverty reduction, while comparatively little attention has been devoted to evaluating the multidimensional outcomes of SHG participation using rigorous impact evaluation techniques. Moreover, evidence on whether improved financial access translates into greater social inclusion and women's empowerment remains inconclusive. The study area is presented in Figure 1.

Figure 1: Map of BTC



Source: Map of India

Against this backdrop, the study examines the impact of SHG-Bank Linkage Programme participation on financial inclusion, female's autonomy and social inclusion in the BTC. By applying multidimensional indices and Propensity Score Matching (PSM) to address self-selection bias, it provides strong empirical evidence on the developmental outcomes of

SHG participation. The results should contribute to the existing literature and provide useful policy insights for improving SHG-led microfinance programmes and promoting inclusive and digitally enabled rural development.

4. Methods

In this section, the database, sampling techniques and the econometric model applied to explore the aforementioned objectives are discussed in this section.

4.1. Data

The current research involves both primary and secondary data. The secondary data utilised in this research are gathered from both published and unpublished materials. The primary secondary data sources include: "Assam State Rural Livelihood Mission, Panchayat & Rural Development," "NABARD Report," "Status Reports of Microfinance in India released by Microfinance India," the unpublished report of the "District Rural Development Agency (DRDA)" for each district, "Census of India, 2011 and 2001," and the websites of the respective districts. The empirical examination of the previously mentioned objectives is conducted using primary dataset gathered through field surveys. The main data collection is conducted using a stratified-multistage-random sampling method. The primary stratification unit is the district, followed by the intensive block. The first step of the multistage sampling method is to identify the intensive block that will be examined. The count of intensive blocks and active SBLPs by district is obtained from the "District Rural Development Agency's (DRDA's) office" as non-published information. That report states that there are 5, 2, 8, and 6 intensive blocks in Kokrajhar, Chirang, Baksa, and Udalguri, respectively. The report further contains the names and associated numbers of active SBLPs within the specific districts. In the second stage, we have purposefully chosen district-wise the intensive block with the highest number of functioning SBLPs. In the third stage, we have chosen the Kokrajhar intensive block from Kokrajhar district, Borobazar intensive block from Chirang district, Gobardhana intensive block from Baksa district, and Udalguri intensive block from Udalguri district.

The suitable number of sampled SBLPs is established through the use of the Krejcie and Morgan (1970) formula in the fourth stage. The Krejcie and Morgan (1970) formula was used to guide the survey of 44 SBLPs from each district, totaling 176 SBLPs for field survey. For every member of the SBLP 5 and double non-member, a total of 10 non-members are interviewed. Therefore, for every intensive block, 220 participants and 440 non-participants are interviewed. According to the AIMS Guidelines, the control group is formed to represent a socio-economically similar group, minimizing biases when assessing the programme's impact (Barnes and Sebastan 2000; Maity and Sarania, 2017; Maity, 2023a; Maity, 2023b). The treatment group consists of SHG participants who obtained SHG loans at least two years prior to the survey. In contrast, the non-participants are individuals who have not received any advantages from the SHG programme. They establish the control group. Significantly, SBLP participants and those who do not participate are categorized as such, adhering to the AIMS Guidelines and DAY-NRLM guidelines. In the last stage, pertinent information is gathered from both the target and control groups using the interview method. The field survey will commence in November 2023. The desired sample size for the interview is 880 for the treatment group and 1760 for the control group. Table 1 shows the specifics of sampling.

Table 1: SHG-BLPs- Sample size calculation

District	Block	Total number of SHG-BLP	Number of sampled SHG-BLP	Size of sampled participants (Treated)	Size of sampled non-participants (Control)
Kokrajhar	Kokrajhar	2986	44	220	440
Chirang	Borobazar	2628	44	220	440
Baksa	Gobardhana	2709	44	220	440
Udalguri	Udalguri	2955	44	220	440
Total		11278	176	880	1760

Source: Authors' own, based on secondary data

4.2 Methods

The methodology to explore the aforementioned objectives is presented in this section.

Multiple Correspondence Analysis

The study includes three novel indices, Financial Inclusion Index (FII), Social Inclusion Index (SII) and Women Autonomy Index (WAI). All the indices are multidimensional in nature. Thus, a comprehensive number of indicators are used to capture the different spheres of all three indices. The weights of the indicators of an index can be determined in two alternative ways: by referencing or by using a definite statistical tool. Preference indexing is highly criticised as it largely depends on the discretion of a researcher. Contrarily, principal component analysis (PCA) has gained maximum popularity among the indexing methods. Nevertheless, the application of PCA needs certain preconditions and does not apply to binary responses. The indicators used for constructing FII, MPI, SII and WAI are categorical, which makes PCA inapplicable. The way out is multiple correspondence analysis (MCA). By applying MCA, we can examine the interrelationship among several binary responses (Asselin 2002). MCA provides weights for both responses (0 and 1), and the applicability of the method is checked by the fact that the superior response gets better weightage than the other. The index is expressed by considering FII. For dichotomous responses, the index of the *i*th respondent is given as follows:

$$FII_i = \frac{1}{M}\left(\omega_1 i_1 + \omega_2 i_2 + ... + \omega_M i_M\right) \qquad (1)$$

Here, ω_j is the weight of the *jth*category. i_j is the binary response, which assume value 1 if the respondent confirms possession. M is the number of categorical indicators. Similarly, MPI, and WAI are also calculated. Notably, all the indices are calculated for 880 participants and 1760 non-participants.

Considering SII, the fact is that indicators used measure the degree of social exclusion. As our objective is to measure the role of SBLP in ensuring social inclusion, thus here initially, Social Exclusion Index (SEI) is calculated. Then by using the concept that social inclusion is the flip side of social exclusion. Consequently, SII is obtained by using the following formula:

$$SII = 1 - SEI \qquad (2)$$

These indices serve as key indicators for evaluating the effects of SBLP.

Propensity Score Matching

Propensity score matching, or we can say PSM, is an extensively acknowledged technique for evaluating the effects of participants as well as non-participants. The strategy enables investigators to make causal deductions after adjusting for observational biases among both groups (Rosenbaum and Rubin 1983; Heckman et al. 1998). A propensity score [P(Y)] is the conditional likelihood predicted according to measurable features of a person or household participating in a specified program (Rosenbaum and Rubin 1983). As a likelihood, the equilibrium score value ranges from 0 to 1. To estimate the likelihood that a person will participate in a program, we can use a binary choice model. In the existing literature, two prominent methods are available: one is the Logit model, and the other is the Probit model (Caliendo and Kopeinig 2008). However, in this research, we rely solely on the Probit model, which is also a widely accepted method in the existing literature.

Participation likelihood in a given program can be estimated using any binary choice model, such as Logit or Probit (Caliendo and Kopeinig 2008). In this case, we utilize the Probit model.

The model specifications are as follows:

$$P(X) = (\pi = 1 \mid X) = \phi(\theta_1 Z_1 + ... + \theta_k Z1_k) = \phi(\lambda X) \qquad (3)$$

Where, ϕ indicates the cumulative distribution function which is associate with the standard normal distribution and $0 < \phi(\lambda X) < 1$ for all values of Z and. Because non-linear form of the function we find maximum likelihood is the appropriate method of estimating (3).

Comparing participants and non-participants' groups with confirmed matching can assess the significant role of SBLP on predictors. Because PSM is neutral, it generates valid correlations between the two groups.

Thus if ξ^1 is the impact measure for the SBLP participation (π=*1*), and ξ^0 is the impact measure for the non-participants (π=*0*), then we try to calculate the overall mean outcome is shown as follows:

$$^{ATT}\Delta_{PSM} = Op_{(z)}(\xi^1 \mid X, \pi = 1) - O_{p\ (z)}(\xi^0 \mid X, \pi = 0) \qquad (4)$$

ATT indicates the average effect of the treatment on the targeted group that received it.

In this study, we incorporate two prominent methods for matching that are widely accepted in the existing literature: one is Kernel Matching (KM), and the other is Nearest-Neighbour Matching (NNM). These methods are used to overcome potential limitations and enhance the reliability of the anticipated effects on the outcomes.

4.3 Variables

Three self-developed indices, the FII, WAI and SII are used for this study. all the indices are multidimensional. Further, as mentioned earlier, initially, SEI is calculated for both participants and non-participants of SBLP and then by subtracting the SEI from 1, we obtain the SII for both participants and non-participants.

Since all indices have multiple dimensions, we must consider a comprehensive set of indicators in order to fully portray the multifaceted nature of these indices. Tables A.1 and A.2 in the appendices provide the indicators that were utilized to create the FII and WAI indexes.

Further, the influence of SBLP participation is facilitated in the present paper on the basis of the PSM method. The outcome indicators used for this purpose are two self-developed unique indices, namely, FII and WAI. Basically, a propensity score represents a likelihood, determined by using any binary model like the logit or probit model. Here, the participation decision (0/1) is the dependent variable, and based on a list of predictors, the propensity scores for sampled individuals are determined. Consequently, we must compile a comprehensive list of predictors that accurately forecast the SBLP participation decision. Therefore, the analysis considers predictors like mean years of schooling of the households, caste (binary), distance of the bank, religion (binary), amount of agricultural operational land holding, number of times loan received, and the years of association of that sampled individual with SBLP. These are the predictors that we have selected based on previous research and field surveys.

Notably, the mean years of schooling of the households, caste (binary), religion (binary), number of times loans were received, and the years of association of that sampled individual with SBLP influence the decision of participation positively. Contrarily, the age of the member, distance of the bank, and

amount of agricultural operational land holding are expected to affect the decision of participation negatively.

The detailed descriptions of the variables are included in Table 3.

5. Results

The empirical results of the aforementioned objectives are presented here.

5.1. District-wise FII, WAI, and SII

The current research comprises four self-created indices. All metrics are computed for both participants and non-participants. The mean value of each index for participants and non-participants is regarded as the respective district-level index value for both groups. Using the same method, the district-level index for both groups is computed for four sampled districts. Table 2 displays the index values for four districts.

Table 2: District-wise FII, WAI and SII

Index	District	Participants	Non-participants	Difference
Financial Inclusion Index (FII)	Baksa	0.236	0.235	0.001
	Chirang	0.264	0.255	0.009
	Kokrajhar	0.179	0.235	-0.056
	Udalguri	0.273	0.257	0.016
BTC		0.243	0.226	0.017
Women Autonomy Index (WAI)	Baksa	0.7696	0.5261	0.2435
	Chirang	0.8896	0.8826	0.0070
	Kokrajhar	0.8836	0.8841	-0.0005
	Udalguri	0.8060	0.7349	0.0711
	BTC	0.8378	0.7151	0.1228
Social Inclusion Index (SII)	Baksa	0.919	0.928	-0.009
	Chirang	0.879	0.899	-0.020
	Kokrajhar	0.915	0.943	-0.028
	Udalguri	0.921	0.881	0.040
	BTC	0.919	0.913	0.006

Source: Authors' own, based on field survey

For FII and WAI, all districts and BTC, except Kokrajhar, show that the SBLP participants are in a more favourable situation compared to their non-participating counterparts. In the Kokrajhar district, non-participants of SBLP are in a more favourable position than participants in terms of FII and WAI.

Significantly, the "Social Exclusion Index (SEI)" is first calculated for all sampled households, encompassing both SBLP participants and non-participants. Subtracting the index value from 1 yields the "Social Inclusion Index (SII)." Ultimately, by applying the previously mentioned method, the SII for both participants and non-participants of SBLP in each district is determined. The outcome is also shown in the same table. The table shows that in Baksa, Chirang, and Kokrajhar districts, those who do not participate in SBLP are more integrated socially than those who do. Conversely, a different outcome is achieved for Udalguri and the BTC in its entirety.

From this outcome, no conclusions can be drawn regarding the effect of SBLP participation on FII, WAI, and SII. To determine the effects of SBLP, an impact analysis must be performed.

5.2. Impact Analysis and Calculation of Propensity Score

To conduct the impact analysis, it's essential to have two groups of respondents: treated and control. A total of 44 SBLPs will be sampled for each intensive block associated with each district, resulting in an overall survey of 176 SBLPs. For every SBLP, we will conduct interviews with 5 members and 10 non-members, totalling 10 non-member interviews. Therefore, for every intensive block, we are conducting interviews with 220 participants and 440 non-participants. According to the AIMS Guidelines, the control group is formed to represent a socio-economically similar group to eliminate biases when assessing the program's impact (Barnes and Sebastian, 2000; Maity and Sarania, 2017; Maity, 2023a; Maity, 2023b). The treatment group includes those SHG participants who benefited from SHG loans at least two years before the survey. In contrast, the non-participants are individuals who have not received any advantages from the SHG programme. They establish the control group.

The current study encompasses household-level data from 2640 respondents. The research consists of 880 participants, which means there are also 1760 untreated non-participants.

Significantly, we have added duplicate information concerning control group respondents since we aim to execute the matching process without replacement. Therefore, in the subsequent state, 880 treated will be paired with 880 controls, and 880 controls will be excluded from the analysis.

We will now show the results of the probit regression analysis. The descriptive statistics of the predictors are presented in Table A.1 in the appendix. Table 3 provides a summary of the predictors for the Probit model. Significantly, the propensity scores for both the treated and control groups are determined utilising the predictors outlined below. Significantly, we consider newly generated variables such as the square of the respondent's age, their education, and the interaction term - Age*education. If the coefficient of these higher-order terms is significant, it indicates that the previously mentioned relationship is non-linear.

Table 3: Probit regression result

Iteration 0: log likelihood = -1698.8734		Number of obs = 2,640		
Iteration 1: log likelihood = -1056.6045		LR chi2(14) = 1375.11		
Iteration 2: log likelihood = -1011.7931		Prob > chi2 = 0.0000		
Iteration 3: log likelihood = -1011.318		Log likelihood = -1011.3177		
Iteration 4: log likelihood = -1011.3177		Pseudo R2 = 0.4047		
Iteration 5: log likelihood = -1011.3177				
Variables	**Coef.**	**SE**	**Z**	**P>|z|**
Constant	-0.088	0.056	-1.57	0.117
Respondent's age	-0.299***	0.028	-10.51	0.000
Respondent's Education	0.378***	0.045	8.36	0.000
Family size	-0.059**	0.025	-2.36	0.018
Number of earning member of the family	-10.167***	0.722	-14.08	0.000
Number of years respondent involved with SHG	0.038***	0.008	4.85	0.000
Number of time loan received	0.702***	0.038	18.36	0.000
Distance of the Bank from the household's residence (KM)	0.125	0.080	1.56	0.118
Caste	0.375***	0.073	5.12	0.000

Religion	0.200*	0.106	1.89	0.058
Current monthly consumption expenditure	1.25E-04***	1.81E-05	6.9	0.000
Amount of Operational Land Holding	-0.052***	0.010	-5.3	0.000
Age^2	-0.003***	3.38E-04	-7.69	0.000
Education^2	2.56E-04	0.002	0.11	0.911
Age*Education	-0.011***	0.001	-12.99	0.000

Source: Authors' own, based on field survey

*Note: ***, ** &* means significant at 1%, 5% & 10% level*

The decision to participate in the SBLP is affected by the respondent's age, education, family size, number of income earners, years of involvement with SHG, frequency of loans received, caste, religion, current monthly consumption expenses, and the extent of operational landholding. The estimated coefficients of these predictors are statistically significant at various levels. Notably, the estimated coefficients for two higher-order variables, namely, Age^2 and Age*Education, are statistically significant at the 1% level. This indicates that the related relationship is non-linear. The decision to participate by the respondent is positively influenced by education, years of involvement with SHG, frequency of loan receipt, caste, religion, and present monthly consumption spending. The Hindu faith prevails in BTR, leading to a majority of group members being Hindu. Once more, DAY-NRLM promotes the inclusion of SC/ST women in SHGs. In reality, the SHG formation guidelines stipulate that at least one member must be a woman from SC/ST. This could explain the positive signs of the estimated coefficients for these two predictors. At the same time, greater educational attainment and rising spending encourage engagement in SBLP.

On the contrary, the decision to participate in SHG is adversely affected by the respondent's age, family size, number of income-earning members in the family, and the size of land being cultivated. The specific reason for this relationship is addressed in the discussion section found in the latter part of this chapter.

Significantly, the Pseudo R-squared value of 0.4047 reflects the strength of the specification. Additionally, the Likelihood Ratio Chi-squared statistic is 1375.11, accompanied by a p-value of 0.0000, and the associated log likelihood value is -1011.3177.

Consequently, we conclude that our fit is satisfactory.

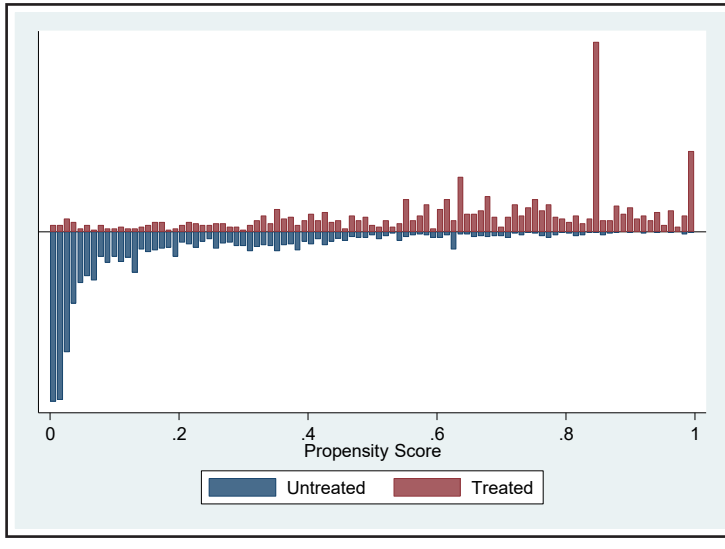
The propensity score limit, which allows us to pinpoint the region of common support, is [2.95E-11-0.9998], with a maximum of 0.9998 and a minimum of 2.95E-11. The average propensity score is 0.3430. This implies that, in roughly 34% of cases, all sample units are accurately predicted to participate using probit regression.

We next consider the checking of the common support region graphically. This is extremely important for the meaningful impact analysis.

5.3. Common Support Checking

The analysis of microfinance effects focuses on comparing treatment and control groups using the output indicator. A legitimate comparison is possible only when there is enough overlap between the "treatment and control groups" (Maity, 2023a; Maity, 2023b). The overlapping histogram of the propensity score shows the same support area. The region of common support is illustrated in Figure 2 below.

Figure 2: Common support region



Source: Authors' own, based on field survey

The graph reveals a significant overlap in propensity scores between the treated and control groups. This shows that the

standard support obligation was fulfilled. A large quantity of samples enables us to conduct "matching without replacement" (Maity, 2023a; Maity, 2023b). Consequently, 880 treated subjects were paired with 880 controls, excluding 1760 non-participants from the analysis.

The significant extent of overlap enables us to conduct the impact analysis. This truly guarantees that all biases are removed, allowing us to compare two identical individuals, differing only in that one is deemed a participant in the SBLP programme while the other is labeled a non-participant. Notably, this procedure enables us to remove all biases, such as the self-selection bias.

All prerequisites have been fulfilled, enabling us to conduct an impact analysis with the selected outcome indicators. To remove ambiguity and ensure robustness in the findings, the average treatment effect on the treated (ATT) will be employed, along with the Nearest-Neighbour Matching (NNM) and Kernel Matching (KM) techniques.

3.4. SBLP participation impact on FII, SII and WAI

This part of the study evaluates the primary hypothesis. The impact analysis employs three metrics: average treatment effect on the treated (ATT), average treatment effect (ATE), and average treatment effect on the untreated (ATU) (Maity, 2023a; Maity, 2023b). Since ATE and ATU results cannot be tested, we concentrate on ATT estimates for evaluating outcome impacts. Nearest Neighbour Matching and Kernel Matching, two matching techniques, are used to remove ambiguity and guarantee the robustness of the results. In this context, we have considered four outcome indicators. Significantly, each of the four indicators is a composite index that assesses the multidimensional poverty situation, financial inclusion landscape, level of social inclusion, and status of women's autonomy. The projected outcome is shown in Table 4.

Table 4: ATT estimates of SHG participation impact on Financial Inclusion, Social Inclusion and Women Autonomy

Impact Indicators	Matching Method	ATT				
		Treated	Controls	Difference	Std. Err.	t-statistics
Financial Inclusion Index	Nearest Neighbour	0.237	0.233	0.004	0.002	2.34***
	Kernel	0.248	0.245	0.004	0.001	2.55***
Social Inclusion Index	Nearest Neighbour	0.919	0.916	0.003	0.005	0.67
	Kernel	0.919	0.915	0.004	0.003	1.60
Women Autonomy Index	Nearest Neighbour	0.838	0.585	0.253	0.049	5.21***
	Kernel	0.838	0.634	0.204	0.020	10.03***

Source: Authors' own, based on field survey

****Significant at 1 % level*

Regarding financial inclusion, the table reveals a notable positive effect of involvement in SBLP-led microfinance. Given that the relevant t-statistics are accessible, we have focused solely on ATT to illustrate the effect of SBLP involvement on financial inclusion. The distinction between participants and non-participants is analyzed statistically to reach statistically significant conclusions. The table shows that, based on the Nearest Neighbour Matching algorithm, the ATT for the microcredit treatment is 0.237, while the control's ATT is 0.233. It shows that financial inclusion, measured by FII, is 0.4% higher for those treated compared to their control counterparts. The difference is notable at the 1% level. The Kernel Matching algorithm also leads to the same conclusion. The Kernel Matching algorithm indicates that the financial inclusion for the treated group is 0.248 and for the control group is 0.245. This indicates that the financial inclusion of participants is 0.4% greater than that of their non-participating peers, and we are 99% certain of the validity of the finding.

An intriguing finding is revealed regarding women's autonomy. The identical table reveals that, when applying the Nearest Neighbour Matching algorithm, the ATT of women's autonomy for SBLP participants, measured by WAI, is 0.838, while for non-participants, it is 0.585. Consequently, the WAI difference between them is 0.253, and this difference is statistically significant at the 1% level. This suggests that involvement in

the SBLP increases the autonomy of female members by 25.3% compared to those who do not participate. A comparable outcome is also achieved using the Kernel Matching algorithm. Based on Kernel Matching, the ATT for participants is 0.838, while for non-participants it stands at 0.634. Consequently, participants experience 20.4% greater autonomy compared to their non-participating counterparts. Significantly, we are 99% certain regarding the suitability of the outcome.

The practical observation regarding social inclusion is particularly intriguing. The table indicates that SBLP membership enhances social inclusion by 0.3% when using Nearest Neighbour Matching. The Kernel Matching algorithm indicates that being a part of SBLP results in a 0.4% enhancement in social inclusion. Nonetheless, neither result is statistically significant.

This implies that although engaging in the SBLP might lead to financial inclusion and women's empowerment, it does not automatically translate into reducing multidimensional poverty or promoting social inclusion. Consequently, our empirical findings do not allow us to dismiss the null hypothesis; we accept it. Thus, we determine that "SBLP does not support social inclusion for disadvantaged groups in society" (Maity, 2023a; Maity, 2023b). This discovery holds for both matching algorithms.

Under the assumption of no hidden bias ($\Gamma = 1$), the Mantel-Haenszel (1959) bound test statistic gives a similar result, indicating a significant treatment effect. The test result is presented in Table 5.

Table 5: Sensitivity Analysis for Average Treatment Effect

Outcome variables	Mantel-Haenszel (1959) bounds				
	Gamma	Q_mh+	Q_mh-	p_mh+	p_mh-
FII	1	4.187	4.187	0.000	0.000
SII	1	1.376	13.505	0.084	0.000
WAI	1	0.788	12.212	0.215	0.000

Source: Authors' own calculations based on field survey

The likely explanation for such empirical outcomes is discussed in the following section.

6. Discussion

The empirical findings indicate that participation in SHG-BLP-driven microfinance turns financial inclusion and women's autonomy into a reality, yet multidimensional poverty reduction and social inclusion continue to be illusory for them. Participants have greater financial inclusion than non-participants and also achieve increased autonomy, but no changes are anticipated regarding the multidimensional poverty situation and social inclusion. Involvement in microfinance led by SHG-BLP enhances financial inclusion and boosts women's independence. The Ministry of Rural Development (MoRD), Government of India (https://rural.nic.in/) launched DAY-NRLM in June 2011. The primary program was named "Aajeevika". It acts as a model strategy to eradicate poverty in rural regions by offering low-income families opportunities for lucrative self-employment and skill enhancement to improve livelihood chances, leading to sustainable and varied income sources for the impoverished. The mission's objectives focus on four main areas: "(a) social mobilization, enhancement, and strengthening of self-managed and financially viable community organizations for rural impoverished women; (b) financial inclusion; (c) sustainable livelihoods; and (d) social inclusion, social progress, and access to entitlements via convergence" (https://rural.nic.in/; https://aajeevika.gov.in/about/introduction).

The initiative aims to slowly connect with around 10 million rural impoverished families by 2022-23 to enhance their livelihoods. All functioning SHG-BLPs in India are registered with DAY-NRLM, aiming to fulfill the specified objectives. Consequently, it was required that 80% of "swa-rozgaris" (self-employed) be from SC/ST categories and be female. In line with the stated goals, the group consists of poor rural women, mainly homemakers, who possess limited bank accounts. Nonetheless, once they establish and manage the groups, it is essential for them to have a bank account, a loan account, and to go to the bank for timely loan repayment. All of these actions expand their financial behaviors and banking routines, motivating people to seek loans from banks instead of private lenders for personal crises (Hoffmann et al., 2021). They slowly enhance their skills in using ATMs, debit cards, and online banking. In certain situations, individuals acquire insurance (health or life). Effective application of loan funds transforms them into successful entrepreneurs (Robert et

al., 2021) and allows them to pay back loans punctually. Prompt repayment of loans enhances their chances for future financing. All these efforts place SBLP participants in a more favorable financial situation compared to their peers (Kumar et al., 2021; Reshi and Sudha, 2021). This illustrates how the participants' degree of financial inclusion has significantly enhanced. Our results align closely with the research of Rangappa et al. (2008), Prathap (2011), Maity and Sarania (2017), Maity (2019), Maity (2023a), and Maity (2023b).

Likewise, these women connect with other women and non-governmental organizations. They converse amongst themselves, discuss their issues, and NGOs offer details regarding their rights, responsibilities, etc. These actions assist them in making decisions about themselves, their children's schooling, etc., and guide them towards greater independence. Therefore, involvement in SHG-BLP allows them to achieve greater independence compared to their non-participant peers.

Social inclusion involves increasing opportunities for social, economic, civic, and political participation, irrespective of gender, religion, caste, or class. In Indian culture, especially in countryside areas, women are frequently seen as lesser than men (Dyson and Moore, 1983; Agarwal, 1992; Agarwal, 2000). Men are viewed as the unquestioned heads of the family (Niaz, 2003). Although women participate in income-generating activities, they possess minimal or no control over their earnings (Kabeer, 2005; Luke et al., 2014; Klasen and Pieters, 2015). Even though a particular woman is named as the beneficiary of the SBLP, the principal male figure in the household determines how and for what purposes the loan obtained will be utilized (Kapoor, 2019; Hasija, 2021; Gupta, and Singh, 2023). Such mindsets limit women's economic participation. Religious beliefs influence people's dietary habits and other customs. Religious beliefs restrict individuals from consuming certain foods, like Hindus abstaining from beef and Muslims steering clear of pork (Dugan, 1994; Kwon and Tamang, 2015; Cohen, 2021). Traditional rural Indian society held great significance in religion, caste, and class. Religious diversity inhibits individuals from taking part in one another's festivities (Deshpande, 2010). In rural India, upper castes still sometimes exclude lower castes from participation (Jeffrey et al., 2005; Coffey et al., 2017). This might be the reason SBPL groups are established according to

their specific acquaintances (Maity and Sarania, 2017; Maity, 2019; Maity, 2023a; Maity, 2023b). Traditional rural mindset hinders individuals from achieving social integration (Meerman, 2005; Roy, 2021). At present, in India, religious perspectives are influenced by political preferences, and this holds true for rural areas as well (Hasan, 2010; Kim, 2017; Vaishnav 2019). In the world's largest democracy, religion has played a significant role in the voting process. (Kim 2017; Vaishnav 2019). In these conditions, political involvement is an illusion. Consequently, involvement in microfinance driven by SHG-BLP fell short of achieving "social inclusion." In this regard, both participants and non-participants are equally efficient. Indeed, the negative variation in the multidimensional poverty index serves as a signal for the results associated with social inclusion. As a result, we can conclude that these two results agree with one another.

7. Policy prescriptions, limitations and future study directions

This research study focuses on investigating the impact of SBLP on reducing multidimensional poverty, promoting financial inclusion, enhancing social inclusion, and advancing women's autonomy and social inclusion in the Bodoland Territorial Council (BTC), Assam. We have employed the Propensity Score Matching (PSM) technique for the impact analysis. Based on our study analysis, we determined that the various social factors of the targeted group significantly influence SHG involvement. Among all the social identity groups that have significantly influenced participation in SHG, this study indicates that in BTC, women from the SC and ST communities are more inclined to engage in SHG. Additionally, factors such as the frequency with which SHG members receive loans influence SHG participation; members who frequently obtain loans or can easily access loans when required engage actively in SHG. Given that SBLP positively influences financial inclusion and women's empowerment, the government ought to broaden these initiatives to assist a greater portion of the disadvantaged, while also offering additional resources and services like training, technology, awareness, and other supportive services. Evidently, we can assert that SBLP has significantly contributed to improving the socio-economic status of BTC. At the same time, this will benefit researchers for continued investigation on the topic. The results of our research

also motivate us to recommend that the government implement measures to enhance the performance of SHGs and to boost their numbers.

Firstly, education, particularly women's education, helps in achieving the targeted goals of economic and social development. In our study, we also found that education encourages women to participate in income-generating activities by taking advantage of SHGs. Thus, the government should escalate the opportunities for girls as well as women's education for the betterment of the economy as well as society.

Secondly, although receiving loans motivates the members to remain attached to SHGs, they nevertheless need to learn to survive without loan facilities from SHGs. The introduction of different SHG models, like MFIs, may help to achieve this goal.

Thirdly, given the beneficial implications of participation in terms of increased financial inclusion, it is strongly advised that more SBLP be enrolled with DAY-NRLP under the name "Aajeevika." Furthermore, women from SC/ST households in rural areas should be encouraged to take part in this effort. Before participants got loans, appropriate training may have been provided to ensure proper use of the loan funds. NGOs may play a role in this. Simultaneously, another type of microcredit, MFI, may be developed in the same region where SBLPs operate. The economic autonomy of these engaged women has a significant spillover impact on others, motivating other housewives to participate in similar microcredit initiatives. As a result, the government and NGOs must take proactive steps to broaden the scope of this microcredit programme.

Fourthly, given the favourable impact of SHG membership on women's autonomy, it is advised that all women, regardless of age, be encouraged to engage in income-generating activities, which SHGs may assist with.

Finally, the ineffectiveness of SHG-BLP-led microfinance in fostering more social participation could be due to incorrect group formation. According to the guidelines, interested candidates must apply to the "Panchayat" in this regard. The "Panchayat" members are responsible for forming the groups. However, in actuality, the participants created the group based on their familiarity. This keeps the scheme from accomplishing the ultimate purpose of a microcredit programme. To ensure

social cohesiveness, SHG-BLP-led microfinance must focus heavily on participation. Only by ensuring equal involvement for all deserving individuals, regardless of religion, caste, or status, can social inclusion be created. SHG-BLP membership, in particular, may confirm social inclusion by forming groups spanning religion, class, and caste. Despite coming from different castes and beliefs, the participants must learn to trust and understand one another. Only then can SHG-BLP membership result in increased social inclusion. In this regard, non-governmental organisations (NGOs) may be better suited to the task of counselling.

Notably, there are certain limitations to the study. Although it is widely believed that SHG-BLP guarantees financial inclusion, no research has been done on digital financial inclusion. The future of India is "digital India," which is a crucial component of "Viksit Bharat." However, this issue is not addressed in this paper. This might be regarded as both the study's future plan and one of its limits. Furthermore, rather than adhering to group formation guidelines, SHG groups are created using the members' know-how. Groups created in this manner are therefore vulnerable to prejudice caused by self-selection. The outcome will be deceptive if this bias is not removed. The study used the PSM method for impact analysis to address the self-selection bias. However, several studies recommended alternative techniques, such as "Difference in Difference (DiD)," to ensure the results were adequate. DiD, however, works well with panel data. Current academics believe that using panel data for this kind of impact analysis will result in a robust conclusion about the influence. This is also the direction of future research.

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Author's contribution: S.M. developed and oversaw the project, wrote the paper, and performed the statistical analysis. D.C. and S.S. helped with the manuscript's draft. All authors reviewed and approved the final draft.

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4

Returns to Labour in India's Rural Non Farm Economy: The role of education and skills

Sagarika Dey[1]

Abstract

The Rural Non farm Sector (RNFS) in India is a vital component of the rural economy, providing employment to more than two-fifths of the rural workforce. Hence, returns to labour engaged in this sector are important from the standpoint of worker welfare, farm-non-farm linkages and overall economic development. Using data from the latest round of Periodic Labour Force Survey (PLFS, 2023-24), this chapter analyses the intra-sectoral composition of rural non-farm employment and assesses the pecuniary returns across broad types of non-farmactivities. The findings indicate a gradual de-casualisation of the rural non-farm economy with shifts in employment structures towards self-employment and regular wage/salaried employment albeit with substantial inter-state variations. However, these gains are relatively modest, with a large proportion of workers, particularly young workers, still relying on casual daily wage employment. Returns to labour in terms of monthly earnings are lowest for this group. While self-employment and salaried employment provide higher earnings, these categories are dominated by workers with low educational and occupational skills, suggesting missed opportunities for higher income. The results of the regression model emphasises the importance of human capital formation through formal education and Technical and Vocational Education Training (TVET) not only in promoting the shift away from casual employment but also in increasing returns across all non-farm employment types. Given the predominance of low educational and occupational skills in the rural non-

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farm economy, the study highlights the need for improved retention in higher education and expanded opportunities for TVET, particularly for younger workers, to raise labour productivity in the non-farm sector and harness the demographic dividend.

Keywords: *Demographic Dividend, Rural Nonfarm Sector, Human Capital, Labour Returns, TVET, PLFS.*

1. Introduction

Generation of quality employment has been a significant development challenge in India. This has been more so in recent times with shifts in demographic structures in favour of a youthful population. The median age of India's population in 2024 was 28.2 years which indicates that half of the population is India is below this age (UNPF, 2024). While this represents a tremendous challenge in terms of job-creation, India's demographic structure also presents a unique opportunity in the form of a growth dividend that could be realised if this vast pool of youthful labour is effectively utilised. India's rural economy is home to millions of workers and a thriving rural non-farm economy is vital to harnessing this demographic advantage. Realisation of the demographic dividend is however contingent on the human capital base of workers in terms of education and skills as it has direct implications for labour productivity and hence labour earnings. However, studies focussing on skill levels of non-farm workers in India are non-existent in literature. A search on Google scholar revealed several recent studies dealing with varied aspects of rural non-farm economy such as current status of rural non-farm employment (RFNE), poverty impact, food security, vulnerability and female participation (Mishra, 2025; Goel, 2024, Bhattacharjee et.al, 2024; Pattayat et.al, 2022; Rahman et al, 2020; Abraham, 2023, Das & Mahanta, 2023). There is no study examining the current status of skills in the non-farm sector despite its importance for realising of the demographic dividend and for achieving diffused and inclusive development. Against this backdrop, the chapter explores the present state of rural non-farm employment in India, focusing on the employment structure, skill levels, and their implications for labour returns, based on data from the latest round of the Periodic Labour Force Survey (PLFS) 2023-24. The objectives of the paper may be stated as follows a. To examine the structural composition of RNFE in India and evaluate the intra-sectoral changes over time

b. To explore the factors influencing participation in distinct types of RNFE c. To assess the returns to labour across broad categories of RNFE d. To assess the skill levels of rural non-farm workers in India and examine their impact on labour earnings. The chapter is organised into four sections including the current introductory one. Data and methods are discussed in section 2. The main analytical findings from the study are presented in section 3. The last section contains the summary of the findings and the policy implications.

2. Data and Methods:

The study uses unit level data available from PLFS 2023-24. However, for assessing the trends in RNFE over time, data from PLFS 2017-18 is also used. The industry divisions of NIC 2008 are used to segregate farm workers from non-farm workers. Only workers who are employed as per principal status are considered in the analysis. The data set for PLFS 2023-24 contains information on 95,040 rural workers in the age group 15-64 years who are employed as per principal status. Of these, 44,791 workers were engaged in the non-farm sector. Descriptive statistics are used for understanding the broad structure of rural non-farm employment. Sample weights available in the dataset are used for arriving at the national and state level estimates. Variation across states in the incidence of non-farm employment is studied with the help of Natural Break maps constructed using GeoDa software. Returns to labour is measured in terms of earnings of workers in the last 30 calendar days. Here, it may be mentioned that the PLFS reports labour earnings for self-employment and salaried employment for a period of 30 calendar days preceding the survey; however, earnings for casual daily wage labour is given on the basis of Current Weekly Status (CWS). Hence, earnings of daily wage workers are converted to monthly earnings on the basis of number of days worked in the week preceding the survey[1]. To assess the skill level of workers, two types of skill classifications are used following the methodology specified in the National Classification of Occupations (NCO, 2015). NCO 2015 classifies workers into four groups each on the basis of education and the skills required according to the current occupation of the workers. Identical methodology is adopted in the present study to classify workers by educational and occupational skills. The access to Technical

and Vocation Education and Training (TVET) are analysed with the help of descriptive statistics. Participation of workers in different types of non-farm employment are analysed by fitting Logit model to the observed data and the marginal effects are subsequently obtained. Similarly, to assess the returns to labour, multiple linear regression model is fitted to the earnings data. Description of the explanatory variables used in the regression models is given in Table 1.

Table 1: Description of explanatory variables used in regression analysis

Variable	Description
AGE	Age of the worker (in completed years)
AGE2	Square of AGE
SEX	Sex of the Worker (=1, if worker is male; 0 otherwise)
EDU	Years spent in formal education
FORMAL	Access to Formal TVET(=1, if worker had undergone formal TVET; 0 otherwise)
INFORMAL	Access to Informal TVET(=1, if worker had undergone informal TVET; 0 otherwise)
NORTH	Location Dummy(=1, if worker is a resident of Northern states; 0 otherwise)
NORTHEAST	Location Dummy(=1, if worker is a resident of North Eastern states; 0 otherwise)
WEST	Location Dummy(=1, if worker is a resident of Western states; 0 otherwise)
EAST	Location Dummy(=1, if worker is a resident of Eastern states; 0 otherwise)
CENTRAL	Location Dummy(=1, if worker is a resident of Central Indian states; 0 otherwise)
SC	Caste Dummy(=1, if worker belongs to Scheduled Caste household; 0 otherwise)
ST	Caste Dummy(=1, if worker belongs to Scheduled Tribe household; 0 otherwise)
OBC	Caste Dummy(=1, if worker belongs to Other Backward Caste Caste household; 0 otherwise)

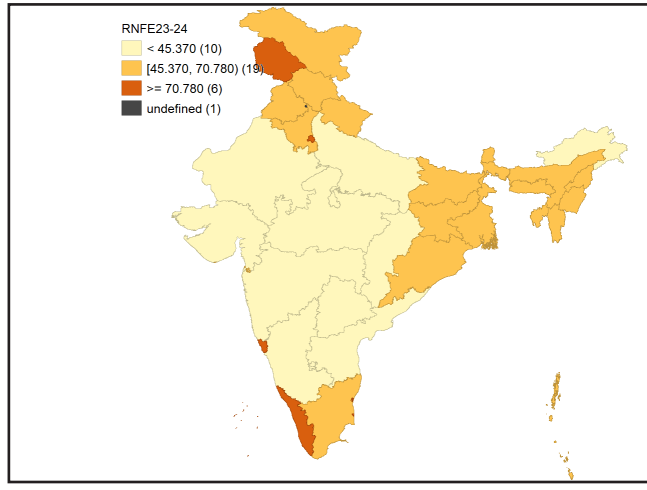
Source: Author

3. Analysis and Findings:

3.1 Current structure of rural non-farm employment:

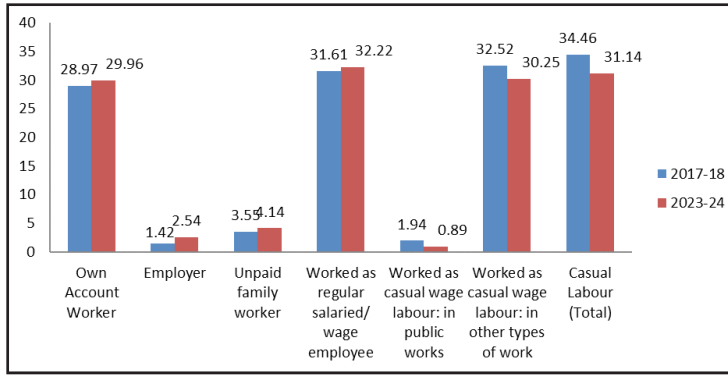
The breakdown of rural employment by sectoral composition reveals the continuation of expansion of employment in the rural non-farm sector (RNFS). The economy wide estimates reveal that the proportion of workers employed in the RNFS increased from 42.2 percent in 2017-18 to 45.04 percent in 2023-24. However, there appears to be considerable interstate variation in the incidence rural non-farm employment. The natural break maps compiled using Geoda divided the 36 states and Union Territories (UTs) into three groups based on the incidence of RNFE: high, medium, and low (Fig 1). In 2023-24, there were six states and UTs with high incidence of RNFE, nineteen states and UTs with medium share of RNFE and ten states with low incidence of RNFE. The jurisdictions in which the proportion of rural non-farm employment exceeded 70 percent were Delhi (95.1) Lakshadweep (82.32), Puducherry (78.02) Goa (82.69) Kerala (75.2) and the Union Territory of Jammu & Kashmir (70.8). The states and UTs in middle group consisted of Ladakh (63.76), Dadra & Nagar Haveli & Daman & Diu (62.55), Punjab 61.33), Andaman & Nicobar Island (60.41), Haryana (59.72), Uttarakhand (59.53), Tamilnadu (58.28), Assam (56.78), Jharkhand (56.56), West Bengal (53.61), Sikkim (53.45), Odisha (53.26), Tripura (51.04), Manipur (50.98), Bihar (50.04), Nagaland (48.54), Himachal Pradesh (46.3), Meghalaya (45.5) and Mizoram (45.37). States having low incidence of RNFE with overall share of less than 45 percent are Uttar Pradesh (41.62), Andhra Pradesh (40.79), Rajasthan (39.73),Telangana (39.04), Gujarat(37.92), Karnataka (33.88) Maharashtra (33.69), Madhya Pradesh (33.51), Arunachal Pradesh (32.84) and Chattisgarh (27.5). A scrutiny of the Natural Break Map therefore reveals a clustering effect with states in the Eastern, Northern, North-Eastern and Southern parts having higher incidence of RNFE compared to states in Western, Central and South-Central zones.

Fig1: Inter-state variation in Rural Non-Farm Employment



Source: Based on author's calculation from PLFS (2023-24)

Fig2: Distribution of RNFE by type of employment



Source: Based on author's calculation from PLFS (2023-24)

Although the proportion of workers involved in RNFS has been increasing over time, it is important to note that the non-farm economy is heterogeneous and consists of a wide range of high end and low end activities. According to the information contained in PLFS, non-farm workers can be categorised into three groups viz. a. Self-employed workers b. Workers receiving regular wages/salaries and c. Casual daily wage labour[2]. A comparison of the distribution of rural non-farm workers by

type of employment between 2017-18 and 2023-24 shows some interesting changes (Fig2). While in 2017-18, casual workers formed the largest chunk of non-farm workers in 2023-24 they have been relegated to the second position. Regular/ salaried wage earners now form the biggest proportion of the rural non-farm workers. The overall decline in the share of casual workers by over 3 percentage points and increase in other employment categories indicates that there is a tendency towards de-casualisation of RNFS which is a welcome sign in so far as the rural economy of the country is considered. However, the fact that more than thirty percent of non-farm workers are still dependent on casual labour leaves no room for complacency.

Table2: Inter-state variation in RNFE by type of employment

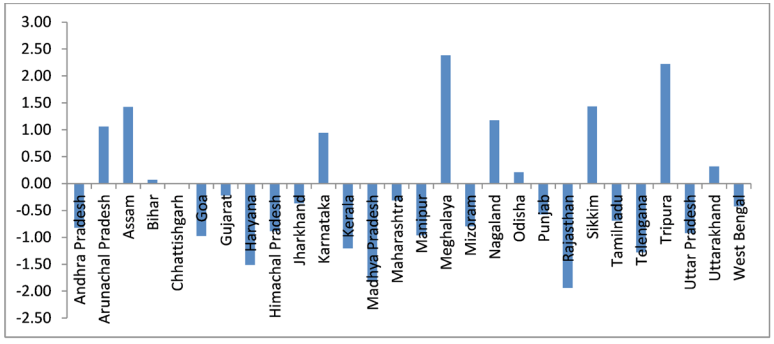
State/UT	Self-Employed	Regular salaried/ wage employee	Casual wage labour
Jammu & Kashmir	41.06	35.50	23.43
Himachal Pradesh	27.18	47.15	25.67
Punjab	31.66	42.63	25.71
Uttarakhand	37.76	43.53	18.70
Haryana	31.93	49.17	18.91
Delhi	38.82	43.35	17.84
Rajasthan	40.54	36.72	22.74
Uttar Pradesh	41.53	21.56	36.91
Bihar	40.67	17.30	42.03
Sikkim	28.51	57.20	14.29
Arunachal Pradesh	43.05	43.28	13.68
Nagaland	38.77	54.10	7.14
Manipur	52.84	39.30	7.87
Mizoram	49.03	39.20	11.77
Tripura	36.45	21.05	42.50
Meghalaya	23.73	30.63	45.64
Assam	41.04	25.97	32.98

West Bengal	42.12	26.75	31.13
Jharkhand	33.50	20.58	45.92
Odisha	35.04	21.05	43.91
Chattisgarh	24.65	38.36	37.00
Madhya Pradesh	35.43	26.00	38.56
Gujarat	27.78	51.86	20.36
D & N. Haveli & Daman & Diu	10.03	83.82	6.16
Maharashtra	33.32	48.72	17.97
Andhra Pradesh	39.95	33.91	26.14
Karnataka	33.49	37.69	28.83
Goa	36.60	57.74	5.67
Lakshadweep	14.78	55.71	29.51
Kerala	30.27	46.20	23.52
Tamilnadu	23.46	43.54	33.00
Puduchery	17.15	63.88	18.97
Andaman & N. Island	22.55	50.21	27.24
Telangana	53.22	31.58	15.20
Ladakh	43.92	41.32	14.76

Source: Based on author's calculation from PLFS (2023-24) data

Table 2 illustrates the variation in the composition of RNFE across Indian states. Telangana and Manipur have the highest proportion of self-employed non-farm workers, with more than 50 percent of non-farm workers being self-employed. Mizoram, West Bengal, Bihar, Uttar Pradesh, and Rajasthan also exhibit relatively high shares of self-employed workers. In contrast, Gujarat, Haryana, Goa, Himachal Pradesh, and Maharashtra show a higher incidence of salaried or regular wage employees. Additionally, the proportion of workers employed as casual labour remains notably high in the eastern belt, including Bihar, Jharkhand, and Odisha, as well as in some North-Eastern states.

Fig 3: Average annual change in proportion of casual workers during 2017-18 & 2023-24



Source: Based on author's calculation from PLFS data

Fig 2 clearly shows a tendency of de-casualisation of the rural-non farm economy with more than 3 percentage drop in the share of casual workers in the six year period between 2017-18 and 2023-24. It would be interesting to examine the tendency of casualisation or de-casualisation across states. It is observed that barring ten states, all other states experienced reductions in the share of casual workers. Incidentally, six out of these ten states are located in the North-East; the remaining four states which experienced an increase in the share of casual workers are Bihar, Karnataka, Odisha and Uttarakhand. Rajasthan recorded the largest decline in casual employment with share of casual workers declining at the rate of close to 2 percent per annum.

Table 3: Composition of RNFE by age-group

Age Group	Self Employed	Regular salaried/ wage employee	Casual Daily Wage
15-21	27.35	28.59	44.06
21-31	30.93	36.4	32.66
31-41	36.36	32.5	31.13
41-51	42.07	29.95	27.98
51 & above	45.93	26.68	27.37

Source: Based on author's calculation from PLFS (2023-24) data

For realisation of the demographic dividend, the quality of employment among younger-age groups is relevant. Table 3 shows the composition of RNFE by age groups. It is disheartening to note that despite the overall drop in the share of casual daily wage employment, reliance on casual daily wage labour continues to be high among the younger age groups. Particularly, among workers belonging to the youngest age-group of 15-21 years, the share of casual daily wage labour is alarmingly high, exceeding 44 percent. Such a high dependence of young workers on casual labour reveals that the growth dividend that could be achieved from having a young and aspiring population is far from being realised.

3.2 Determinants of worker participation in different types of RNFE

Before assessing labour returns in different types of RNFE, it is pertinent to analyse the factors which influence participation in different types of RNFE. Accordingly, three Logit Models are fitted. The regression analysis has been carried out for 44,791 workers who are employed in RNFS. The specification of the dependent variable in the three models is given in Table 4.

Table 4: Description of Dependent Variable in Logit Regression

Model	Description of Dependent Variable
Model 1	Y1i=1, if worker is self-employed ; 0 otherwise
Model2	Y2i=1, if worker is a regular wage/salaried employee ; 0 otherwise
Model 3	Y3i=1, if worker is a casual daily wage earner; 0 otherwise

Source: Author

The results of the regression analysis given in Table 5 are discussed below:

a. **Self employment:** The probability of workers being self-employed increases with increase in the age of the workers. However, male workers are less likely to be self-employed compared to female workers. As compared with workers with no vocational training, workers with formal training are less likely to be self-employed. In contrast, workers with in-formal training are more likely to be self-employed. The scope for self employment also increases with every increase in household size. As compared to general category workers,

SC and ST workers are less likely to pursue self-employment as a principal activity. As compared to households in the Northern belt, workers residing in Eastern and North-Eastern parts of the country are more like to be self-employed.

b. **Regular wage/salaried employment:** The probability of salaried employment increases with increase in the educational attainments of workers. Similarly, a worker with access to formal training has 17 percent greater probability of working as a regular employee compared to a worker with no-vocational training. Informal training however reduces this probability. As in the case of self-employed workers, locational factors also play a role in determining involvement in regular wage/salaried employment.

c. **Casual employment:** The likelihood of involvement in casual daily wage employment is negatively and significantly related to formal education as well as access to formal and in-formal vocational training. This underscores the importance of education and skill formation in tackling casual daily wage employment which involve a lot of dexterity and yield low earnings. As compared to general category workers, SC, ST and OBC workers are more likely to be involved in casual employment. Sex and age of worker and location of residence also influence participation in this category of employment.

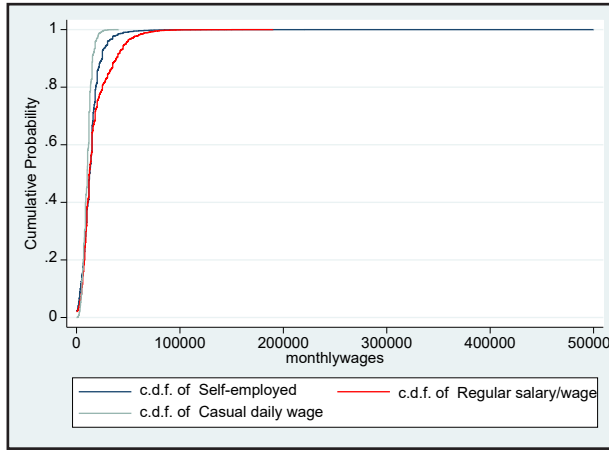
Table 5: Marginal Effects of Logit Regression									
	Model 1:Self Employed			Model 2: Regular wage/Salaried			Model3: Casual Daily Wage		
Variable	**dy/dx**	**z**	**P>|z|**	**dy/dx**	**z**	**P>|z|**	**dy/dx**	**z**	**P>|z|**
AGE	0.007***	4.75	0	-0.002	-1.63	0.104	-0.004***	-3.23	0.001
AGE2	0.000	-1.4	0.161	0.000***	2.99	0.003	0.000**	-2.47	0.014
SEX	-0.120***	-19.35	0	-0.097***	-15.32	0	0.195***	51.92	0
EDU	0.001	1.13	0.257	0.038***	57.52	0	-0.035***	-62.88	0
FORMAL	-0.118***	-12.83	0	0.168***	14.48	0	-0.172***	-22.5	0
INFORMAL	0.099***	20.3	0	-0.018***	-3.6	0	-0.075***	-17.38	0
HHS	0.012***	10.55	0	-0.009***	-7.24	0	-0.005***	-4.52	0
SC	-0.143***	-21.91	0	-0.012	-1.64	0.101	0.182***	22.41	0
ST	-0.153***	-22.42	0	0.039***	4.86	0	0.160***	17.54	0
OBC	-0.001	-0.11	0.913	-0.034***	-5.39	0	0.049***	7.64	0
EAST	0.045***	6.47	0	-0.107***	-16.97	0	0.050***	7.93	0
WEST	-0.049***	-5.59	0	0.128***	12.76	0	-0.070***	-9.86	0
SOUTH	-0.074***	-10.56	0	0.024***	3.38	0.001	0.062***	8.55	0
CENTRAL	-0.048***	-4.62	0	-0.017	-1.59	0.113	0.066***	6.25	0
NORTHEAST	0.075***	9.53	0	-0.056***	-8.14	0	-0.010	-1.48	0.139
Wald Chi2	2527.42***			5016.16***			6652.48***		
*** significant at 1 percent; ** significant at 5 percent									

Source: Based on authors' calculation from PLFS (2023-24) data

3.3 Returns to Labour in RNFS and the role of skills:

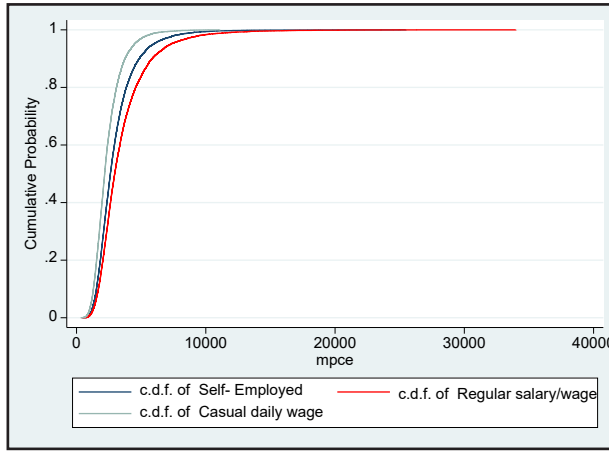
For analysing the returns to labour within the rural non-farm economy, the average monthly earnings were computed for three categories of employment viz. self-employed workers, wage earners and daily wage earners. The methodology of arriving at the estimated has been described in Section 2. In 2023-24, the average monthly wages for the three groups were INR 13,476.74, INR 16,834.30, and INR 10,146.52, respectively. The Cumulative Distribution Function (CDF) for monthly earnings from the three distinct types of RNFE shown in Fig4 reveals the first order stochastic dominance of earnings from regular salaried employment over earnings from self-employed and casual daily wage employment. The findings are cross checked for robustness by compiling the CDFs of Monthly Per-Capita Consumption Expenditure (MPCE) by household type[3]. It is found that the CDF of MPCE for households that depend solely on casual wage labour is strictly dominated by that of MPCE of households that derive their sustenance entirely from self-employment in non-agricultural activities. Again, both these CDFs are strictly dominated by that of regular wage earners. It can therefore be concluded that both in terms of realised earnings and consumption expenditure, casual daily wage labour yields the least benefits as compared to the other two types of non-farm employment.

Fig 4: CDF of monthly earnings by type of RNFE



Source: Based on authors' calculation from PLFS (2023-24) data

Fig 5: CDF of MPCE by household type



Source: Based on authors' calculation from PLFS (2023-24) data

Given the low productivity of casual daily wage earners, the real challenge lies in reducing the reliance on such employment. It is here that the role of education and skills assume significance. The findings from the regression analysis presented in Table 5 clearly point to the role of education and TVET in determining access to different types of RNFE and particularly in reducing participation in casual daily wage labour. It is therefore intuitive to see how occupational skill levels of workers vary across different categories of employment within the RNFS. The National Classification of Occupations (NCO) 2015 defines skills from two standpoints viz. on the basis of years in formal education and skill requirements according to the current occupation of the workers. On the basis of education, workers are classified into four skill levels viz. a. those who have completed up to ten years of formal education (EDU_SKILL1) b. those who have up to 11-13 years of formal education (EDU_SKILL2) c. those who have up to 14-15 years of formal education (EDU_SKILL3) and d. those who have more than 15 years of formal education (EDU_SKILL4). Likewise, on the basis of skill requirements entailed by the current job of the worker, skills are classified into four levels viz. Jobs requiring elementary skills (OCC_SKILL1) b. Job requiring medium level of skills (OCC_SKILL2) c. Jobs requiring specialised skills (OCC_SKILL3) and jobs requiring high competency skills (OCC_SKILL4)[4].

Table 6: Distribution of RNFE by educational and occupational skills

Educational Skills Levels	Self-Employed	Regular Salary/ Wage	Daily Wage	Total
EDU_SKILL1	80.78	50.94	91.87	79.00
EDU_SKILL2	11.49	18.78	6.32	11.32
EDU_SKILL3	5.96	17.79	1.56	6.67
EDU_SKILL4	1.77	12.49	0.25	3.02
Occupational Skills Levels	**Self-Employed**	**Regular Salary/ Wage**	**Daily Wage**	**Total**
OCC_SKILL1	1.42	18.28	86.52	25.26
OCC_SKILL2	97.12	57.42	13.41	70.20
OCC_SKILL3	0.48	8.27	0.07	1.54
OCC_SKILL4	0.98	16.04	0	2.99

Source: Based on authors' calculation from PLFS (2023-24) data

The classification of RNFE in India according to educational skills reveal that nearly 80 percent of the RNFS workers in India have up to 10 years of formal education and only 11 percent have secondary education (Table 6). About 7 percent have a graduate degree and three percent have a post-graduate degree. In terms of occupational skills, about 90 percent of the workers are engaged in either elementary occupations or semi-skilled occupations. Among the self-employed, about 97 percent are involved in semi-skilled occupations. In case of regular salaried workers, about 25 percent are involved in jobs requiring specialised and high-competency skills. As expected, more than 86 percent of the casual daily wage earners are engaged in jobs that require only elementary skills. This shows the pre-pondering dominance of low skills in the countryside adjudged in terms of both educational and occupational skills.

Efficient utilisation of labour necessitates that occupational skills of workers are matched with their educational skills. This would entail that workers with educational skill level 1 should also be engaged in occupations requiring occupational skills 1 to ensure compatibility. Table 7 represents the matrix of mismatch between educational and occupational skills in the RNFS in India. The diagonal elements represent the match between occupational and educational skills. Cells above the diagonal elements represent workers employed below their educational

qualifications while cells below the main diagonal represent workers in roles exceeding their educational qualifications. The results indicate significant mismatch especially in low skilled and high skilled educational groups. Thus, only 44 percent of the workers with educational skills 4 are engaged in jobs that require a post-graduate degree while the rest are involved in skills requiring lower educational qualifications. In contrast, 70 percent of workers with lowest educational skills are engaged in occupations that actually require higher educational skills.

Table 7: Matrix of mismatch between educational and occupational skills in RNFE

	EDU_ SKILL1	EDU_ SKILL2	EDU_ SKILL3	EDU_ SKILL4
OCC_SKILL1	29.06	14.97	6.16	2.8
OCC_SKILL2	69.86	77.66	72.46	44.91
OCC_SKILL3	0.63	3.56	6.4	8.14
OCC_SKILL4	0.45	3.82	14.98	44.15

Source: Based on authors' calculation from PLFS (2023-24) data

As harnessing of the demographic dividend is dependent on skills of young workers, it is insightful to examine the attainment of skill levels by the younger group of workers. The figures presented in Table 8 shows the 57 percent of the workers in the age-group of 21-31 years are engaged in semi-skilled occupations while 32.7 percent are engaged in low skilled occupations. In terms of educational skills, 58 percent of the young workers have only up to 10 years of formal education.

Table 8: Distribution of educational and occupational skills among workers (21-31 years)

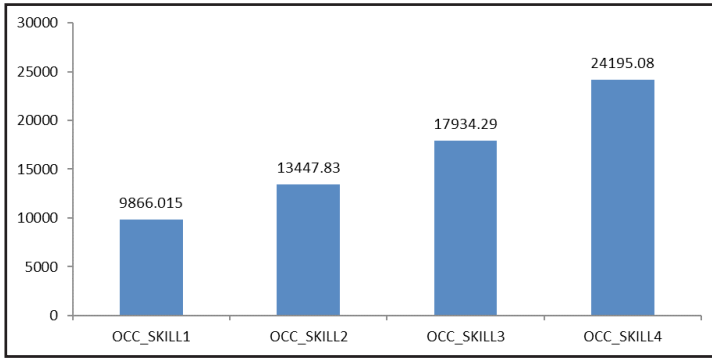
Occupational skill type	Percent	Educational skill type	Percent
OCC_SKILL1	32.7	EDU_SKILL1	57.85
OCC_SKILL2	56.67	EDU_SKILL2	19.75
OCC_SKILL3	3.38	EDU_SKILL3	15.37
OCC_SKILL4	7.25	EDU_SKILL4	7.03

Source: Based on authors' calculation from PLFS (2023-24) data

The importance of educational and occupational skills in determining labour productivity is borne out by Fig 5 & Fig 6 which graphs the average monthly earnings of workers

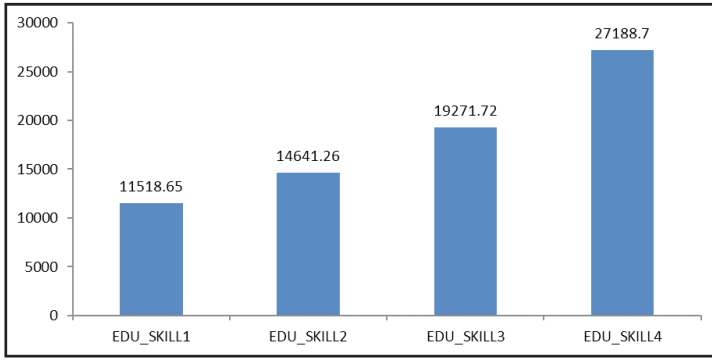
by occupational and educational skills respectively. It is evident from the two graphs that monthly earnings increase monotonically with improvement in both occupational and educational skills. Thus, a worker with the highest occupational skill (OCC_SKILL4) on an average earns 2.5 times the average earnings of a worker with the lowest occupational skills (OCC_SKILL1). Likewise, a worker belonging to the highest educational skill (EDU_SKILL4) on an average earns 2.4 times the average earnings of a worker with the lowest educational skills (EDU_SKILL1). The importance of skills in improving productivity of rural non-farm workers is far too obvious.

Fig 6: Average Monthly Earnings by category of Occupational Skills



Source: Based on author's calculation from PLFS (2023-24)

Fig 7: Average Monthly Earnings by category of Educational Skills



Source: Based on author's calculation from PLFS (2023-24)

The results of linear regression fitted to decipher the factors influencing labour productivity of RNFE in terms of monthly

earnings is presented in Table 9. It is observed that monthly earnings of workers increase with increase in age of workers. However, further increases in age as captured by (AGE2) are associated with decline in labour productivity. As compared to female workers, male workers on an average earn INR 6640 more compared to female workers in the RNFS. The earnings by way of RNFE increase with every increase in the years of formal education. A worker with access to formal TVET on an average earns INR 3831 more than a worker with no exposure to formal TVET. However, the coefficient for informal TVET has not been found to be statistically significant. As compared to workers belonging to forward caste, workers belonging to SC and OBC households have lower monthly earnings by way of RNFE. Again, compared to workers in Southern states, workers residing in other parts of the country earn less on a monthly basis as evidenced by the negative and statistically significant coefficients of the location dummies. It may be mentioned that in order to take care of possible multicollinearity in cross-section data, robust standard errors were estimated in order to obtain the value of the test statistic. The F statistic is highly significant indicating the suitability of the estimated regression in explaining the variation in observed earnings from RNFE.

Table 9: Linear Regression for Determinants of Monthly Earnings

Variable	Coefficients	t	P>|t|
AGE	646.18***	23.84	0
AGE2	-4.83***	-12.85	0
SEX	6640.53***	51.93	0
EDU	832.48***	52.76	0
FORMAL	3831.00***	11.39	0
INFORMAL	0.36	0	0.997
NORTH	-1768.66***	-10.81	0
NORTHEAST	-347.54	-1.89	0.058
WEST	-1642.55***	-7.44	0
EAST	-3246.77***	-20.35	0
CENTRAL	-4426.36***	-18.44	0
SC	-2322.66***	-15.29	0
ST	314.57	1.75	0.08

OBC	-1597.79***	-10.79	0
CONSTANT	-12883.83***	-24.3	0
F(14, 41795)	635.76***		
*** significant at 1 percent; ** significant at 5 percent			

Source: Based on authors' calculation from PLFS (2023-24) data

The regression results presented in Table 8 clearly point to the role of TVET in enhancing labour productivity. It is therefore important to evaluate the outreach of TVET among the workers engaged in RNFE. It is found from Table 10 that only 5 percent of RNFS workers in India have training under formal TVET. About 48 percent of the workers have access to informal TVET while 46 percent have no exposure to ant TVET. Incidentally the exposure to formal TVET is marginally higher among the workers in the age bracket of 21-41 years.

Table 10: Distribution of TVET across different age-groups

Type of TVET	15-21	21-31	31-41	41-51	51 & above	Total
Formal TVET	2.24	7.45	5.75	3.89	2.47	5.36
Informal TVET	49.42	47.87	48.22	49.95	47.63	48.51
No TVET	48.34	44.68	46.03	46.16	49.9	46.13

Source: Based on author's calculation from PLFS (2023-24)

4. Summary and Conclusion

The RNFS has grown over the years to become an important constituent of the rural economy, accounting for over two-fifths of rural employment. Hence, labour productivity within the RNFS assumes importance from the point of view of worker welfare, farm-non-farm demand linkages and overall economic development. This chapter analysed current status of intra-sectoral composition of the RNFS on the basis of latest available nationally representative data and assessed the returns to labour by type of RNFE. The findings indicate that although there is an overall tendency towards de-casualisation of the RNFS, casual daily wage labour continues to remain important for employment generation in both absolute and proportionate

terms. Its preponderance among young workers in the age-group of 15-41 years is a case for particular concern. While states in North-East India have higher incidence of RNFE, some of these states are experiencing a tendency towards increasing casualisation. Given the heterogeneity in non-farm employment, the statistical analysis indicates that there is first order stochastic dominance of monthly earnings of casual daily wage labour by earnings from self-employment and regular wage/salaried employment. In addition to socio-economic factors such as age, gender, caste and location, years spent in formal education and TVET have a key role to play in determining access to more rewarding forms of rural non-farm employment. However, though earnings relatively higher in self-employed and salaried jobs, the overall level of educational and occupational skills within these sub-sectors themselves leave much to be desired. Low and medium skills in terms of both educational accomplishment and occupational requirements dominate even the more lucrative sub-sectors of the RNFS. The exposure to TVET among rural non-farm workers is abysmally low at five percent. Improvement in skills through expansion of formal education and TVET is therefore important not only for strengthening the tendency towards decasualisation but also for raising labour productivity across all types of rural non-farm employment. There is also evidence of skill mis-match with workers with low educational skills being employed in higher occupational skilled jobs and vice-versa. Besides, given the inter-state variations and structural-shifts towards casual labour in some states, state-specific policies attuned to local economic conditions need to be undertaken to fix challenges facing the rural economy. The ministries of education and skills in different states and UTs need to work in tandem with central agencies so that effective programs of up-skilling, new-skilling and re-skilling of workers are designed and implemented at the district level with special focus on rural youth. Unless the vast pool of young workers in rural areas are equipped with the requisite occupational and educational skills, the possibility of realising the demographic divided and fostering inclusive growth will remain a distant goal.

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1 If a worker has worked for x days in the week preceding the date of survey, the number of days worked in a month is obtained as n=(x/7)*30. The resulting statistic is then multiplied by the average daily wage (obtained during the survey week) to get the monthly earnings for a casual daily wage earner.

2 The self-employed category comprises of three sub-categories viz. own account worker, employer and unpaid family worker

3 For compiling the CDF of MPCE, only those households which relied solely on self-employment, wage employment and daily wage labour in RNFS were considered. Households with mix of activities as per principal status of workers were not taken into account for deriving CDF of MPCE.

4 In NCO, 2015 workers designated as Legislators, Senior Officials and Managers have not been assigned to any occupational skill category. Thus, 1505 non-farm workers who followed these occupations were not considered for classification of workers by occupational skills in the study.

5

Determinants of Women's Physical Health in Rural India: An Econometric Analysis

Jinti Das[1] & Manash Roy[2]

Abstract

This chapter examines the factors affecting the physical health of rural women in India using state-level NFHS-5 Fact Sheets and a Beta regression model. The findings show that women in Mizoram enjoy the best physical health outcomes, whereas women in Ladakh are the most vulnerable. The econometric results indicate that economic empowerment, decision-making empowerment, and household health insurance coverage positively influence women's physical health, while education, financial empowerment, and teenage pregnancy are negatively associated with it. The study recommends strengthening women's economic and decision-making empowerment, expanding health insurance coverage, and implementing measures to reduce teenage pregnancy in rural India.

JEL Codes: *C24, I12, I14, J16, O15.*

Keywords: *Rural women, physical health, empowerment, health insurance, Beta regression, NFHS-5, India.*

1. Introduction:

Women's physical health is a crucial indicator of overall development in a country. Its importance in the development process could be realized from three angles. First, physically

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healthy women have the prospects of becoming more productive in the labour force. Secondly, women's physical health status affects their reproductive health outcomes in a strong way and finally it has a direct impact on the health status of future generations. Even then quite surprisingly, studies find that health of Indian women remains largely neglected and relatively poorer around the world (Banarjee & Kayal, 2024). Neighbouring countries like Bangladesh and Nepal with low per capita income are outperforming India with regard to women's health status (Kumar, 2013). Strong son preference prevailing in Indian society, high dowry costs for daughters, low level of education and autonomy are mainly responsible for the negligence upon women's health in India (Kamalapur & Reddy, 2013).

Given the above dismal picture of India's women health, some serious efforts are being put on the assessment of health status by the policy makers and academic communities in recent times. Two major contributions in this regard have come from the works of Banarjee & Kayal (2024) and Sehgal et al (2025). Although Banarjee & Kayal (2024) have tried to deal with women's physical health, Sehgal et al (2025) has mixed up the indicators of physical and reproductive health. As reproductive outcomes are greatly influenced by physical health, individual analysis of women's physical health is the urgent need of the hour. Research fraternity must start from the grass root by developing the concept and measure of physical health in a systematic manner. This is what motivates us to take up the present study, which is a blending of both conceptual and empirical exercise related to women's physical health. Thus, major objectives of the study are to conceptualize and measure physical dimension of health in terms of nutrition and physical wellness and to assess women's physical health and to explore its determinants in rural India.

2. Review of Literature:

Health is a complex and multi-dimensional construct which is influenced by the circumstances in which people are born, grow, live, work, and age (WHO, 2009). However, both, at the conceptual and methodological levels, there is no consensus about how the concept of health is operationalized. As a result, we have many measures of health, and very few comprehensive a single index combining various measures of health status

that represent the multi-dimensional nature of health. Recent thinking in the measurement of population health has been to use measures to a complex phenomenon, such as health (Walters , 2004; Ashraf, 2019; Kaltenthaler et al, 2023). The health of girls and women is a matter of concern, because they are disproportionately affected by many negative social determinants of health, such as gender discrimination, poverty, and lack of education Traditionally, women's health has been narrowly defined, often focusing solely on maternal reproductive health during pregnancy, childbirth, and the post-natal period. However, proponents of women's health advocate for a broader perspective that encompasses women's health and well-being throughout their entire lives, considering their multifaceted roles, and not restricting it solely to reproductive health (Weisman, 1997). Nevertheless, capturing the multi-dimensional nature of women's health quantitatively is challenging, because women constitute a heterogeneous group with varying characteristics, depending upon their context and the demographic. Developing a composite index of women's health, based on multiple indicators across time, offers a comprehensive approach at both the individual and country levels. This index can provide a more holistic understanding of women's health and its progress over time. Additionally, women's health is often considered less important, especially in academic literature and often in policy and there is an added urgency to develop this focus and index to keep the balance Rodriguez-Trias H. (1992). Developing a women's health index for India is an important development. India, as a signatory of the United Nations Cairo Program of Action and the subsequent Beijing Conference in 1995, has taken various policy program initiatives, including the National Population Policy in March 2020 to reaffirm its commitment for the improvement of women's health. India's previous attempts at developing a women's health index have primarily focused on a reproductive health index Ramanathan M. (1998) maternal health service coverage (Kiran, 2022) related to maternal and child health services (Awasthi, 2016; Panda et al). These studies have predominantly included indicators related to health only during pregnancy, childbirth, and the postpartum period, primarily within the scope of reproductive health or maternal health service coverage. But women's health encompasses a broader spectrum beyond just maternal or reproductive health or maternal health service coverage. Furthermore, these indices

have used only state-level data. When assessing women's health, it is crucial not only to consider different life stages but also to account for local geographical variations that inform public policy (Kim, 2019). Given the substantial gender disparities in health across India, any index constructed above the district-level risks masking areas of disparity and diverse health care needs. Equally important is the need for considering measuring the indicators using the same dataset. This ensures inferences can be drawn confidently, without attributing variations in results to differences in data quality and methodologies (Bora & Saikia, 2018; Guilmoto, 2018; Sivagunaratnam, 2015).

3. Data:

The present study is based on secondary data taken from the Volume 1 India Report and State Level Fact Sheets of 5th round of National Family Health Survey (2019-21), India. This health survey is one of the major surveys in India based on a nationally representative sample of 636,699 households and 724,115 women belonging to the age group of 15-49 years, covering 28 states and 8 union territories.

4. Methods:

4.1 Conceptual Framework:

According to World Health Organization (WHO) (1948), "Health is a complete state of physical, mental and social well-being." That is to say, the concept of health has three dimensions viz. physical mental and social. Physical dimension of health stands for the absence of any disease or infirmity. However, the present study has defined physical health in a slightly different manner. It has brought nutrition and physical wellne**ss**/ healthiness together in defining physical health. This is due to the fact that complete physical well-being greatly depends upon proper nutrition and absence of critical life-threatening diseases. This is where it has made a departure from the definition of physical health given by WHO. According to the present study, physical health is a complete state of physical well-being in the form of nutrition and physical wellness. Nutritional aspects of physical health can be captured in terms of nutritional outcome indicators called Body Mass Index (BMI) and Waist-Hip Ratio while wellness can be measured in terms of the absence of critical diseases like diabetes, hypertension and anaemia.

It is to be noted that absence of other diseases like asthma, goitre, heart disease, cancer, sexually transmitted infection (STI) are not considered as physical wellness indicators in the proposed study, as NFHS provides self reported/perceived data on these items. Combination of NFHS data of objective indicators (observable, verifiable and measurable) and subjective indicators (self-reported/perceived) will invite lots of methodological issues like a) measurement mismatch, b) temporal inconsistency c) recall bias d) validity of composite index construction etc. Besides this, self-reported NFHS data on nutritional outcomes are unavailable. It is also to be noted that objectively measured physical health is a stronger indication of physical health as compared to their perceived health status as the later is based on perception, opinion and self-report. Thus, the present study has conceptualized physical health from the point of view of objective approach specifically due to following grounds

I. Women's physical health status needs to be examined under the combined shed of nutrition and physical wellness
II. Measured health is more scientific and reliable than that of perceived health
III. It requires encountering of methodological issues emerging from the combination of objective and subjective data
IV. Non-availability of subjective data on nutritional outcomes at state level.

Table-1 Conceptualization of Women's Physical Health based on Objective Approach

Conceptual Framework of Physical Health		
Meaning	**Dimensions**	**Indicators**
Physical health is a complete state of physical well-being in the form of nutrition and wellness	Nutrition	Percentage of women with normal BMI[1]
		Percentage of women with Normal Waist-to-Hip Ratio (WHR)[2]
	Physical Wellness	Percentage of Non-diabetic women[3]
		Percentage of Non-hypertensive women[4]
		Percentage of Non-anaemic women[5]

Source: Authors

4.2 Analytical Framework:

4.2.1 Construction of Women's Physical Health Status Index (WPHSI):

For assessing women's physical health, an attempt is made to construct Women's Physical Health Status Index (WPHSI). It is a summary measure of women's physical health, representing physical well being of the women in terms of nutritional achievement and physical wellness. It lies between 0 and 1. A value of WPHSI closer to 1 indicates better physical health outcomes and a value closer to 0 means a worse outcome. Construction of WPHSI involves three steps viz.

Step 1: Normalized values for each dimensional indicator is calculated by following UNDP's Max-Min approach of constructing Human Development Index (HDI).

Step 2: Dimensional indices viz. Women's Nutrition Index (WNI) and Women's Physical Wellness Index (WWI) are constructed by taking the arithmetic means of the normalized values of their respective indicators.

Step 3: Finally, WPHSI is constructed by calculating arithmetic mean of dimensional indices viz. Women's Nutrition Index (WNI) and Women's Physical Wellness Index (WPWI), where each of the dimensional index is attached equal weights. Attachment of equal weight is done because both nutrition and wellness are equally important for the achievement of complete state of physical well-being.

$$WPHSI = \frac{(WNI + WPWI)}{2} \; ; 0 \leq WPHSI \leq 1$$

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1 BMI is calculated by dividing weight in kg by height square in meters. A normal BMI falls between the range of 18.5-24.9 (NFHS-5, 2019-21)

2 WHR is calculated by dividing waist circumference by hip circumference. A normal WHR can take value 0.85 or less. (NFHS-5, 2019-21)

3 Women with random blood glucose value are less than equal to 140 mg/dl (NFHS-5, 2019-21).

4 Women with systolic blood pressure are greater than equal to 140 mmHg or diastolic blood pressure is greater than equal to 90 mmHg (NFHS-5, 2019-21).

5 Thos e women whose haemoglobin level in blood is greater than 12 gm/dl

4.2.2 Econometric Model and Descriptions of Explanatory Variables:

For exploring the determinants of women's physical health in rural India, a non-linear regression model, called Beta regression is used. This is due to the fact that dependent variable WPHSI in the present study is bounded between 0 and 1 and under such circumstances, application of Beta regression provides accurate results (Geissinger et al., 2022; Anteneh & Endalew, 2023). Beta regression ensures that estimated value of the bounded dependent variable will be bounded even for an infinite range i.e. from $-\infty$ to $+\infty$.

Descriptions of the explanatory variables along with their likely impact on women's physical health are portrayed in Table 2. Selection of these variables is guided by the definitions provided by the commission on social determinants of health under World Health Organization. These determinants are broadly categorized into structural and intermediary factors (WHO, 2022). Structural factors refer to those factors that generate stratification and social class divisions in the society and are primarily influenced by the political and socioeconomic context of a given community. Examples of structural factors are income, education, occupation, social class, gender, race/ethnicity etc. Intermediary factors refer to the broader factors comprised of women's surrounding material and psychosocial circumstances like housing and neighborhood quality, standard of living, social support, behavioural, biological factors etc. (Arun and Prabhu, 2023). Education and empowerment related variables as listed in Table 2 are structural determinants while the rest of the variables viz. insurance coverage and teenage pregnancy are considered as intermediary determinants.

Table 2 Description of Explanatory Variables

Variables	Definitions	Expected Sign of Coefficients
Education level	Women with 10 or more years of schooling (in %).	+
Economic Empowerment	Women employed in the past 12 months (in %).	+

Decision making Empowerment	Women usually make decisions alone or jointly with their husband regarding own health care, making major household purchases and visits to her family or relatives (in %).	+
Financial Empowerment	Women having their own active savings bank account (in %)	+
Teen age Pregnancy	Women who have become mother before age 18 (in %)	-
Health Insurance	Women covered by any health insurance/ financing scheme (in %).	+

Source: NFHS-5

5. Results and Discussions:

5.1 Inter-state Status of Women's Physical Health in Rural India:

This sub-section portrays the findings related to the status and ranking of the states and union territories with regard to women's physical health in rural India.

Table 3 Women's Physical Health Status across States & Union Territories of Rural India

States & UTs	WNI	WPWI	WPHSI	Rank
Andaman & Nicobar	0.377	0.666	0.522	29
Andhra Pradesh	0.520	0.662	0.591	18
Assam	0.504	0.678	0.591	18
Bihar	0.501	0.697	0.599	17
Daman & Diu	0.530	0.696	0.613	13
Goa	0.505	0.714	0.609	15
Gujarat	0.555	0.659	0.607	16
Himachal Pradesh	0.471	0.703	0.587	20

Jammu & Kashmir	0.395	0.681	0.538	28
Karnataka	0.553	0.712	0.633	8
Kerala	0.417	0.695	0.556	25
Lakshadweep	0.452	0.799	0.625	10
Ladakh	0.408	0.611	0.509	31
Maharashtra	0.591	0.702	0.646	5
Meghalaya	0.587	0.731	0.659	4
Manipur	0.490	0.793	0.642	6
Mizoram	0.645	0.781	0.713	1
Nagaland	0.564	0.791	0.678	2
Sikkim	0.428	0.705	0.566	24
Telangana	0.562	0.678	0.620	12
Tripura	0.522	0.658	0.590	19
West Bengal	0.451	0.631	0.541	27
Arunachal Pradesh	0.510	0.753	0.632	9
Chhattisgarh	0.555	0.687	0.621	11
Haryana	0.453	0.689	0.571	23
Jharkhand	0.530	0.689	0.610	14
Madhya Pradesh	0.610	0.716	0.663	3
Odisha	0.485	0.666	0.575	22
Punjab	0.378	0.653	0.515	30
Rajasthan	0.551	0.741	0.646	5
Tamil Nadu	0.478	0.678	0.578	21
Uttar Pradesh	0.529	0.741	0.635	7
Uttarakhand	0.484	0.758	0.621	11
Delhi (NCT)	0.398	0.701	0.550	26
Puducherry	0.464	0.669	0.566	24
All Rural India Average	0.498	0.702	0.600	

Source: Based on authors' calculation from NFHS-5 data

Table 3 represents the status and ranking of the Indian rural states and UTs in terms of women's physical health. Mizoram tops the list while Ladakh ranks last in respect of women's physical health. Women from north-eastern and central region are better placed in terms of physical health as five north-eastern states and all three states from central India find themselves amongst the top ten WPHSI rankings. In western region, women are found physically healthier in Maharashtra and Daman & Diu. Physical health status of the women is not found up to the mark in the northern as well as southern India, Rajasthan and Karnataka being the exception securing fourth and eighth positions respectively. The status of women's physical health in East Indian states is low, although poor states like Bihar and Jharkhand have done reasonably well in this regard as reflected from their WPHSI ranking in Table 3. It is to be noted that women in rural India lack of nutrition more in relation to their physical unwellness. This is evidenced from the rural India average values of WNI and WPWI in Table 3. Women's physical health status of almost 50 per cent of the states is found higher than national average. This gives the indication of dualism in rural India with regard to the status of Women's physical health.

5.2 Determinants of Women's Physical Health in Rural India:

Econometric analysis in the form of beta regression model has identified the determinants of women's physical health in rural India empirically, which are shown in Table 4 given below.

Table 4: Beta Regression Results

Explanatory Variables	Coefficients	Z	P Value	Average Marginal Effects	VIF
Education level	-0.00518	-2.30**	0.022	-0.00123	2.12
Decision-making empowerment	0.00891	1.71*	0.087	0.00212	1.34
Economic empowerment	0.00434	1.97**	0.049	0.00103	1.18
Financial empowerment	-0.01095	-3.26***	0.001	-0.00261	1.52

Teen age pregnancy	-0.01005	-1.93*	0.054	-0.00240	1.34
Health insurance coverage	0.00219	1.95*	0.051	0.00052	1.28
Constant term	0.54008	0.99	0.323		
No of Observations	n =34	LR Chi 2 = 27.67 (P value =0.0001)			log likelihood =69.51

Source: Based on authors' calculation from NFHS-5 data

Table 4 shows the results of estimated beta regression model. The value of likelihood ratio statistic of the model is statistically significant at 1 per cent level of significance indicating the overall statistical significance of the model. VIF values indicate that there is no issue of multicollinearity problem. Econometric analysis reveals that economic empowerment, decision making empowerment and households' health insurance coverage have significant positive influence upon women's physical health in rural India while education, financial empowerment and teenage pregnancy exert significant negative association with physical health of rural women. It is important to be noted that education is found to be negatively related to physical health but women's economic and decision-making empowerment are positively associated with it. This indicates that mere educational upliftment is not enough for ensuring women's better physical health status unless they become economically self-sufficient and also the active partners in health care related decision making in the family. Education provides knowledge related to nutritional and health care aspects but to avail those nutritional and health care benefits, women need to be economically empowered. At the same time, they must also have the freedom of spending money for their own medical expenses and fulfillment of nutritional needs. Negative association between financial empowerment and physical health status could be due to the fact that some times the pressure of repayment and other financial transactions might affect women's physical health negatively, particularly in terms of hypertension and diabetes. Pregnancy at an early age might bring about nutrition and physical wellness related downfall as women's body still may not be ready for entering

into the journey of motherhood both mentally and physically. This is what is also revealed by regression results in the present study. Household's health insurance coverage is turned out to be statistically positively significant giving the impression that women's physical health status can be better managed under their health insurance coverage.

6. Conclusion:

In Indian context, efforts are being put either in assessing women's reproductive health or in assessing overall health status under the combined shed of physical and reproductive health, but very little has been done on the individual analysis of physical health. The present study tries to insert this research gap by analyzing the relevant secondary data of NFHS-5. The study finds that Mizoram is the state with the highest prevalence of physically healthy rural women and Ladakh is the state with the lowest prevalence of the same. It reveals that economic empowerment, decision making empowerment and households' health insurance coverage have significant positive influence upon women's physical health in rural India while education, financial empowerment and teenage pregnancy exert significant negative association with physical health of rural women. Based on the findings, we recommend that women should be allowed to take decision either independently or at least jointly with spouse in solving their physical health related issues. They must have the decision-making power regarding consultation with doctors and meeting their essential health expenditure needs. Mere rise in years of schooling may not be sufficient in this regard. Households must also go for health insurance, which would certainly help to manage the treatment of various health shocks against the women in a time bound and more efficient manner. Emphasis must also be put by the concerned governmental and non-governmental organizations in raising household's health insurance coverage in rural India. In fine, there should be strict legal action in practice for cutting short the incidence of teenage pregnancy as it seriously affects women's nutritional and physical wellness aspects.

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6

From Outlays to Outcome: Interrogating Gender Budgeting as a Catalyst for the Gender Dividend in Viksit Bharat 2047

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Abstract

One of the core pillars for achieving the goal of Viksit Bharat initiative is 'Mahilayen' (women) and the empowerment of them is central to India's development. Over the last decade, Gender Budgeting (GB) has grown by 429 percent indicating government's priority towards gender dividend in Viksit Bharat. Gender responsive policies and programmes are crucial for the vision of Viksit Bharat. Gender neutral outlays often lead to gender blindness. To make the budgetary allocations gender responsive; India has adopted gender budgeting framework to translate gender commitments into budgetary commitments. The holistic development of India needs to prioritise the marginalised women section. Their greater representation in the workforce is necessary to achieve the aim of a developed nation. By empowering women as active members of society, India aspires to transform into a prosperous nation. This research interrogates the efficacy of current gender budgeting framework in India. It aims to analyse whether the current focus on "outlays"- the mere allocation of funds – is sufficient to trigger a "gender dividend."

Keywords: *Gender Budgeting, Gender Dividend, Viksit Bharat, Women-Led Development.*

Introduction:

India is at a crossroads in its developmental trajectory. Despite facing hurdles including as nation-building, poverty reduction

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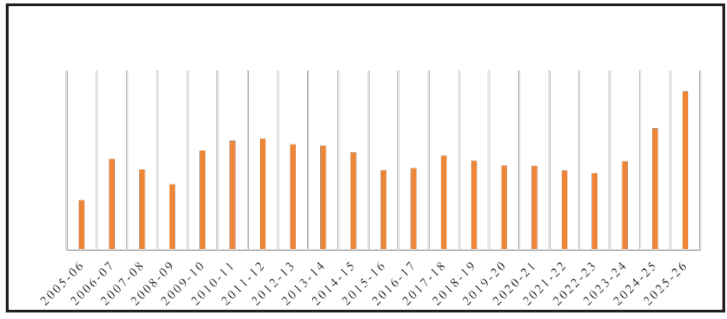
and developing democratic institutions, the country has made significant progress since its independence. However, these advancements have been matched by ongoing problems. Income inequality, infrastructure deficiencies, environmental degradation and social inequalities remain pressing issues that require immediate attention. While poverty rates have been decreased, a significant segment of the population continues to struggle with economic vulnerability. The demand for equitable and sustainable development has led to a rethinking of development strategies and a renewed emphasis on long-term planning. The "Viksit Bharat 2047" policy represents India's goals for its centenary of independence. This vision aims to transform India into a developed nation by 2047 (Pande & Paliwal , 2025). One of the essential pillars for realising the Viksit Bharat vision by 2047 is to ensure female workforce participation in the country. Women's empowerment is central to India's progress. Government of India tries to shift "women development" to "women-led development". Over the last decade, Gender budgets (GB) have grown by 429 percent demonstrates a paradigm change with a heavy emphasis on women's holistic development t (Choudhury & Alexander, 2025). This particular research focuses on how the gender responsive outlays acts as a catalyst for the gender dividend in Viksit Bharat 2047.

Gender Budgeting: Outlays vs. Outcomes

Since 2005-2006 India has released Gender Budget Statements, which contains both targeted initiatives for women and gender components in mainstream expenditure (Chakraborty, 2022). Gender budgeting as a fiscal initiative tries to incorporate the gender specific targets into budgetary policies. Many of the countries from all over the world have adopted this initiative and most notably among the developing regions, India has also adapted this model (Stotsky & Zaman, 2016). Systematic differences across gender are existed and in the traditional budgetary system we can see the more of gender-neutral provisions in comparison to the gender sensitive. For that reason, gender responsive budgeting or gender budgeting has come to the picture. Generally, budgets are considered as "Gender Neutral" but in terms of allocation it often remains non-neutral leading to gender blindness.

Fig 1: Gender budget as a percentage of the total Union budget (FY 2005-06 to 2025-26)



Source: Compiled from the various gender budgeting documents across years

The fiscal input and the actual change in women's lives in the context of Viksit Bharat 2047, an outlay-centric approach is merely a measure of administrative intent, focusing on the allocations earmarked for gender-responsive schemes. However, the "Gender Dividend" can only be harvested through an outcome-oriented lens, which interrogates whether these funds have translated into measurable improvements in female labor force participation, entrepreneurship and leadership etc. For India to make transition into a developed economy, research works must move beyond the "Gender Budget Statement" as a mere accounting exercise and reframe it as a performance-driven strategy where the success of a policy is judged not by how much money left the treasury, but by the tangible increase in women's agency and economic contribution.

Gender Dividend in Viksit Bharat

At its core, the gender dividend is about the untapped power of half our population- the idea that when women have their equal share in various aspects of society that can be translated into economic benefits (Saadah & Tuwaijri, 2024). However, to actually harvest this dividend by 2047, we have to back to the very beginning. We must fix the foundations-the "outlays" to ensure that they are truly designed to create "outcomes," because a developed India is only possible if the barriers holding women back are dismantled from the grassroots. To fully capture the benefits of the gender dividend, the region must implement gender responsive public policies that can

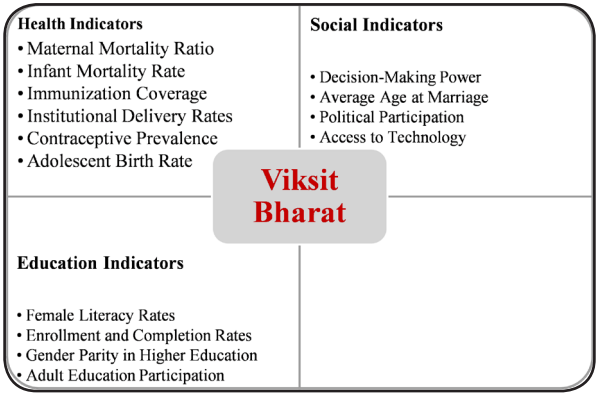
champion women's professional growth and ensure their participation in the workforce on a level playing field (Pages & Piras, 2010). Beyond being a mere financial target, the gender dividend represents a vital summons to build a future rooted in inclusivity. Investing in the targeted empowerment of women and girls creates a "gender dividend" that fuels sustainable growth. Since women represent a larger population, they offer a vast reservoir of diverse skills and perspective. Studies have consistently proven that when societies prioritise women's tend to be more developed (Kurian & Kumar, 2023).

Achieving the vision of a Viksit Bharat by 2047 hinges on India's ability to effectively and equitably leverage its gender dividend. While women represent a massive reservoir of untapped potential, their full economic contribution remains largely unrealised. By dismantling barriers to workforce, validating women's diverse skills and experiences, the nation can unlock a surge of productivity. This transformation requires a shift toward modern, technology-enabled, and flexible work models-such as home-based entrepreneurship- that align with contemporary needs. Ultimately, integrating women into the core of the economy is not just a social goal; it is a strategic necessity for building a resilient, fair and thriving nation (Amballoor, 2025).

Women in Viksit Bharat

India's development narrative is undergoing a profound transformation, moving away from viewing women as passive recipients of aid to recognizing them as the primary architects of the nation's future. This shift from "development for women" to "women-led development" acknowledges a fundamental truth; when women are empowered to lead, they become the most effective engines of economic growth and the strongest catalysts for social and community health. By placing women in the driver's seat will help to unlock their unique potential to accelerate the entire country's progress toward a more prosperous and equitable 2047 (Nayak,et al., 2025). However, to achieve the greater vision of Viksit Bharat, it is necessary to monitor few indicators in order totrack the empowerment of women.

Fig 2: Indicators for Women Empowerment in Viksit Bharat



Source: Nayak et al(2025)

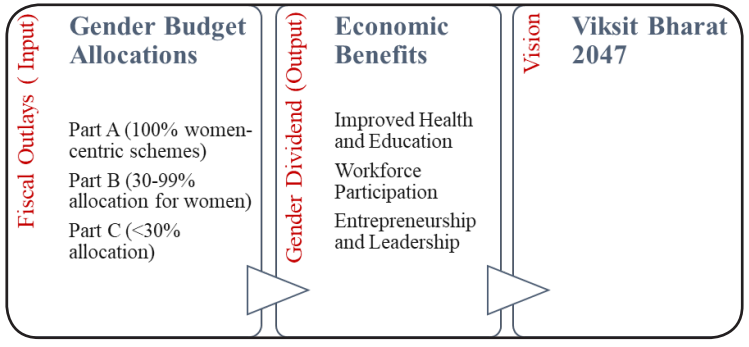
Achieving the vision of a developed India by 2047 requires more than just high-level policy goals; it demands a dedicated, data-driven commitment to empowering women through intentional and coordinated action. This involves fundamentally strengthening healthcare, ensuring inclusive education, and dismantling the deep-rooted systematic barriers that stifle women's professional and personal growth. At its heart, the Viksit Bharat mission seeks to build a nation where every woman is free to realise her full potential-not merely for her own advancement, but as a vital pillar of the country's progress and the well-being of future generations. For this transformation to be successful women's empowerment can no longer be a secondary objective; it must be the core engine driving every development strategy India pursues.

Gender Budgeting as a Catalyst for Gender Dividend

To truly realise the vision of a developed India by 2047, financial policies and budget allocations must be seen as more than just accounting entries; they are the strategic blueprints of the nation's priorities. The Union Budget serves as the primary engine for this transformation, channelling significant capital into the gender specific sectors and initiatives that underpin long-term goals. By aligning fiscal resources with the Viksit Bharat roadmap, the governmentisn't just funding projects; it is signalling where the nation's future is being built and ensuring that the necessary financial architecture is in place to support

sustainable and inclusive growth (Viksit India: Bold Vision. Brighter Future , 2025). In this scenario, Gender Budgeting acts as the essential fiscal catalyst that transforms theoretical "outlays" into a tangible "gender dividend" for Viksit Bharat 2047. Rather than treating women as passive recipients of welfare, this strategic framework redefines them as active drivers of the macro-economy by directing resources toward dismantling the structural barriers. Gender budgeting ensures that every rupee spent on women's multiplies into increased labor force participation and entrepreneurial innovation. Ultimately, this catalytic process bridges the gap between budgetary intent and real-world empowerment, creating a self-sustaining cycle of inclusive growth.

Fig 3: Gender Budgeting as a Catalyst for the Gender Dividend in Viksit Bharat 2047



Source: Developed by the Authors

Gender budgeting acts as a catalyst through gender sensitive schemes under Part A, Part B and Part C for the gender dividend. GB outlay has increased from 5.46 percent in 2014-15 to 8.86 percent in 2025-26. The 4.5x significant jump in the GB allocation reflects the government's sustained commitment to advance gender equitable environment through fiscal spending. Gender responsive budgeting has designed the women-related schemes for the enhancement of socio-economic empowerment across sectors. It acts as a powerful governance reform designed to dismantle systematic inequalities and foster truly inclusive growth. By systematically applying gender perspective into every aspect of policy design, allocation and execution; India is creating a more balanced and inclusive social landscape,

ensuring the institutional framework exists for every woman to thrive and reach her full potential (PIB, 2025).

Table 1: Framework of Gender Budgeting in India

Parts of Gender Budget Statement	Details of GB Allocation
Part A (100% women specific schemes)	Rs. 1,05,535.40 crore (23.50% of total GBS) 17Ministries/Department and 5 UTs
Part B (30-99% allocation for women)	Rs. 3,26,672.00 crore (72.75%) 37 Ministries/Departments and 4 UTs
Part C (below 30% allocation for women)	Rs. 16,821,28 crore (3.75) 22 Ministries/Departments

Source: Union GB Document 2025-26

Progress and Current Landscape:

According to PLFS data, India has seen a transformative surge in female workforce involvement. Between 2017-18 and 2023-24, the women's Employment Rate (WPR) nearly doubled, rising from 22 percent to 40.3 percent. Concurrently, the unemployment Rate for women fell from 5.6% to 3.2%, signalling a robust expansion of job opportunities. Additionally, EPFO payroll data highlights the growing participation of women in the formal sector which underscores a significant shift toward structured employment. This progress is backed by a massive government push, featuring 70 central schemes across 15 ministries and over 400 state-level initiatives designed to bolster female entrepreneurship. These efforts have yielded tangible results. PLFS data demonstrates that female self-employment jumped from 51.9 percent in 2017-18 to 67.4 percent in 2023-24; a 30 percent increase that highlights a growing spirit of self-reliance (Atmanirbhar). Initiatives like start up India have cultivated a vibrant entrepreneurial ecosystem where nearly 50 percent of DPIIT- registered start-ups now featured at least one-woman director. Programmes such as Lakhpati Didi, Namo Drone Didi, Deendayal Antyodaya Yojana, NRLM are playing a crucial role in women's progress and women-led development in India (Choudhury & Alexander, 2025). The transition from "Women's Development" to "Women-led Development" represents

a fundamental shift in India's socio-economic architecture. As evidenced by a 429% surge in gender budgeting over the last decade, policy focus has moved beyond mere welfare to prioritising economic agency, effectively positioning women as the primary drivers of the national growth narrative toward Viksit Bharat 2047.

Table 2: India's Women-led Economic Transformation

Category	Program/ Metric	Impact/Growth
Employment Trends	PLFS (General Employment	WPR grew from 22% to 40.3%
Entrepreneurship	Start-upIndia	Nearly 50% of registered startups have at least one women director
	Women-led MSMEs	Generated 89 lakhadditional jobs for women
Self-Reliance	Lakhpati Didi	2 crore women have achieved "Lakhpati status"
Financial Inclusion	PM Mudra Yojana	Women received 68% of total loans (Rs. 14.72 lakh crore)
	PM SVANidhi	44% of beneficiaries are women street vendors
Rural Empowerment	Namo Drone Didi/ DAY-NRLM	Provided technical resources for sustainable progress
Market Presence	Proprietary Establishments	Share of women-owned units surged from 17.4% to 26.2%

Source: Press Information Bureau (PIB)

Gaps and Opportunities:

While notable advancements have been made, significant structural challenges remain that obstruct the development of a workforce prepared for the demands of Viksit Bharat. These persistent disparities act as a bottleneck, preventing India from fully capitalising on its human capital and achieving its vision of a future-ready economy (Vishnoi, 2025). While gender budgeting has gained traction, significant hurdles remain.

A primary obstacle is the lack of formal legal status for these initiatives across the region. Transforming gender budgeting from a discretionary fiscal practice into a statutory requirement- much like legislative frameworks seen in South Korea and Philippines- is a vital "Next Gen" reform. For India, establishing such a legal mandate is essential to fulfilling the vision of Viksit Bharat 2047. Furthermore, there is a critical need to integrate care economy policies into broader macro-economic strategies. By addressing the disproportionate time spent on unpaid labor, governments can foster more balanced gender dynamics and drive sustainable economic growth (Chakraborty, 2025).

Conclusion:

The government's decision to formally prioritise women within the national development framework is a significant step forward, signalling a genuine shift toward women-led development. The increased budgetary allocations are a testament to this commitment, actively fostering an environment that empowers women and girls to thrive (Ferguson, 2025). Gender budgeting serves as a vital Public Financial Management (PFM) mechanism, enhancing fiscal transparency and ensuring governments are held accountable for gender equality. As India pursues the "Viksit Bharat 2047" vision, this tool becomes indispensable for fostering inclusive and sustainable growth. By analysing spending through a gendered lens both national and state governments can effectively translate gender commitments into budgetary commitments (Chakraborty L. , 2025).

Achieving the Viksit Bharat 2047 vision depends on the comprehensive empowerment of women throughout their entire lifespan. Data consistently demonstrates that prioritising women's health, education and economic participation yields a "multiplier effect", benefiting society at large and accelerating the pace of national progress. To meet these ambitious goals, the government must move beyond general support toward a unified, evidence-based strategy that translates commitment into measurable action (Nayak et al., 2025). The realisation of viksit Bharat 2047 is intrinsically tied to the transformation of India's fiscal architecture. While current progress in prioritising women within national framework is commendable, the transition from outlays to outcomes requires a structural evolution that includes a formal legal mandate, similar to successful models in the asia-

pacific region. Ultimately, fostering women's empowerment across every stage of life is not merely a matter of equity but a strategic economic necessity. A unified, evidence-based approach to gender budgeting will serve as the primary catalyst for unlocking the gender dividend, ensuring that India's path to developed nation is both inclusive and sustainable.

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7

Women's Workforce Participation and the Gender Dividend in India: A Review of Workplace Stigma in the Context of Viksit Bharat

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Abstract

India's vision of Viksit Bharat places women's economic participation at the centre of inclusive growth. The concept of the gender dividend highlights the economic and social gains arising from greater female workforce participation. However, despite improvements in education and supportive policies, women's labour force participation in India remains low. This review paper examines workplace stigma as a critical barrier to women's entry, retention, and career advancement. Drawing on Goffman's stigma theory, Eagly's social role theory, and labour market discrimination theory, the study explores the multidimensional nature of workplace stigma. It argues that achieving the gender dividend requires equitable, safe, and inclusive employment opportunities.

Keywords: *Gender Dividend, Workplace Stigma, Workforce Participation, Gender Inequality, Viksit Bharat.*

JEL Codes: J16, J21, J71, J28, O15.

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1. Introduction:

India's dream to become a developed nation under the Viksit Bharat vision includes both growth and human capital development as a key aspect of national policy. Among the most important drivers of this transformation, one includes women's economic participation. The idea of gender dividend explains that when women participate equitably in the workforce, it not only benefits the women itself but also benefits the economy through higher productivity, household welfare, reduction in poverty etc. Thus, enhancing the women's participation in the workforce is not only about social equity but also needed for strategic economic priority.

Globally, various researches show a strong connection between the gender equality in employment and economic growth. Moreover, the International Labour Organization (2023) highlights that decreasing the gender gaps in labour markets also improves economic resilience and sustainability development outcomes. Further the World Bank (2022) shows that increasing female labour force participation also helps in contributing significantly to national income growth. However, despite these, India seems to continue to face a paradoxical trend where it can be seen that while women's attainment in higher education has increased over the past few years, female labour force participation remains lower.

This trend raises important questions about their structural and socio-cultural barriers that prevent women's from entering, advancing and sustaining in the labour market. One of the key barriers include workplace stigma which plays a crucial role yet often under explored. It refers to the negative stereotypes, biases, discriminatory attitudes and institutional practices that act as a disadvantaged for women in their professional settings. This includes biases in recruitment process, wage discrimination, leadership representation etc.

In the context of gender, stigma operates through entrenched expectations regarding women's roles as caregivers, which creates assumptions about less commitment towards their work after marriage or motherhood. Further social role theory also explains how societal norms assign communal traits to women and agentic traits to men shaping workplace evaluations.

In India workplace stigma intersects with structural labour market features. A large proportion of women are still concentrated in informal employment characteristics such as low wage, minimal job security etc. Further concerns related to workplace safety and harassment continues even after various laws and interventions. The gap between policies and actual implementation still exists. Moreover, women's experience of stigma is not only shaped by gender but also by various class, caste, religion, etc. It is also seen that marginalised groups of women face disadvantages that restrict both access to employment and opportunity for advancement. Consequently, analysing women's workforce participation in India requires a multidimensional understanding that includes economic structures, organizational cultures, and social hierarchies.

Further, if women remain underrepresented within the labour market, the country has the risk of underutilising a large segment of its human capital. The gender dividend can only be realised when women not only enter the workforce but also experience equal rights in their progression. Within the framework of Viksit Bharat, policy discourse increasingly emphasises women-led development and inclusive economic transformation.Therefore, the present review-based research critically examines the relationship between workplace stigma and women's workforce participation in India. The study also seeks to understand the mechanism through which stigma constrains labour market engagement and to evaluate how these constraints affect the realisation of the gender dividend within the vision of Viksit Bharat. Through this analysis the study aims to contribute to both academic discourse and policy deliberation on advancing gender equitable growth in India.

2. Methodology for Review of Literature:

2.1 Research design:

The study adopts narrative literature review design to examine the existing scholarly research on workplace stigma and women's workforce participation in India within the framework of gender dividend and Viksit Bharat. This approach was adopted to ensure the transparency, replicability and methodological rigor while synthesizing the contribution from multiple disciplines sociology, economics, gender studies and

organizational behaviour. Based on the existing literature, the objectives framed are thus: Identity key theoretical explanations of workplace stigma affecting Indian women; and toexplore policy linkages to gender dividend and Viksit Bharat goals.

2.2 Search strategy:

For this study the databases were used are Scopus, JSTOR, Google Scholar. The key words were uses are as follows:

"Workplace stigma" AND *"India"*, *"Gender discrimination"* AND *"Indian labour market"*, *"Gender dividend"* AND *"Economic growth"*.

2.3 The filters applied are:

Publication years:- 1990-2025

Language :- English

Geography:- India

Documents type:- Peer-reviewed articles, books.

2.4 Inclusion criteria:

The studies were Included if they:

a) Focuses on Indian women's workforce participation.
b) Examined workplace stigma, discrimination, or structural barriers.
c) Open access available.
d) We're published in peer reviewed articles.

2.5 Exclusion criteria:

a) Focused solely on non-Indian contexts with conceptual relevance.
b) Focused exclusively on health or education without labour market connection.

2.6 Limitations of the study:

Only English language studies have been used.

3. Review of Literature:

3.1 Trends and structural patterns in women's workforce participation in India:

India's female labour force participation has been widely been part of debate in academic and policy discourse due to it's

decline even after improvements in women's education and skills. Klasen Pieters (2015), in his study by using NSSO data argues that rising household incomes combined with restrictive social norms explain declining female participation in the rural areas. Even econometric analysis also shows that economic growth doesn't guarantee women's participation in the labour market. Further Mehrotra and Parida (2017) also show that structural transformation in India has not stillgenerated suitable and sufficient job opportunities for females particularly in various sectors of manufacturing. Moreover, Desai and Jain (2019) have emphasised that marriage and motherhood also influence women for their withdrawal from labour force. As they are being assumed to be less competent and efficient for their work as compared to the men Hirway (2012). Further Kannan and Raveendran (2019) in their study describe about India's growth pattern as *"job loss growth"* their analysis shows that women are concentrated in low paying jobs limiting their economic security and long-term participation. It is also seen that even with educational advancement and skills labour market returns for women remains unequal, reinforcing structural discouragement.

3.2 Theoretical foundation of workplace stigma in Indian Context:

The foundational framework of stigma was first proposed by Erving Gofdman (1963) where he explains that how socially constructed attributes discredits individuals. In the Indian context, this explains into gendered expectations that influence promotion decision, hiring decision, leadership positions etc. Banerjee and Biswas (2021) explain about the persistence of glass ceiling barriers despite of advancement in educational and skills attainment. Similarly, Bidig and England (2001), also discuss about the "motherhood penalty " where women experience wage and promotion stagnation after childbirth due to various aspects such as assumptions and their care giving roles. Furthermore, Kabeer (2012) argues that empowerment is not only about the access to employment but also transformation in institutional norms as without intervening underlying stigma structures women's workforce participation may remain present but it will be only for quantity there will be no progression of women's in their career.

3.3 Gender stereotypes, Glass ceiling and leadership Bias in Indian Workplaces:

Gender stereotypes still remain one of the powerful barriers to women's advancement in their career in Indian organizational settings. In the Role Congruity theory, Heilman et al (2021) have argued that women are often perceived as less suitable for the higher positions or leadership roles in the organization due to various Stereotypes. Further, Chaudhuri et al (2018) also discuss about Indian IT sectors and service sector where they found that women's aften faces performance evaluation biases. Similarly, Bhatnagar and Rajadhyaksha (2001) highlight organizational cultures in India which frequently reflect patriarchal norms that doesn't support women in decision making roles. Moreover, the concept of "Glass Ceiling" is further discussed by Mathur- Helm (2006), where his study includes Indian corporate leaders and shows that women's upward mobility is constrained by informal male dominated network. Even other studies also explains that professional women in urban India often experience stereotype threat where their fear of confirming those negative stereotypes also affects their mental status and ultimately it affects their performance and confidence. Recent findings by the World Economic Forum (2023) in the global gender gap report shows that India continues to struggle with female representation in senior management positions.

3.4 Wage Gap, Informality and occupational segregation:

Gender wage inequality still remains one of the most important manifestations of workplace stigma in India. Studies show that discrimination persists even after controlling for education and experience Blau and Kahn (2017). In India wage differentials across sectors specifically in private organizations are more kingdom and Unni (2001). Moreover, The International Labour Organization (2018) shows that India'sgender pay gap remains significant specifically within informal and casual employment categories. Further Deshpande (2001) in his study discusses that caste and gender intersection restricts labour mobility and wage parity. Even there exists discrimination in urban labour markets where women from marginalised communities face various sorts of biases in their everyday work.

3.5 Intersectional, policy Frameworks and Gender Dividend linkages:

The intersectional dimensions of women's workforce participation is critical in the Indian socio-economic context due to its overlapping identities of an individual such as religion, caste, class etc which further intensifies structural disadvantage. Throat and Newman (2010) discuss biased hiring practices against lower caste candidates which act as a compounded disadvantage for women. Further, the policy discourse around women-led development has recently gained importance under the Viksit Bharat, which positions women as drivers of economic transformation.

Table 1: Key Findings from Select Review of Literature

Author & Year of Publication	Title of the paper	Objective of the study	Methodology Used	Key Findings
Klasen & Pieters (2015)	What Explains the Stagnation of Female Labor Force Participation in Urban India?	Stagnation of Female Labor Force Participation in Urban India? To examine factors behind declining female laborforce participation in urban India	Quantitative study using econometric regression analysis	Social norms, household income effects, and limited job opportunities contribute to declining female participation.
Chaudhary & Verick (2014)	Female Labour Force Participation in India and Beyond	To analyze trends and determinants of female labor force participation in India	Secondary data analysis using descriptive statistics	Education, social norms, and economic development strongly influence women's participation
Mehrotra & Parida (2017)	Why Is the Labour Force Participation of Women Declining in India?	To explore reasons for declining female employment in India	Quantitative analysis using national datasets	Structural transformation and social constraints reduce women's workforce engagement.

Desai & Jain (2019)	Female Labour Force Participation in India	To investigate factors affecting women's workforce participation	Mixed-method approach using survey data	Marriage, childcare, and household responsibilities reduce women's labor market participation.
Das &Kotikula (2019)	Gender-Based Employment Segregation in India	To examine occupational segregation across sectors	Quantitative research using labor market datasets	Women remain concentrated in low-paying sectors due to gender stereotyping.
Fletcher, Pande & Moore (2017)	Women and Work in India: Descriptive Evidence and Implications	To analyze barriers to female employment in India	Secondary data analysis	Cultural norms and safety concerns discourage women from entering the workforce.
Field et al. (2010)	Working Hard or Hardly Working? Labor Supply of Married Women in India	To understand determinants of married women's labor supply	Experimental and survey-based research	Social norms and household dynamics strongly influence labor supply decisions.
Das (2010)	Gender Wage Gap in India	To analyze wage discrimination in the labor market	Quantitative secondary data and decomposition analysis	Women earn significantly less than men even with similar qualifications.
Srivastava & Srivastava (2010)	Women, Work and Employment Outcomes in India	To assess trends in women's employment across sectors	Trend analysis and statistical comparison	Structural changes in the economy have not benefited women equally.
Sudarshan &Bhattacharya (2009)	Through the Magnifying Glass: Women's Work and Labor Force Participation in India	To examine gendered patterns of employment	Qualitative study using Thematic and statistical analysis	Informal sector dominance and unpaid work obscure women's economic contributions.

Source: Compiled by the Researchers

4. Theoretical Framework:

4.1 Stigma theory –by Erving Goffman (1963)

The stigma theory given by Erving Goffman (1963) provides the foundational base for understanding gender-based discrimination in the workplaces. He conceptualized stigma as an aspect that discredits an individual and reduces them from a whole and usual person to a socially devalued one. In the organizational context, stigma operates through socially constructed beliefs and stereotypes that assumes women are less competent and less committed towards their work due to their care giving responsibility.

In India workplace stigma manifests through exclusion from decision making, biased recruitment and performance appraisal etc. Thus, stigma is not only an interpersonal phenomenon but rather also a structural phenomenon that systematically constrains women's economic participation in the workplace.

4.2 Social role theory –by Alice Eagly (1987)

Social role theory explains how gender differences have emerged from the historical divisions of labour. It is seen that in Indian society women are traditionally associated with the domestic work and care giving while men are identified as the breadwinners. These socially constructed roles shape the expectations of employers, families and also the society and even the women themselves which still continues to exist. Thus, even when women acquire required education and skills, they still cannot pursue their professional career or their career progression stays stagnant which is due to various expectations from them. This theory explains the paradox of declining female labour force participation despite rising educational levels in India.

4.3 Human Capital Theory- by Gary Becker (1964)

Human capital theory explains that labour market outcomes depend on the individual's investments in education, training and skills. According to this theory women's lower participation should improve as educational attainment increases. However Indian labour market trends challenge these assumptions as despite having higher education and skills they tend to remain stagnant and face various hindrances in their career progression.

Therefore, it indicates various other factors such as stigma, safety concerns, gender norms etc.

4.4 Gender dividend framework in the context of Viksit Bharat:

The concept of gender dividend refers to the economic gains that come when women of the country equally participate in the labour force. Indias demographic advantage can translate into sustained growth only in women's productive potential as harnessed. The Viksit Bharat 2047 vision, emphasized by NITI Aayog, highlights the women centric development as a strategic pillar. However, continued workplace stigma hinders this objective. When women withdraw themselves from employment due to stigma or an unsafe work environment the economy loses talent, productivity and innovation. This eliminating stigma is not only related to social justice but also important for macroeconomic improvement.

5. Findings:

5.1 Workplace stigma intersects with caste, class and location to create layered labor market disadvantage

The review finds that gender-based workplace stigma doesn't operate uniformly across Indian women but rather interacts with class, religion, and caste to produce differentiated labor market outcomes. Review also shows that women's from marginalized caste groups and economically weaker backgrounds are concentrated in informal and low paying sectors whereas women's from urban area face professional bias and mobility constraints within formal employment. This intersectionality stratification shows that gender inequality in workforce participation is multidimensional requiring policy approaches that recognize layered disadvantage rather than treating women as homogenous category.

5.2 Structural and cultural stigma weakens the translation of female education into sustained workforce participation

Despite of rising female educational attainment in India, labor force participation has not increased proportionately. The review shows that workplace stigma manifest through gender stereotyping, care giving roles and assumptions that distorts thr returns on women's human capital. Further motherhood and marriage intensify withdrawal due to employer's assumptions

and biases. This indicates that structural norms, limits women's economic engagement and rather than lack of capability. Therefore, educational advancement alone is insufficient to ensure participation unless stigmatized institutional practices are dismantled.

5.3 Workplace stigma reduces productivity and constraints realization of India's gender dividend

The review describes a clear linkage between micro level workplace discrimination and macro level economic outcomes. India loses skilled labour, productivity and innovation when women's exit employment due to hostile or biased work environments. Psychological stress, reduced job satisfaction and limited career continuity weaken aggregate economic contribution. Thus, workplace stigma is not only a social equity issue but a structural barrier to economic growth and national development.

5.4 Achieving women led development under Viksit Bharat requires structural reform beyond policy intent

While national development discourse increasingly giving importance to women led growth under the framework advancement by NITI Aayog, the review shows that persistent gap between policy aspiration and workplace reality. Skill development initiatives and entrepreneurship schemes have expanded opportunities yet there exists insufficient attention towards the organizational culture, strengthening enforcement and also addressed workplace stigma. Realizing gender dividend therefore requires systemic reform that addresses Sigma at organizational , structural and intersectional levels.

6. Conclusion:

The study examined the relationship between workplace stigma and its relationship between women's workforce participation in India within the vision of Viksit Bharat. The study shows that despite of improvement in the female education policy, attention and demographic advantage it can be seen that women's participation in the workforce is still limited which is deeply related to various structural and cultural barriers. The review further indicates that India's potential gender dividend defined as the economic gains from increase in women's participation

in the workforce which still remains under realized. Therefore, addressing workplace stigma is not only about the matter of social justice but also a macroeconomic imperative for achieving long term development Goals. In conclusion the realization of the vision of Viksit Bharat by 2047 is closely connected with the India's ability to remove workplace stigma and enable women's meaningful participation in the economic

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8

Gendered Dimensions of Rural Credit Markets: A Case Study of Cachar District, Assam

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Abstract

In India, the Financial Inclusion Programme (FIP) has been pivotal in connecting rural women to formal finance across the nation, but the effectiveness of service utilization continues to be debated. Credit, being one such service, bears the potential to minimize the gender divide by empowering women and increasing their economic participation. Financial inequalities faced by women are more pronounced in agrarian districts like Cachar, where inadequate rural penetration of institutional finance has left rural women vulnerable to expensive sources of credit. This paper attempts to study how women participate in the dual credit market of rural Cachar using both primary and secondary data. Despite various initiatives aimed at achieving complete financial inclusion, rural women in the district face severe structural barriers in accessing institutional and affordable credit that need to be addressed. Under such adverse circumstances, meso-finance acts as a double-edged sword, increasing both credit access and indebtedness among rural women. Drawing on the findings, the paper identifies the key barriers to women's access to credit in rural Cachar and proposes policy measures to strengthen their inclusion in the formal credit market.

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1. Introduction:

The vision of Viksit Bharat by 2047 is committed to achieving the objective of gender equality. It seeks to transform women from passive beneficiaries into active drivers of economic growth and social change, with a target of 70 percent female workforce participation (GOI, 2025). Such goals cannot be realized without easy, affordable, and equiTablele access to credit. Credit is often regarded as a basic right as it helps convert potential into productivity. In a rural economy, it can aid in reducing gender disparities (Prasad & Kakarlapudi, 2023). It enhances the economic participation of women and contributes to their empowerment. Credit enables rural women to become financially independent by investing in agriculture, micro-enterprises, education, and household welfare, which in turn can help reduce rural poverty and unemployment. However, despite various initiatives aimed at achieving complete financial inclusion, rural women continue to face severe structural barriers, such as lack of collateral, low financial literacy, and patriarchal norms (Chetiya, 2024). These factors restrict them from becoming attractive customers for formal credit institutions, which are the primary source of low-cost credit, leaving them vulnerable to the clutches of exploitative informal lenders. Consequently, their risk of indebtedness increases.

Indebtedness refers to a state of financial obligation which, when it exceeds the repayment capacity of an individual, can undermine the financial solvency of both the borrower and the household. Indebtedness among rural women is a growing concern and has been accompanied by the increasing popularity of "meso-finance" or microfinance through Self-Help Groups (SHGs) (AIDWA, 2025).

The high degree of gender disparity prevalent in the rural credit infrastructure of underdeveloped economies is also visible in Cachar district (Sarkar & Dey, 2023). The district serves as a trading hub for Assam and occupies a strategic geographical location. It shares state boundaries with Manipur and Mizoram and an international border of 33 kilometres with Bangladesh. Moreover, the Cachar–Mizoram–Myanmar route can assist India in realizing its Act East Policy. As a significant transit point for the Northeastern states, Cachar has emerged as the fourth most populous district of Assam. Despite this, it remains

predominantly agrarian, with 83 percent of its population residing in rural areas (Census, 2011).

The rural credit infrastructure of the district is characterized by a dual credit market, with informal credit institutions dominating formal institutions in terms of credit supply (Sarkar & Dey, 2025). The sources of credit, along with their transaction costs and lending terms, may not only influence the level of indebtedness and development in the region but may also have significant implications for the gender gap in the rural credit market. This issue therefore warrants serious attention. The complete formalization of the rural credit market and the equiTablele provision of institutional credit across genders can act as catalysts for regional development. In turn, this would support India in realizing its objective of women's empowerment under the vision of Viksit Bharat.

Against this backdrop, the present study examines the gender dimensions of the rural credit market in Cachar district. It seeks to assess the extent of gender disparity in access to rural credit and to analyse the consequences faced by rural women as a result of such disparities. By exploring these issues, the study aims to contribute to a better understanding of the challenges confronting rural women in the credit market and the implications of these challenges for women's empowerment and inclusive rural development.

2. Literature Review:

Rural credit has been identified as an important instrument for reducing gender inequality, particularly when it is sourced from formal financial institutions (Ohiomu & Ogbeide-Osaretin, 2019). Swamy (2014) further found that financial inclusion initiatives significantly benefit women in terms of income growth compared to men, thereby reducing the gender gap. However, the penetration of institutional credit in the rural areas of developing nations remains poor due to its perceived unprofiTableility arising from high transaction costs and low demand for banking services (Saxena & Mishra, 2016). Consequently, rural bank branches are predominantly operated by nationalized banks that seek to promote government initiatives aimed at making banking services accessible to the rural poor (NABARD, 2024). Private banks, on the other hand, lack such developmental objectives and therefore have a

limited presence in rural credit markets (Agarwala et al., 2023). Although government schemes such as the Pradhan Mantri Jan Dhan Yojana and MUDRA loans have strengthened the linkage between rural women and the formal banking system, the flow of credit from these sources to women remains inadequate.

Formal credit requires documentation, collateral, and adherence to procedural requirements, making it less accessible to rural women. Data from AIDIS (2019) suggest that female-headed households tend to borrow less from formal credit sources and, even when they do, the size of their loans remains relatively small and insufficient for productive investments. Similar findings were reported by Kandari et al. (2021), who observed that men are more likely to access credit than women owing to higher levels of financial literacy. Moreover, gender inequality in the credit market has been found to keep the median interest rate faced by women at around 24 percent, significantly higher than the 4 percent faced by men (Dutta, 2025). The debt burden becomes even more severe for women belonging to poor and lower-caste households (Reboul et al., 2021). Rural women often suffer from a lack of collateral, limited financial awareness, and restricted ownership of productive assets due to patriarchal biases, which constrain their access to formal loans (Sardana, 2024).

Furthermore, rural women tend to borrow a larger proportion of their income compared to men and often do so out of necessity during periods of financial distress to smooth household consumption rather than for productive investment (Guerin et al., 2020). Such borrowing patterns are generally not encouraged by formal financial institutions. Consequently, women seeking financial assistance frequently turn to microfinance groups and informal credit providers.

Existing literature suggests that in regions with limited banking infrastructure, microfinance has expanded women's access to credit (Khandker, 2005; Pitt & Khandker, 1998). Microfinance has emerged as a preferred source of credit for rural women because of its flexibility and comparatively lower cost (20–30 percent) when compared to the often exploitative and expensive credit offered by moneylenders and landlords (Rutherford, 2009). Cachar district has approximately 5,365 SHGs, of which 3,445 are managed by women (Barman, 2019). These women-led SHGs outperform male-managed SHGs in terms of revenue generation

and profiTableility. A study by Roy et al. (2024) highlighted that SHGs in the villages of Cachar have played a pivotal role in helping women meet their small credit needs, particularly for financing health expenditures and entrepreneurial activities. These groups have also contributed to the development of saving habits among members and have enhanced their skills and financial literacy, thereby boosting their confidence and decision-making capacity within society.

Although microfinance institutions have been successful in empowering women to some extent, the cost of such empowerment in the rural sector can be substantial, particularly in the absence of sTablele income and reliable sources of credit. A survey conducted by AIDWA (2025) revealed that the majority of women who borrowed from SHGs had previously been denied loans by public sector banks. More than 70 percent of these borrowers faced interest rates ranging from 20 to 26 percent and belonged to households with a monthly income of less than ₹10,000. Furthermore, over 80 percent of these women had accumulated debt exceeding their monthly repayment capacity, while nearly 60 percent had pledged jewellery, house documents, or other valuables as collateral, in violation of RBI guidelines. The survey also underscored that many women had borrowed repeatedly to repay previous loans and were consequently trapped in cycles of debt and over-indebtedness. Thus, the existing body of literature suggests that restricted access to formal credit may compel rural women to depend on informal lenders and microfinance institutions, increasing their vulnerability to excessive indebtedness and potentially undermining the financial sTableility of their households.

The vision of Viksit Bharat cannot be realized without fostering rural economic development and empowering rural women. Although Cachar is the largest district in the Barak Valley region and occupies strategic importance for both Assam and India, it continues to be recognized as one of the country's relatively backward districts. Such developmental constraints are likely to influence the functioning and accessibility of rural institutions, including credit markets. Despite the growing body of literature on financial inclusion, microfinance, and women's access to credit, there is a lack of comprehensive evidence on the structure of the rural credit market in Cachar district and the manner in which rural women participate in and navigate this market.

Furthermore, existing studies have paid limited attention to the extent of gender disparity in access to rural credit and the consequences of such disparities for rural women, particularly in terms of indebtedness. The present study seeks to address these gaps by examining the gender dimensions of the rural credit market in Cachar district and analysing the implications of gender-based disparities for rural women. The findings are expected to provide valuable policy insights for promoting women's empowerment, improving financial inclusion, and strengthening rural development in the region.

3. Data and Methods

The study is based on both primary and secondary data. Secondary information was collected from various government publications and reports, including the Census of India 2011 and the State Level Bankers' Committee (SLBC), Assam (2023). Primary data were collected from 342 rural households in Cachar district through a stratified random sampling technique using direct personal interviews. Sample weights were applied to the collected data to obtain unbiased estimates representative of the study area.

To address the objectives of the study, descriptive statistical techniques have been employed to examine gender disparities in access to rural credit, including differences in credit sources, borrowing costs, loan utilization, repayment tenure, and the socio-economic consequences of borrowing.

For analytical purposes, credit sources have been classified into institutional and non-institutional categories. Institutional sources comprise legally esTablelished financial institutions regulated by the Reserve Bank of India, including commercial banks, cooperative banks, and other formal lending agencies. Non-institutional sources include landlords, agricultural and professional moneylenders, input suppliers, relatives and friends, non-bank-linked SHGs/JLGs, chit funds, and traders or commission agents. The distribution of borrowing across these sources reflects the accessibility and preference patterns of rural households.

The study further classifies credit according to its purpose into productive and unproductive loans. Productive credit refers to loans used for income-generating and capital-forming activities, such as investment in agriculture, livestock, irrigation,

machinery, tools, and micro-enterprises, which enhance future earning capacity. Loans utilized for all other purposes, including consumption and social expenditures, are categorized as unproductive credit. The relative distribution of productive and unproductive borrowing provides insights into the financial behaviour and credit utilization patterns of rural households.

The field survey was conducted in 2023. The analysis of indebtedness follows the definitions adopted by the All India Debt and Investment Survey (AIDIS, 2019) and the Reserve Bank of India (2004), according to which a household is considered indebted if it possesses any current outstanding debt. In addition to information on outstanding liabilities, data were collected on loans that had been fully repaid during the five-year period preceding the survey (2019–2023). Information on past borrowings helps assess the frequency and recurrence of credit requirements among rural households.

To measure the intensity of indebtedness, the Debt-to-Income Ratio (DIR) has been used. The DIR is defined as the ratio of the monthly debt burden of an indebted household to its monthly household income. A higher value of the ratio indicates a greater debt burden relative to income and, consequently, a higher intensity of indebtedness.

4. Results and Findings:

The analysis of the study area related to banking and credit suggests that a significant number of respondents have borrowed from urban bank branches in Cachar. This implies that urban branches also help to ease the burden on rural branches in meeting the rural credit demand. Therefore it becomes important to sketch out the accessibility of bank branches, both urban and rural, across different genders to support the findings and achieve the objective of the study.

The analysis of the data on the **distribution of bank accounts across gender in Cachar district and Assam** under the **Pradhan Mantri Jan DhanYojana (PMJDY)** highlights a significant shift in the gender dynamics of financial inclusion. Tablele1 indicates that the number of zero balance bank accounts opened by females exceeds that of males. This reversal of the conventional gender gap in formal banking access indicates a pro-women trend in financial inclusion under PMJDY. The scheme's emphasis on direct benefit transfers (DBTs), zero-balance accounts, and

targeting women through Jan Dhan-Aadhaar-Mobile (JAM) trinity has likely contributed to this outcome. Women are often the designated beneficiaries of welfare schemes such as Ujjwala Yojana, PM Awas Yojana, maternity benefits, and NREGA payments, encouraging account opening in their names.

Tablele 1. Percentage distribution of PMJDY by gender

District/State	Male	Female	Total
Cachar	45.84	54.1	100
Assam	42.58	57.42	100

Source: SLBC, Assam (2023)

The analysis of the primary data highlights that 202 households out of 342 sample households have witnessed debt in the recent 5 years. The 202 surveyed households collectively reported 420 loans obtained from both institutional and non-institutional sources. The majority of the rural households (about 87 percent) which have taken credit in the recent times are headed by Males (Tablele 2). This sharp disparity indicates that male-headed households continue to dominate credit access in rural areas, a trend consistently documented in rural financial inclusion literature (Agarwal, 1997; Swain &Wallentin, 2009).

Table 2: Percentage distribution of borrower households by gender of household heads.

Gender of household Head	Number of borrower household	Percentage of borrower households
Male	178	88
Female	24	12
Total	202	100

Source: Field survey (2023)

Classification of individual loans by gender of the borrowers (Table 3) also highlights that majority of the rural loans were taken by male borrowers and they had better access to formal institutional credit (Table 4). On the other hand female relied mostly on informal sources of credit and only 6.6 percent of loans directed towards female were financed by formal credit institutes.

Table 3: Distribution of loans across gender

Gender	Number of loans	Percentage of loans
Male	359	85.48
Female	61	14.52
Total	420	100

Source: Field Survey (2023)

Table 4: Distribution of loans across gender by sources of credit

Gender	Institutional credit	Non-institutional credit	Total
Male	35.83	64.17	100
Female	6.67	93.33	100

Source: Field Survey (2023)

This pronounced gender gap in accessing formal credit is highlighted in Table 4 which is caused by systemic barriers that women face in rural financial systems. The inclination of female borrowers towards non institutional sources of credit is due to denial of financial support from the formal credit institutes. About 88 percent of rural female borrowers have stated difficulty or loan request rejection from formal credit sources where as in case of rural male borrowers the rejection rate is only 56 percent. Thus, despite various policy efforts to promote gender-inclusive banking, such as SHG-bank linkage programs, Pradhan Mantri Jan DhanYojana (PMJDY) accounts, and targeted schemes under NABARD, women remain predominantly reliant on informal credit networks. Among the non-institutional sources, friends and family account for 47.54 percent of the loan taken female and 36.07 are financed by non-bank linked SHGs. This may be because of multiple structural barriers faced by women, including limited asset ownership, weaker documentation, mobility constraints, and socio-cultural norms that restrict women's direct engagement with financial institutions (Chavan & Ramakumar, 2002).

The inadequate access to formal credit also affects the size of loan available for the rural females. The Table5 explains that about 89 percent of women borrowers' uptake loan of small amount i.e. below rupees 40,000 owing to weak asset and collateral base. In contrast, a significant proportion of male borrowers have access to relatively large loans with nearly 35 percent carrying a debt burden exceeding rupees 50000.

Table 5: Distribution of loan size by gender of borrowers

Size of Loan (₹)	Percentage of female borrowers	Percentage of male borrowers
100 -20000	71.74	39.32
20000-40000	17.39	16.95
40000-60000	2.17	7.8
60000-above	8.7	35.63
Total	100	100

Source: Field Survey (2023)

Female borrowers generally utilize loans for unproductive purposes (Table 6). In contrast, male borrowers exhibit a relatively higher proportion of credit utilization for productive activities. The women of the study area have reported to borrow mostly for repaying previous debts (32.79 percent), consumption smoothing (27.87 percent), medical emergencies (13.11 percent), recovery from natural disasters (9.84 percent), and meeting expenses related to social functions (6.56 percent).

Table 6: Distribution of loans across gender by purpose of debt

Gender of borrowers	Percentage of loan used for productive purposes	Percentage of loan used for unproductive purposes	Total
Male	25.07	75.93	100
Female	3.28	96.72	100

Source: Field Survey (2023)

As majority of the loans received by rural women come from the informal credit market, the cost of credit tends to be higher for them compared to the male borrowers. Table 7 highlights that about 45 percent of loans obtain by females fall in the high interest bracket of 20 to 50 percent. In contrast, about 35 percent of loan received by the male borrowers fall in high interest bracket.

Table7: Distribution of annual interest rate of debt by gender of borrowers

Annual interest rate on Loan	Female borrowers	Male borrowers
0 -10	47.54	46.51
10-20	8.2	18.94
20-30	13.11	6.96
30-40	21.31	12.53
40-50	9.84	7.24
50-above	0	7.79
Total	100	100

Source: Field Survey (2023)

The small size informal loans of the female borrowers mostly have short maturity period (less than 1 year). Whereas the male borrower having relatively better access to formal credit and large loans mostly enjoy medium term to long term maturity period for their loans as highlighted in Table 8.

Table.8: Percentage distribution of tenure of debt by gender of borrower

Tenure of Debt	Female	Male
Less than 6 months	49.18	35.93
6 months-1 year	32.79	19.78
1 year-3 years	18.03	25.35
3 years & above	0	18.94
Total	100	100

Source: Field Survey (2023)

Short term credit coupled with high interest cost and frequent repayment structure creates considerable financial and social pressure on the female borrowers making repayment difficult and increasing the likelihood of indebtedness among the rural females. Thus out of 61 loans taken by females borrowers 49.18 percent remain unpaid suggesting a significant level of indebtedness among the rural women of Cachar. However, it is to be noted that indebtedness tends to be a financial concern when debt premium surpasses 50 percent of monthly income of the household.

DIR (Debt to Income Ratio) levels are often used to judge the financial vulnerability of the household, for instance DIR level less than 50 percent is considered to be safe or healthy (D'Alessio & Iezzi, 2013), whereas DIR level beyond 50 percent is considered as over indebted and is seen as a strong signal of debt unsustainability, often leading to arrears or default (Cifuentes &Martínez,2020). Based on the idea of existing literature the DIR levels have been divided into quintiles as follows:

Table 9: Percentage distribution of DIR by gender of household head

DIR (in percentage)	Risk levels	Female Head	Male Head
0< DIR< 20	Low	22.73	14.61
20 ≤ DIR<40	Moderate	18.18	31.74
40 ≤ DIR< 60	High	31.82	25.32
60 ≤DIR<80	Over Indebted	13.63	15.88
80≤ DIR<100	Critically Over Indebted	9.09	2.58
100≤ DIR	High risk of Default	4.55	9.87
Total		100	100

Source: Field Survey (2023)

The Table 9 highlights that due to gender disparity in the rural credit market majority of the female headed household are at the brink of losing their financial solvency with 59 percent of such household falling in the risky brackets of DIR level. In case of male headed indebted household the number of risky households according to DIR level is comparatively less (about 45 percent). Such high levels of over indebtedness among the female headed households and female borrowers manifest into grave and serious socio economic consequences (Table. 10).

Table 10: Consequences of indebtedness by gender of household head

Consequences of indebtedness	Female	Male
Witnessed Social Disturbances	81.97	62.95
Curtail in Consumption	91	77.81
Loss of Collateral	63.93	37.60

Source: Field Survey (2023)

Thus gender disparity against women in the rural credit market, negatively impacts women more than men by making them vulnerable to high degree of indebtedness. To cope with such dire circumstances, rural women are more likely to reduces consumption expenditure and assets and also witness additional debt burden more than men in the absence of income opportunities and livelihood options. The social life of the rural women are also affected by indebtedness, such that many indebted female respondents have reported social disturbances due to debt in the form of divorce, violence, and social exclusion.

5. Conclusion:

The findings of the study reveal a complex and paradoxical situation in the rural credit landscape of Cachar district. On the one hand, policy initiatives aimed at promoting gendered financial inclusion particularly through the Pradhan Mantri Jan DhanYojana have significantly increased women's participation in the formal banking system in terms of account ownership. The data shows that female PMJDY account holders outnumber male account holders in both Cachar district and the state of Assam, indicating a positive shift in gender dynamics within the formal financial system. This development reflects the impact of welfare-linked financial inclusion initiatives and the increasing role of women as beneficiaries of government transfer schemes.

However, the household-level credit analysis presents a contrasting reality. Despite higher account ownership among women, access to formal credit remains largely dominated by male borrowers. The study finds that the overwhelming majority of borrowing households are male-headed, and most of the loans obtained in rural areas are taken by male members. Women, in contrast, continue to face significant barriers in accessing institutional credit and rely heavily on non-institutional sources such as relatives, friends, and informal self-help groups. Structural constraints such as lack of collateral, limited asset ownership, inadequate documentation, and socio-cultural restrictions continue to restrict women's engagement with formal financial institutions.

The disparity in credit access also manifests in the size, purpose, and cost of borrowing. Female borrowers tend to access smaller loans, mostly below ₹40,000, while male borrowers enjoy comparatively larger credit access. Moreover, women's loans

are primarily directed toward non-productive purposes such as debt repayment, consumption smoothing, and emergency expenses. In contrast, male borrowers utilize a relatively higher share of credit for productive activities. The heavy dependence of women on informal credit sources further exposes them to high interest rates and short repayment tenures, which significantly increases their financial vulnerability.

The study also highlights that short-term loans with high interest rates and frequent repayment obligations place considerable pressure on rural women. As a result, a large proportion of female borrowers experience repayment difficulties, leading to high levels of indebtedness. The Debt-to-Income Ratio (DIR) analysis indicates that a majority of female-headed households fall within the risky or over-indebted categories. Such financial stress often translates into broader socio-economic consequences, including reduced consumption, loss of collateral assets, and severe social disturbances within households and communities. The high proportion of women reporting social disruptions due to indebtedness reflects the deeply gendered impact of rural credit inequalities.

In light of these findings, several policy measures are necessary to address the persistent gender gap in rural credit markets. First, formal financial institutions both private and public banks need to penetrate and expand across the rural credit market. This should promote complete formalization of the rural credit market and minimize the scope of exploitative informal credit institutes. The formal credit institutes should focus on strengthening gender-sensitive credit delivery by designing loan products tailored specifically to the needs and livelihood patterns of rural women. Second, collateral-free or low-collateral lending schemes should be expanded to overcome asset ownership barriers faced by women. Third, strengthening and integrating women's Self-Help Groups with formal banking institutions can improve women's access to affordable and institutional credit.

Additionally, financial literacy programs targeted at rural women can enhance their awareness of formal credit facilities and improve their financial decision-making capacity. Expanding livelihood opportunities and income-generating activities for rural women is also essential to ensure that credit is used for productive purposes rather than survival needs. Finally, institutional monitoring of high-interest informal

lending practices is necessary to protect vulnerable female borrowers from exploitative credit conditions.

In conclusion, while financial inclusion policies have successfully expanded women's presence in the formal banking system, genuine financial empowerment requires improving women's access to affordable, productive, and sustainable credit. Addressing the structural barriers in the rural credit market is therefore essential for reducing gender disparities and promoting inclusive rural development in Cachar district.

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9

Socio-Economic Factors Influencing Early Marriage among Tea Garden Women Workers in the Longai Valley in Sribhumi (Karimganj) District of Assam

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Abstract

This study investigates the socio-economic factors associated with early marriage among women in the tea garden communities of Longai Valley, Sribhumi District, Assam. Drawing on primary data from 137 respondents of Below Poverty Level (BPL) households, the investigation identifies destitution, low education, insufficient infrastructure, and ingrained social standards as the main driving factors of early marriage in the study area. Statistical analyses, including regression models, reveal that better housing, higher age, higher education, and economic empowerment significantly reduce the prevalence of early marriage. The findings emphasise the urgent need for directed policy interventions focused on education, women's empowerment, improved living conditions, and social awareness to break the cycle of poverty and gender inequality in these marginalised communities.

Key words: *Longai Valley, Early Marriage, Tea Garden Labourers, Women's Empowerment.*

JEL Codes: I32, J12, J16, O15

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1. Introduction:

Early marriage remains a critical socio-economic issue in many underprivileged regions of the world, particularly affecting women. Among the most affected are tea garden workers, especially in the Longai Valley of Assam's Sribhumi district. While the tea gardens present a picturesque landscape, they also hide the harsh realities of poverty, lack of education, and deep-rooted gender norms—all contributing to the widespread practice of early marriage.

Tea garden labourers form a distinct socio-economic group characterised by low wages, poor living conditions, and limited access to education and healthcare. A significant factor contributing to early marriage in this community is poverty. Families, burdened by economic hardship, often view early marriage for their daughters as a way to reduce financial strain. The dowry system, still prevalent in some sections of the community, further incentivises early marriage, as younger brides typically require smaller dowries.

Educational deprivation is another key factor. Girls in the tea garden communities frequently drop out of school due to financial constraints, cultural biases favouring boys' education, and inadequate school infrastructure. This lack of educational attainment not only limits their opportunities for economic independence but also makes them more susceptible to early marriage.

Cultural norms and patriarchal traditions play a central role in perpetuating early marriages. In the Longai Valley, traditional beliefs emphasise women's domestic roles and obedience, often discouraging aspirations for higher education or professional careers. Social stigma surrounding unmarried women above a certain age pressures families into arranging early marriages to preserve social honour.

Furthermore, limited access to reproductive health services and a lack of awareness about sexual health and family planning significantly contribute to the problem. Many girls and women are unaware of their reproductive rights and do not have access to contraceptives or proper healthcare. This results in early pregnancies, which further entrench them in cycles of poverty, limiting their ability to pursue education or employment.

The prevalence of early marriage among tea garden women workers in the Longai Valley is a complex issue rooted in poverty, educational disparity, patriarchal norms, and poor healthcare access. Addressing this problem requires a multifaceted approach, including improving educational infrastructure, promoting awareness of reproductive health, and challenging cultural norms that uphold gender inequality. Only through targeted interventions and community engagement can the cycle of early marriage and its socio-economic consequences be broken in these marginalised communities.

Several studies, such as Ghosh (2022) and Kalita (2019), emphasise the legal and social frameworks necessary to combat child marriage, highlighting the roles of state mechanisms and community-based social work. Research by Umamaheswari and Saradha (2022) and Chowdhury et al. (2018) highlight poor health and hygiene conditions among women workers in tea plantations, further reinforcing the role of socio-economic and infrastructural deficits in exacerbatingthe risks of early marriage. Biswas et al. (2020) and Rane et al. (2019) focus on maternal mortality and health issues in marginalised regions, which are often outcomes of early marriage and inadequate healthcare systems. Studies such as Yunizar's (2020) and Jones et al.'s (2014) examine early marriage through qualitative lenses, offering insights into the lived experiences of affected families and the powerful influence of entrenched cultural norms, which also resonate in the context of Indian tea gardens. Research by Das and Roy (2019) and Kapasia (2019) emphasises women's empowerment and socio-economic development as essential to disrupting the cycle of early marriage, while Baruah and Daimari (2018) and Al-Amin et al. (2017) highlight educational challenges and social exclusion faced by tea tribe children and workers.

2. Significance of the study:

The socio-economic determinants of early marriage among tea garden labourers in the Longai Valley of Karimganj district, Assam, underscore the urgent need to address a range of interconnected challenges affecting young women in these marginalised communities. Early marriage not only deprives girls of fundamental human rights—such as education, healthcare, and personal autonomy—but also exposes them to

serious health risks, including complications during pregnancy and childbirth due to their young age. It disrupts educational trajectories, thereby limiting future opportunities for economic empowerment and reinforcing the cycle of poverty. These practices are deeply rooted in gender inequalities and traditional norms that restrict women's roles to domestic spheres. By examining the socio-economic drivers of early marriage—such as poverty, limited access to education and reproductive health services, and entrenched patriarchal values—this study aims to generate insights that can guide targeted, evidence-based policy interventions. Such interventions could focus on improving access to education, enhancing reproductive health services, promoting gender equality, and expanding economic opportunities for young women. Ultimately, addressing these root causes is essential not only for safeguarding the rights and well-being of individual girls but also for promoting the broader development and social transformation of tea garden communities.

3. Objectives:

a) To access the contributing factors of early marriage in tea gardens in Longai Valley Tea Estate.
b) To identify the socio-economic factors contributing to early marriage in Longai Valley Tea Estate.
c) To study the impact of early marriage on the socio-economic life of the tea garden women.

4. Research Questions:

a) What are the factors contributing to early marriage in tea gardens in Longai Valley Tea Estate?
b) How do socio-economic factors influence early marriage in Longai Valley Tea Estate?
c) What are the impacts of early marriage on the socio-economic life of women working in tea gardens in Longai Valley Tea Estate?

5. Data and Methodology:

5.1. Data:

The study covered137 BPL households after appropriate first-stage identification from local government sources. For the

sample collected, 5 villages were selected from the Longai Valley of Sribhumi District, specifically focusing on tea garden and ex-tea garden worker concentrations where the incidence of absolute poverty was expected to be higher. The data were collected through personal interviews conducted after physical visits to the chosen households.

5.2. Study Area:

This study was undertaken in tea-garden-dominated villages in Assam, an ethno-linguistic minority. The community's population is primarily rural, estimated at around 7 million (70 lakhs), or nearly 20percent of Assam's total population. They live in almost every district of Assam, but their density varies across regions, reflecting the number of tea plantations. They form nearly 11percent of the total population in the Barak Valley region of Assam.

Sribhumi district is one of the southernmost districts of Assam, located in the Barak River valley. The total area of the district is 1809 square km. The district's terrain consists of floodplains, wetlands, hills, and forests. The district is bordered by Bangladesh and Cachar district of Assam to the north, Mizoram to the south, Bangladesh and Tripura to the west, and Hailakandi district of Assam to the east. The district comprises just one subdivision, also named Karimganj. The district has five revenue circles, namely Karimganj, Badarpur, Nilambazar, Patherkandi and Ramkrishnanagar and seven development blocks. There are three census towns and 915 inhabited villages in the district. As per the data of the Directorate of Tea Tribes and Adivasi Welfare, Government of Assam, there are 23 tea gardens in Sribhumi district of Assam (https://ttwd.assam.gov.in/frontimpotentdata/list-of-tea-garden-at-assam) out of which the study will be conducted in tea estates namely: Baithakhal Tea Estate, Bidyanagar Tea Estate, Chargola Tea Estate, Goombhira Tea Estate, Longai Tea Estate and Patini Tea Estate, which are located in South Assam. This is one of the tea gardens established by the British in the Barak Valley. During the British Period, most of these gardens were managed by a private company, but the Assam Tea Corporation now manages them. These gardens have had their own tea-producing factory since the British period. The garden workers are from different states of the country, as their forefathers were employed from various parts

of India. Even after so many years of independence, residents of these garden areas, especially the tea garden labourers, lack basic infrastructure, including primary schools, primary health centres, a daily market, a pharmacy, and a road transport system. For these facilities, residents have to travel to nearby villages (Sinha et al., 2023).

5.3. Methodology

This study has made use of simple descriptive statistical tools like frequency distributions and arithmetic means. Simple graphic tools along with correlation, ordinary least squares (regression model) are used to identify the factors affecting early marriage in tea garden-dominated areas of Longai Valley.

6. Data Analysis and Result:

6.1. Socio-Demographic Characteristics of the Respondents:

This section presents some social and demographic characteristics of the respondents of the Longai Valley area. The results are presented in tabular and graphical formats.

Table1. Social, Demographic and Economic Features of the Sample Respondents

Variables	Average ± Standard Deviation
Age (Years)	38.15 ±9.92
Family Members	6.39 ±2.33
Average Monthly Expenditure (in Rs)	14750.00±9637.69
Average Years of Schooling (Years)	3.21±3.16
Average Number of Rooms (Nos)	1.92±0.81

Source: Calculated by the author based on field survey

Table 1 provides a summary of some socioeconomic and demographic features of the respondents. It shows that the average age of the respondents is 38.15 years, indicating that they are mostly young women. On average, respondents have 6.39 family members. The average monthly expenditureof the respondents is Rs. 14750.00.

Table 2: Social and Demographic Features of the Respondents

Variables	Percentage
Religion:(a) Hindu	74.45
(b) Islam	23.36
(c) Christian	2.19
Caste: (a) SC	62.77
(b)ST	8.76
(c) OBC	25.55
(d) General	2.92
House Type: (a) Kaccha	28.00
(b) Pucca	44.53
(c) Semi-pucca	28.00
Toilet Type: (a) Kaccha	63.50
(b) Pucca	32.85
(c) Semi-pucca	3.65
Kitchen is a separate room detached from the main house: (a) Yes	61.31
(b) No	38.69

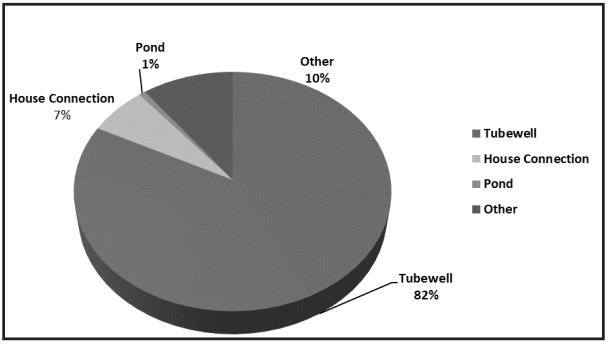
Source: Calculated by the author based on field survey

Table 2 shows some socio-economic characteristics of the respondents.The table shows that among the respondents, 74.45percent are Hindu, 23.36percent are Muslim, and only 2.19percent are Christian. In terms of caste, 62.77percent are SC, 8.76percent are ST, 25.55percent are OBC, and 2.92percent are General. This indicates that respondents in the Longai Valley area are mostly Hindu SC individuals. Regarding house type, 28.00percent live in kaccha and semi-pucca houses. 44.53 percent live in pucca houses. In the case of toilets, also 63.50percent have a kaccha toilet, and 32.85percent have a pucca toilet, and the remaining 3.65percent have a semi-pucca toilet. Though this number is good, the Government needs to intervene to ensure access to adequate, hygienic living conditions for all the households. Among the respondents, 61.31percent have a separate kitchen in a detached room, while the remaining 38.69percent do not. These women are subjected to direct indoor air pollution.

6.2: Source of Drinking Water of the Respondents

The following figure shows the different sources of drinking water of the respondents in the Longai Valley area. Amongst82.48percent, the majority drink water from tube wells. 6.57 percent drink house connection water, 0.73percent drink pond water and the remaining 10percent drink water from other sources.

Figure 1: Source of Drinking Water

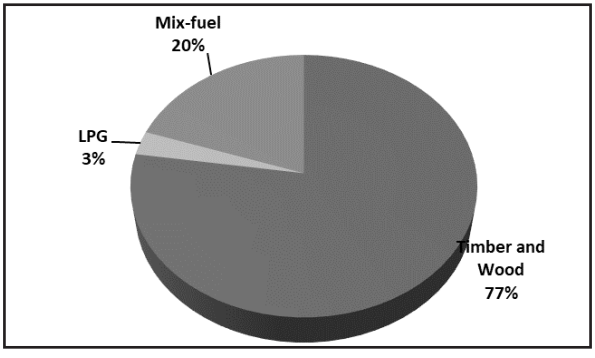


Source: Calculated by the author based on field survey

6.3. Type of Cooking Fuel Used

The following figure shows the fuel use patterns of households in the Longai Valley area.

Figure 2: Type of Cooking Fuel Used



Source: Calculated by the author based on field survey

It is evident from the above figure that the majority of respondents (77percent) use Timber and Wood (Non-LPG) as

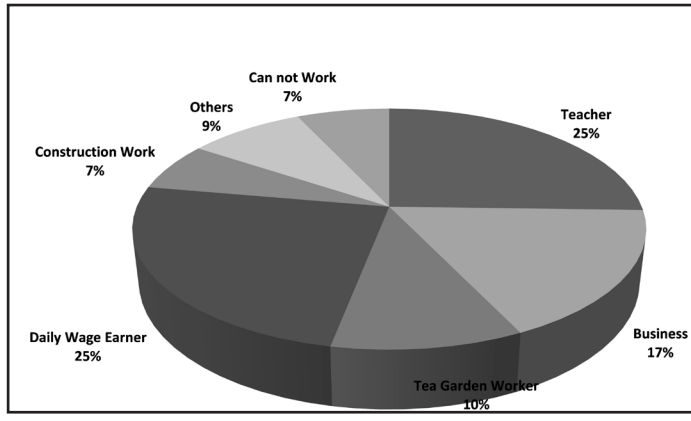
cooking fuel, with only 3percent using LPG and the remaining 20percent using a mixed fuel pattern (a combination of both LPG and Wood). This is also a concern, as almost 50percent of respondents still use wood as cooking fuel, even after 8 years of the PM Ujjwala Yojana's implementation. This may pose hazards, including indoor air pollution and the destruction of forest cover for collecting firewood for cooking.

6.4. Occupational Details of the Household Head:

Figures 3 and 4 below provide a detailed view of the respondent household's occupational details. It is evident from Figure 3 that. The diagram shows that in the sample, 25percent of household heads and daily wage earners are found. 17percent are businessmen, 10percent are tea garden workers, 9percent have other occupations, 7percent are construction workers, and 7percent are unable to work for various reasons.

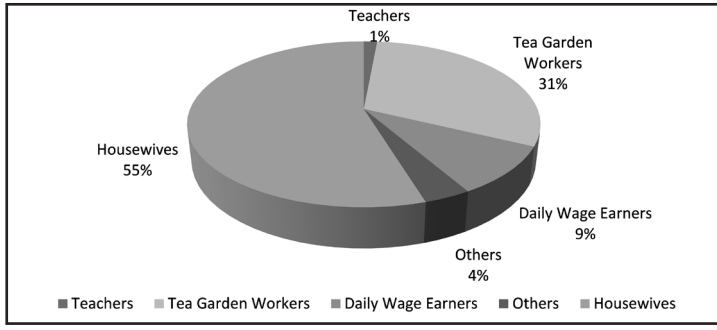
Similarly, in Figure 4, the occupational status of the respondent women is shown. It is clear from the figure that among the 137 respondents, 55percent are homemakers, 31percent are tea garden workers, 9percent are daily wage earners, 1percent are teachers, and 4percent are engaged in other occupations. The majority ofrespondents in the Longai Valley tea garden area are homemakers.

Figure 3: Occupational Status of the Household Head



Source: Calculated by the author based on field survey

Figure 4: Occupational Status of the Respondent



Source: Calculated by the author based on field survey

Table 4 above presents the linear regression results for the determinants of non-LPG fuel usage, using some socio-economic variables. It is evident from the table that only AGE (Age of the respondent) in models 1 and 4 and HOUSING CONDITION (of the respondent) in model 5 are found to have a negative and significant relation with non-LPG fuel usage, indicating respondents with higher age are expected to use LPG as cooking fuel compared to women with lower age. Similarly, women living in better housing conditions are expected to use LPG for cooking more often than those living in poor housing conditions. CASTE in model 1 has a negative coefficient, though insignificant; FAMILY MEMBERS in models 1 and 2 have a positive coefficient, indicating that families with a large number of family members are expected to use more NON-LPG as cooking fuel than those with fewer family members. Among other important observations, HHE (Household Expenditure Per Month) in models 2 and 3 is found to have a negative coefficient, indicating that familiesthat spend more on essential commodities are expected to use or spend more on LPG. SCHOOLING in model 2 has a positive coefficient, indicating that women with higher educational qualifications are expected to use clean energy as cooking fuel because of improved awareness of the hazards of using dirty fuels.FEMALE OCCUPATION in model 3 is found to have negative coefficient indicating the more women are engaged in income earning activities are expected to use less dirty fuel, compared to housewives, LIVING AREA, DW (availability of safe drinking water) in model 4 and is found to have negative coefficients and WHO COLLECTS (family

members help in cooking fuel collection) in model 5 is found to have positive coefficient indicating women living in somewhat improved living condition in terms of availability safe drinking water and housing condition are expected to use LPG as cooking fuel. Still, if family members help in the collection, they are supposed to use more Non-LPG as cooking fuel.

6.5. Reasons for Early Marriage in Longai Valley Area:

The following tables present the reasons for Early Marriage in tabular format, with percentage regression results.

Table 3: Reasons for Using Non-LPG as Cooking Fuel

Variables	Percentage
(a) Poverty	81.02
(b) Large Number of Female Children	3.65
(c) Social Thought	7.30
(d) Others	7.30

Source: Calculated by the author based on field survey

The table above presents the reasons respondents cited for early marriage in the study area. It is found that most respondents, 81.02percent, think poverty is the chief reason for early marriage, followed by 7.30percent think Social Thought and Other reasons are the cause of early marriage. Only 3.65percent respondents found many female children as a reason for early marriage.

Table 4: The Linear Regression Results of Early Marriage on Socio-Economic Factors. Dependent Variable: Early Marriage

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	1.792** (18.556)	2.053** (13.202)	1.852** (10.234)	1.985 ** (11.318)	2.127** (8.011)
AGE		-0.006* (-1.919)	-0.005* (-1.746)	-0.006** (-2.130)	-0.006* (-2.013)
FAMILY MEMBERS		0.022 (1.657)	0.029 (2.081)	0.025 (1.853)	
HHE	-2.120 (-0.629)				
SCHOOLING	-0.009 (0.985)	-0.004 (0.414)	-0.011 (1.117)		

FEMALE	0.004 (0.110)	0.017 (0.482)			
DECISION ON HHE					-0.008** (-0.142)
HOUSING CONDITION					-0.001** (-0.015)
R-Squared	0.010	0.034	0.064	0.056	0.031
Adjusted R-Squared	-0.012	0.012	0.043	0.034	0.008
F-Statistic	0.468	1.572	3.008*	2.611*	1.390
Durbin-Watson	0.207	0.236	0.275	0.222	0.225

Source: Calculated by the author based on field survey

Table 4 above presents the linear regression results for the determinants of Early Marriage among women, using some socio-economic variables. It is evident from the table that only AGE (Age of the respondent) in models 2,3, 4 and 5 and 4 and HOUSING CONDITION (of the respondent), and HHE (Decision on Household Expenditure) in model 5 are found to have negative and significant relation with Early Marriage, indicating respondents with higher age are expected to have late marriage compared to women with lower age. Similarly, women living in better housing conditions are expected to marry later than those living in poor housing conditions. Again, economically empowered women with equal say in household expenditure are found to have later marriages than less empowered women. FAMILY MEMBERS in models 2, 3, and 4, and FEMALE (Number of female family members) in models 1 and 2 are found to have positive coefficients, indicating that families with a large number of family members and more female members are expected to have earlier marriage of females, compared to those with fewer family members. Among other important observations, HHE (Household Expenditure per Month) in model 1 hasa negative coefficient, indicating that families spending more on necessary commodities are expected to have lower early marriage rates among females than those spending less. SCHOOLING in models 1, 2, and 3 is found to have a negative coefficient, indicating that early marriage is expected to be low among educated females.

7. Conclusion:

The findings underscore the complex interplay of socio-economic factors in shaping marriage decisions, particularly in marginalised communities like tea garden workers in Assam. Poverty emerges as a significant driver of early marriage, highlighting the need for targeted poverty alleviation measures and social welfare programs. Policy interventions should focus on: a. Improving access to education, especially for girls, to empower them with the knowledge and skills necessary to delay marriage. b.Enhancing economic opportunities for women through skill development and income-generating activities. c.Providing access to clean cooking fuels and safe drinking water to improve health outcomes and reduce household burdens. d.Addressing social norms and cultural practices that perpetuate early marriage through community-based awareness campaigns and advocacy efforts.The study sought to provide insights into the socio-economic factors influencing early marriage in tea-garden-dominated areas of Assam. It highlights the importance of addressing poverty, improving access to education, empowering women, and enhancing socio-economic conditions to prevent early marriage.

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10

From Margins to Resilience: Case Study Analysis of Differently Abled People from Sildoobi Village of Cachar District of Assam

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Abstract

Disability continues to be a multidimensional issue that influences the social, educational, economic and health outcomes of individuals. This paper presents a case study–based research analysis of seven persons with disabilities (PWDs) from Sildoobi, Assam, highlighting their lived experiences, challenges, coping mechanisms, and expectations from government and community stakeholders. The participants included children, youth, and adults with diverse disabilities such as locomotor disability, speech disorder, visual impairment, multiple disability, and congenital anomalies. The study reveals that while some individuals receive limited governmental financial assistance and NGO-based mobility support, most remain deprived of adequate social security measures, educational opportunities, and health interventions. Despite adversities, individuals displayed strengths in reading, dancing, and singing, indicating resilience and potential for social inclusion if adequate support is provided. This research argues for a rights-based, inclusive, and community-cantered approach to disability, emphasizing the urgent need for enhanced policy implementation, financial support, and localized interventions tailored to the socio-economic realities of differently able people of Sildoobi.

Keywords: *Disability, PWD, Care Givers, Inclusive Development, Accessibility, Government Assistance, Rehabilitation.*

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1. Introduction

Disability is a universal human condition, yet it manifests differently across social, cultural, and economic contexts. According to the World Health Organization (WHO, 2011), over one billion people worldwide live with some form of disability, representing approximately 15% of the global population. In India, as per the Census 2011, 2.21% of the population are persons with disabilities (PWDs). This demographic, though significant, remains among the most marginalized, facing barriers in education, healthcare, employment, and participation in community life.

The northeastern state of Assam represents a microcosm of these challenges, where infrastructural limitations, socio-economic constraints, and lack of awareness compound the struggles of disabled persons. Within Assam, semi-rural and peri-urban communities such as Sildoobi reflect the lived realities of PWDs whose voices are often unheard in mainstream discourses. The present study situates itself within this socio-cultural context, documenting the narratives of disabled individuals and their families.

Disability in the Indian Context

The Rights of Persons with Disabilities (RPwD) Act, 2016 expanded the scope of recognized disabilities from 7 to 21 categories, aiming to strengthen rights and entitlements for PWDs. Despite progressive legal frameworks, gaps remain in translating policy into practice, particularly at grassroots levels. Studies (Mehrotra, 2020; Singh & Sharma, 2021) reveal that rural and economically weaker households face greater challenges in accessing disability certificates, welfare schemes, and rehabilitation services.

Lived Realities of Disability

Disability is not merely a medical condition but a social construct, as emphasized in the social model of disability. Structural barriers, attitudinal discrimination, and lack of opportunities exacerbate the hardships of PWDs. For instance, a child with congenital limb anomaly is not only disadvantaged physically but is also excluded from play, peer interaction, and sometimes formal schooling. Similarly, an adult with multiple disabilities

may face lifelong dependency, leading to financial strain on the family.

Gendered Nature of Caregiving

The case studies from Sildoobi reveal that mothers are the primary caregivers. Women often shoulder responsibilities of feeding, bathing, providing mobility assistance, and ensuring education or medical visits for disabled children. This aligns with global research findings (UN Women, 2018) that caregiving for disabled family members disproportionately falls on women, limiting their opportunities for employment or self-development.

Educational Barriers

Education is a key determinant of social inclusion, yet several of the PWDs documented in this study were deprived of formal schooling. While some pursued lower primary education, others remained illiterate due to mobility restrictions, lack of assistive devices, or absence of inclusive infrastructure. UNESCO (2019) highlights that children with disabilities are twice as likely to be out of school compared to their non-disabled peers.

Economic Struggles

The families in Sildoobi largely depend on precarious livelihoods such as daily wage labour, auto driving, or small shops. The presence of a disabled member increases household expenditures (medical treatment, assistive devices, transportation), but does not necessarily increase income. While some PWDs receive monthly disability pensions, the amount (Rs. 1000–1250) is insufficient to meet holistic needs. NGOs occasionally provide wheelchairs or assistive tools, but such interventions remain sporadic and inadequate.

Cultural and Social Dimensions

Despite challenges, individuals with disabilities express unique strengths and talents. For example, hobbies such as singing, reading, and dancing reflect creativity, resilience, and aspirations for self-expression. However, stigma and exclusion often prevent recognition of these abilities. Communities may empathize with PWDs but rarely integrate them meaningfully into social and cultural activities.

2. Need for Case Study–Based Research

While statistical data provide macro-level insights, **c**ase studies offer an in-depth understanding of lived experiences, contextualizing disability within family structures, economic realities, and cultural identities. This research, therefore, employs a qualitative, case study approach to present narratives of seven individuals from Sildoobi with diverse disabilities. It highlights challenges, strengths, government assistance received, and expectations, thereby offering a holistic perspective on disability in marginalized settings.

3. Objectives

1. To document the socio-economic, educational, and health conditions of PWDs in Sildoobi.
2. To analyse the challenges faced by PWDs and their families in daily life.
3. To explore the expectations of PWDs and their caregivers regarding assistance and inclusion.
4. To examine the role of government and NGO support in disability management and to provide policy and practice-oriented recommendations for strengthening disability support systems.

4. Methodology

- **Research Design:** Qualitative case study approach.
- **Sample Size:** Seven (5) PWDs (children, youth, and adults) from Sildoobi village.
- **Data Collection:** Direct observation, interviews with PWDs and their caregivers, and review of disability certificates and related documents.
- **Tools:** Semi-structured interview schedules and narrative accounts.
- **Analysis:** Thematic analysis was applied to identify common challenges, strengths, and expectations.
- **Ethical Considerations:** Informed consent was obtained from caregivers; confidentiality and anonymity were maintained.

Case Study 1: The Story of Little Suhani Begum

In the quiet settlement of Sildoobi, nestled amidst Assam's lush greenery, a little girl named Suhani Begum began her life with more struggles than joys. Suhani was born at home, and her arrival was marked not by celebration, but by deep worry in her family. From the very beginning, her parents noticed something unusual—her tiny fingers had not developed fully, and one of her legs appeared weaker and misshapen. Her heart, too, was fragile, beating faintly as if uncertain of its own strength.Her parents rushed her to Silchar Medical College, where doctors confirmed the presence of congenital limb anomalies. They provided her with corrective shoes to support her mobility, but surgery was considered too dangerous. The doctors explained that her case was delicate and any operation carried the risk of further harm. Thus, Suhani's early life was marked by medical uncertainty, limited treatment, and a constant reminder of her physical vulnerability.At present, Suhani has been diagnosed with 40% locomotor disability. Her fingers remain underdeveloped, affecting her ability to hold objects, write, and perform tasks that other children her age do effortlessly. Her leg, though partially corrected with medical support, still restricts her mobility. Running with her peers, jumping in the playground, or even walking long distances remains a challenge. The disability certificate recognizes her condition officially, yet the practical support she needs in daily life is far beyond what a paper document can capture. Living with disability means Suhani's childhood is different from that of her peers. In summer, she suffers from painful infections between her fingers, caused by heat and perspiration. She falls sick frequently, with fevers and general weakness leaving her fatigued. Simple daily routines like holding a spoon while eating, or gripping a pencil while writing, become difficult tasks. Her greatest struggle is the inability to run freely. At school, when her classmates play in the courtyard, Suhani tries to join but often falls behind. The joy of childhood games is bittersweet for her—she can watch, but not fully participate. Yet, she refuses to let this break her spirit. Suhani's family situation adds another layer of hardship. Her parents, Mrs. Sayra Begum and Mr. Abdul Hussain, separated due to family conflicts. Her mother became the primary caregiver, shouldering all responsibilities of raising Suhani and her younger brother. Her father, an auto

driver, provides occasional financial support but is emotionally absent. The family lives with limited income, surviving on her father's irregular contributions and the resilience of her mother. With no stable earnings and no financial aid from the government, Suhani's mother struggles to meet medical costs, school expenses, and daily needs. Despite these challenges, Suhani is determined to study. She is enrolled in Class I at 298 No. Vivekananda L.P. School, a local lower primary institution. Though writing is hard due to her finger anomalies, she loves to read. Her teachers describe her as a curious learner, eager to explore words and stories. Reading has become her strength and passion, giving her confidence even when her body feels weak. Her mother dreams of seeing her daughter continue education, believing it to be the path to independence and dignity.

Although Suhani has an official disability certificate, she has not yet received any financial or welfare benefits from government schemes. Her mother explained that they have approached officials but have not been enrolled in any pension or support programs. The lack of awareness and bureaucratic barriers have left the family without essential services. No NGOs have reached out directly, and the family continues to rely only on its limited means. The absence of support makes Suhani's case more vulnerable compared to others who at least receive monthly pensions or mobility aids. Suhani may be physically weak, but her spirit is unyielding. Her favourite hobby is reading, which she does with enthusiasm. Books transport her to worlds where her disability disappears, where she can imagine herself running, dancing, and exploring freely. Her mother describes her as a "fighter," someone who never complains despite her pain. Suhani's hope is simple yet powerful—she wants to grow up educated, independent, and respected. Though her family does not expect treatment for her condition anymore, they wish for opportunities that will allow Suhani to live with dignity and contribute to society in her own way.

The story of little Suhani is one of resilience amid adversity. Born with multiple physical challenges, abandoned emotionally by her father, and deprived of government aid, she still shines through her love for reading and her determination to study. Her case illustrates how disability is not just a medical condition but a social issue shaped by poverty, family structures, and systemic neglect.Suhani's life is a reminder that disability does not define

potential. With proper support—be it financial assistance, inclusive education, or community awareness—children like her can grow into empowered adults. Until then, her mother's unwavering care and her own inner strength remain her greatest sources of hope.

Case Study 2: The Story of Susmita Roy

In the modest village of Sildoobi, a small house echoes with both laughter and quiet worry. This is the home of Susmita Roy, a 10-year-old girl whose childhood shines with joy but is also shadowed by challenges. Born at home under the care of a midwife, Susmita came into the world without major complications. Her parents, Mr. Anup Roy and Mrs. Sandhya Roy, were overjoyed to welcome their daughter. Yet as months passed, they noticed that her speech was unclear and her eyes did not align like other children's. Doctors later diagnosed her with a speech disorder and strabismus (crossed eyes).Her parents initially thought she would "grow out of it," but as the years went by, they realized her disabilities were permanent. Still, they embraced her wholeheartedly, nurturing her with love even as financial worries loomed large.Susmita lives with 40% disability, combining both speech and visual impairments. Her speech is often interrupted, with words emerging slowly and sometimes incomprehensibly, making communication a daily struggle. The strabismus affects her vision, sometimes causing double vision and difficulty in focusing on schoolwork. Her disability certificate gives her recognition in official records, but in reality, her challenges go far beyond percentages. Every time she attempts to speak clearly or read from her schoolbook, she must exert extra effort—effort that children her age rarely has to give.Despite her cheerful demeanour, Susmita's daily life is punctuated with small but painful struggles. At school, answering questions in class becomes nerve-wracking; her classmates often whisper or giggle when she stumbles over words. This makes her shy, though her teachers encourage her gently. Her vision issues also make reading and writing difficult. Letters blur together, and she often loses track while copying from the blackboard. On some days, her eyes ache from the strain, forcing her to take frequent breaks. At home, skin problems trouble her further—she is prone to rashes and infections that make her uncomfortable in hot and humid weather.Playtime, however, is when Susmita shines. Unlike Suhani, who cannot

run, Susmita enjoys playing with her neighbourhood friends. But her true joy lies in dancing. Whenever music plays, her body sways naturally, and she forgets her disabilities. Dance becomes her language, her way of expressing emotions that words sometimes fail to convey.The Roy family lives a modest life. Susmita's father, Mr. Anup Roy, runs a small vegetable shop in the local market. His income is just enough to keep the family afloat, averaging around Rs. 7000–8000 per month depending on seasonal sales. Her mother, Mrs. Sandhya Roy, is a homemaker who manages the household with patience and love.Although Susmita is their only child, the family struggles to balance medical expenses, school fees, and daily costs. Her father often works long hours in the market, returning home exhausted but determined to provide for his family.Despite financial limitations, the Roy family is bonded by strong affection. Susmita's parents encourage her talents, especially her dancing, and ensure she never feels less capable than other children.Susmita attends Class V at 298 No. Vivekananda L.P. School, the same institution as Suhani. Teachers describe her as a bright but shy student. Her difficulty in speaking sometimes prevents her from actively participating in class discussions, but her understanding of lessons is good.Her parents dream of her continuing education, perhaps learning a skill that will give her independence. Susmita herself dreams of becoming a dance teacher one day. Whenever she performs small dance routines at school events, the pride in her parents' eyes is unmistakable. Though Susmita has a valid disability certificate, her family has not received any government support. No pension, no special financial aid, no educational assistance—nothing has reached them so far. Her father has tried approaching local authorities, but the process has been slow and confusing.NGOs have not intervened either, leaving the Roy family to rely solely on their vegetable shop income. This lack of support is disheartening, especially since Susmita's education and medical needs could benefit greatly from even minimal financial aid.What sets Susmita apart is her resilience. Despite communication barriers, she is determined to express herself—sometimes through broken sentences, other times through graceful dance movements. Her favourite activity is dancing to folk songs, where she loses herself in rhythm and joy.She also enjoys helping her mother in small household chores, such as arranging vegetables or folding

clothes. These small acts give her a sense of responsibility and belonging.Susmita hopes to continue her studies and receive training in dance. She dreams of a life where people see her talent first, and her disability second.

The story of Miss Susmita Roy is one of hope wrapped in hardship. Though she lives with speech and vision challenges, she radiates positivity through her smile and her love for dance. Her parents' unwavering support provides her with strength, but financial constraints and lack of government aid remain major obstacles.Her case illustrates how disability is not just a physical or medical issue but also a social and economic challenge. With proper educational support, therapy, and financial assistance, Susmita could overcome barriers and pursue her passion for dance, inspiring many others.In Susmita's story, we see a lesson of courage: that disability does not diminish dreams, and that every child, no matter their challenges, deserves the chance to shine.

Case Study 3: The Story of Niranjan Goala

In the quiet village of Sildoobi, where narrow lanes weave between simple homes and fields stretch far beyond sight, lives Mr. Niranjan Goala, a young man of 23. His life is not like that of his peers who spend their youth working in shops, driving autos, or tilling fields. Niranjan was born with multiple severe disabilities that shaped the entire course of his existence. Born at home under the care of elders, his arrival was bittersweet. His family noticed almost immediately that something was different—his eyes were absent, his back slightly hunched, and his knees bent awkwardly. Over time, doctors confirmed what his mother had already sensed: Niranjan had a rare congenital condition called Anophthalmia (absence of both eyes), combined with kyphosis (curvature of the spine) and severe mobility challenges due to bent knees. As if these weren't enough, he often fainted and struggled with breathing difficulties. From the very beginning, his family knew that his life would require extraordinary care.

Niranjan's disability is categorized as 100% multiple disabilities. His conditions include:

- **Visual impairment**: Born without eyes, he has never experienced sight.

- **Kyphosis**: A bent spine that makes sitting upright or moving difficult.
- **Mobility challenges**: His bent knees limit movement, often causing pain.
- **Physical weakness**: Episodes of fainting and breathing trouble restrict his daily activities further.

Unlike many persons with disabilities who can find partial independence, Niranjan relies almost completely on others for daily living. From eating and bathing to mobility, everything requires assistance. For Niranjan, every day is both a gift and a test. His inability to see makes him dependent on his mother's voice for guidance. His mobility issues prevent him from moving around freely; even shifting from bed to chair requires support. The back pain caused by kyphosis makes prolonged sitting or standing unbearable. He often faces health scares, fainting suddenly or gasping for breath, leaving his family anxious. Unlike his siblings, he cannot contribute to household chores or income-generating activities. At times, this leaves him with feelings of helplessness. But amid these challenges, Niranjan holds a unique strength—his love for singing. Though he cannot see the world, he paints it with his voice. Singing folk songs, devotional bhajans, or simply humming melodies gives him peace and a way to connect with others. His family often says that when Niranjan sings, the entire household forgets its worries for a while. Niranjan lives in a joint family of six members—his parents, two sisters, and one brother. His father, Mr. Badrilal Goala, is an auto driver who earns just enough to manage basic needs. His mother, however, is the pillar of his care. From feeding him to bathing, dressing, and even moving him around, she takes responsibility for his every need.

The bond between mother and son is extraordinary. Despite her own exhaustion from household work, she never fails to attend to Niranjan with patience. His siblings support emotionally, but as they grow older and pursue their own paths, most of the care burden remains on the mother. Unlike other children of his age, Niranjan never had the opportunity to attend school. His complete blindness and mobility restrictions made formal education impossible. With no access to special schools or inclusive learning facilities in their area, his parents could not send him anywhere This exclusion from education also meant exclusion from employment. At 23, while his peers are

earning wages, Niranjan remains unemployed and financially dependent. The lack of specialized vocational training or rehabilitation support has left him with very limited options for independence. Niranjan's family managed to obtain official documents such as his disability certificate, Aadhaar card, and birth certificate. Since 2016, he has been receiving a monthly pension of Rs. 1200 from the government, withdrawn from a UCO Bank account. While this financial assistance provides some relief, it is far from sufficient. Medical expenses, nutritional needs, and caregiving costs often exceed the family's income. The family also remains unaware of other schemes or services that might support them, highlighting a gap between policy and accessibility. What makes Niranjan's story shine is not his disability but his spirit and talent for music. Though life has been cruelled in taking away his sight and mobility, it has blessed him with a melodious voice. He spends hours singing, his voice carrying emotions that words alone cannot. For his family, his singing is more than entertainment—it is therapy. It uplifts their spirits during difficult times and reminds them that despite limitations, Niranjan has his own identity and gift to share with the world. When asked what he hopes for, Niranjan's mother responds with a sigh: financial assistance and better medical support. She dreams of facilities that could ease his pain, therapies that could improve his health, and resources that could lessen the caregiving burden. For Niranjan, his own wish is simple: to sing before an audience one day, to be known for his music rather than his disabilities.

The story of Mr. Niranjan Goala is one of resilience against overwhelming odds. Disabled since birth, denied education, and dependent on his family for every aspect of life, his existence highlights the urgent need for comprehensive disability care in rural India. His family's love sustains him, but love alone cannot bridge the gaps left by inadequate healthcare, educational exclusion, and limited government support. Yet, Niranjan's voice rises above these barriers. His songs remind us that disability does not erase humanity's innate creativity and potential. What he needs is recognition, structured support, and opportunities to let his gift reach the wider world. In his journey, we learn that dignity for persons with disabilities lies not only in survival but also in enabling them to live with purpose, joy, and identity.

Case Study 4: The Story of Bipul Roy

In the bustling yet humble neighbourhood of Sildoobi lives Mr. Bipul Roy, a 50-year-old man whose life has been a blend of hard work, struggle, and quiet perseverance. Unlike some of the younger clients who were disabled by birth, Bipul's journey took a different turn. His disability emerged gradually and worsened with age, leaving both his legs weakened and his mobility restricted.Born into a modest family decades ago, Bipul's early years were filled with simplicity. He attended school for a short while before joining his father in agricultural labor. Like many young men of his generation, he grew up learning the value of hard work and self-reliance. But fate had its own design—his legs began to weaken, slowly turning his active life into one of dependency.Bipul is officially recognized with a 45% locomotor disability. Both his legs are equally affected, making it difficult for him to walk or stand for long periods. Over time, his condition has left him almost fully reliant on mobility support. The once strong and energetic young man now struggles to move without assistance, his steps slow and cautious.The medical certificate confirming his disability is both a safeguard and a reminder of the life he lost—a life where his body once obeyed his will without resistance.For Bipul, each day begins with a challenge. Getting out of bed requires effort, as his legs refuse to carry his weight with ease. While wheelchairs provide some mobility, navigating uneven village roads is a constant struggle. His disability prevents him from walking to nearby markets or participating actively in community events.Running a small business has not been easy either. Though he owns a banana shop in the community, his condition limits his ability to transport goods or stand long hours for customers. Much of the work—such as lifting bunches of bananas or arranging the shop—requires assistance from his wife or children.Yet, despite the physical strain, Bipul refuses to give up. His shop is not just a source of income; it is a symbol of dignity. It allows him to contribute to his household and maintain his role as a provider, even within his limitations.Bipul lives in a nuclear family of six members: his wife, one son, and three daughters. His wife is his primary caregiver, managing both household responsibilities and supporting her husband's physical needs. She helps him move, manages finances, and stands by him in running the banana shop.Their children, though still young, offer emotional

support. The son occasionally assists at the shop, while the daughters help in household chores. Despite the difficulties, the Roy family is bound by love and mutual understanding. Their small home may not boast luxury, but it carries the warmth of resilience.Economically, the Roy family survives on a fragile thread. The banana shop, despite limitations, provides a monthly income of about Rs. 6000–7000. This amount is barely sufficient to meet the family's needs, especially with four growing children. Medical expenses for Bipul's care further strain their finances.Unlike some who abandon work due to disability, Bipul insists on continuing his self-employment. For him, earning with dignity—even if modest—matters more than depending entirely on charity. His story is one of grit, where survival is achieved through sheer willpower.Over time, Bipul has received limited assistance. From the government, he gets a monthly pension of Rs. 1000, which supplements the family's income slightly. He also received a wheelchair from an NGO operating in Sildoobi, though the organization's name remains unknown to him. The wheelchair has been helpful, but its usability is restricted to smoother surfaces; village terrain makes it nearly impossible for him to use independently.Beyond this, no significant support—be it medical, financial, or vocational—has reached him. The gap between his needs and the aid provided remains wide, leaving him and his family to carry the burden mostly on their own.What sets Bipul apart is his determination and self-reliance. Despite limited mobility, he chose to remain economically active by setting up his banana shop. His ability to adapt and sustain his family with whatever resources he has speaks volumes about his character.Neighbours describe him as a man of dignity—one who never begs for help but works with whatever strength is left in him. His sense of humour and cheerful presence at the shop make him well-liked in the community. He may not walk like others, but his willpower takes him further than many able-bodied men.Bipul's primary expectation from the government is financial assistance. With more consistent support, he could expand his shop or at least ease the financial pressure on his family. Access to medical care and improved mobility aids would also help him live with more comfort.For his children, he dreams of education and a better future. His greatest fear is that his disability and poverty may hinder their opportunities. Yet, he holds on to hope that one day, they will rise beyond his struggles.

The story of Mr. Bipul Roy is not just about disability; it is about resilience, dignity, and the will to survive against odds. Struck by locomotor disability that limits his mobility, Bipul could have surrendered to dependency. Instead, he chose to run a small shop, sustain his family, and live with pride.His story reveals the reality of thousands of disabled persons in rural India—individuals who, despite physical barriers, strive for independence but remain underserved by systems meant to support them. With proper financial aid, improved accessibility, and community-based rehabilitation, Bipul could achieve even more.In Bipul's quiet strength lies a message: disability does not define the end of productivity or dignity. With resilience, even limited means can be turned into opportunities for survival and hope.

Case Study 5: The Story of Supriya Roy

In the lanes of Sildoobi, where modest homes line narrow paths and neighbours live like extended families, resides Miss Supriya Roy, a woman of about 25 years. Her story is one of survival, courage, and resilience in the face of adversity. Supriya was born at home, like many in her village, with no medical facilities present during childbirth. From the very beginning, her parents noticed something unusual—her right side did not function normally. Her arm and leg seemed weak, and her movements were limited. Doctors later confirmed that she had a congenital disability, one that would remain with her throughout her life.Her disability affected not only her physical mobility but also her speech. While she could communicate, there were moments when words escaped her, leaving conversations broken. This combination of physical and speech challenges set her apart from her peers, making her dependent on her family for the simplest of tasks.Supriya has a 50% disability officially categorized as "handicapped." The right side of her body remains paralyzed since birth, limiting her ability to walk, hold objects, or perform daily chores independently. Added to this is her occasional speech difficulty, which makes communication frustrating at times.Her disability has been recognized with a medical certificate from Silchar Medical College, but recognition alone does not make life easier. Her daily challenges remind her constantly of what she cannot do without help.Everyday life for Supriya is shaped by her disability. Getting out of bed, bathing, eating, dressing—all require her mother's assistance.

While many women her age walk briskly to college, markets, or workplaces, Supriya moves slowly with support, her steps uncertain and tiring.Communication too is a hurdle. On some days, her speech flows clearly; on others, it is interrupted, requiring patience from those around her. This makes social interactions difficult. Visitors often grow restless when she cannot respond quickly, making her retreat into silence.Perhaps the most painful aspect of her condition is accessibility. She cannot travel outside easily. Even basic participation in public life—such as casting a vote—required officials to come to her house so she could exercise her democratic right. While she was proud to mark her first vote, the fact that she could not walk to the polling booth like others reminded her of her limitations. Supriya lives in a nuclear family with her parents. Her father is a daily wage laborer, working whenever jobs are available. His income is irregular and insufficient, barely meeting household needs. Her mother, a homemaker, carries the dual burden of managing the house and caring for her daughter.The family struggles with poverty. With limited income and no steady source of earnings, they often face financial stress. Medical expenses for Supriya's care are an additional burden. Yet despite hardships, her parents' commitment to her never falters. Her mother's caregiving is constant, and her father's occasional earnings keep the household running.Supriya's education was cut short before it began. Her mobility challenges prevented her from attending school. The long walk to the nearest institution and lack of accessible infrastructure meant she was confined to her home. Unlike her peers, she never sat in a classroom, never opened a schoolbook, and never had the chance to learn formally.However, her parents taught her one valuable skill: to write her name. Supriya can sign documents, and though she remains illiterate, this small ability gives her a sense of identity. For her, the act of signing her own name instead of using a thumb impression is a matter of pride.Supriya's family has tried to seek government support. She receives benefits under the Arnunodoi Scheme, which provides Rs. 1250 per month. While this assistance helps, it is barely enough to cover food, medicine, and daily needs.Additionally, Supriya once received a wheelchair from an NGO, though her mother could not recall the organization's name. The wheelchair provided her some degree of mobility within the house and yard, but the poor condition of

village roads makes it nearly impossible for her to use it outside. Despite these small supports, the family feels abandoned. With better schemes, medical support, or vocational opportunities, Supriya could live with more dignity. Instead, they continue to rely on her father's uncertain earnings and minimal aid. Though Supriya's body restricts her, her spirit remains strong. She has an engaging smile and a warm personality that draws affection from neighbours and relatives. Her resilience in facing everyday challenges is itself her strength.Her hobbies are simple—listening to music, watching children play nearby, and engaging in conversations when her speech allows. She loves spending time with her mother, who is her closest companion and confidante.Supriya dreams of a world where she could walk without pain, where she could attend social functions, and where people would see her as capable rather than dependent. Her aspirations may seem small compared to others, but they reflect her longing for independence and dignity.When asked what she expects from the government or society, Supriya speaks little, but her mother answers with clarity: financial stability and better accessibility. They hope for schemes that provide not just pensions but also medical support, therapy, and maybe even training that could help Supriya engage in some form of work from home.Her story reflects a broader truth—disability in rural India is not just about health but also about social exclusion, lack of education, and economic vulnerability.

The life of Miss Supriya Roy is marked by struggle, but also by courage. Disabled from birth, denied education, and bound by poverty, her existence illustrates the challenges faced by thousands of women with disabilities in rural areas. Yet her resilience and her family's unwavering love keep her spirit alive. Her case highlights the urgent need for inclusive education, accessible infrastructure, and comprehensive support systems for persons with disabilities. With the right interventions, Supriya could live not as a dependent but as a woman with dignity, contribution, and independence.In her story, we see not just disability but also determination—the quiet strength of a young woman who continues to hope, despite the odds stacked against her.

5. Findings

The case studies from Sildoobi village reveal that persons with differently able face multidimensional challenges rooted in poverty, lack of access to education, limited healthcare, and insufficient government support. Most families depend on daily wage labour or small-scale farming, which restricts their financial capacity to provide assistive devices, medical treatment, or specialized care. While a few individuals have received disability certificates and pensions, bureaucratic delays and lack of awareness prevent many from accessing government schemes. Education emerges as another major barrier, with children either dropping out early due to inaccessible schools or never enrolling at all, which further limits livelihood opportunities in adulthood.

Social stigma also plays a significant role in shaping their lived realities. Several narratives reflect experiences of exclusion, both within families and in the wider community. Women with disabilities, in particular, experience a double burden of gender and disability, making them more vulnerable to neglect and dependence. Yet, despite these adversities, resilience is a recurring theme in their stories. Many individuals expressed determination to continue their education, support their families, or contribute through small-scale activities, highlighting inner strength and the role of family support in survival.

Another key finding is the gap between policy promises and ground realities. Although schemes such as disability pensions, assistive devices, and reservation benefits exist, the implementation remains weak at the local level. Families often lack proper guidance on application procedures, and middlemen sometimes exploit their vulnerability. The narratives also highlight the absence of community-based rehabilitation services, forcing families to rely solely on informal care, which often burdens mothers or siblings disproportionately.

Overall, the findings suggest that persons with disabilities in Sildoobi are caught in a cycle of poverty, stigma, and limited opportunities, yet they also demonstrate remarkable resilience and hope. Their stories reflect both the structural neglect in service delivery and the human spirit to adapt and survive, pointing to an urgent need for stronger social, educational, and policy interventions tailored to rural contexts.

6. Suggestions

- Strengthen implementation of disability welfare schemes with transparency at local levels.
- Introduce inclusive education models in rural schools with trained special educators.
- Enhance community-based rehabilitation programs through collaboration with NGOs.
- Provide livelihood training and microcredit for PWDs and caregivers.
- Conduct awareness campaigns to reduce stigma and promote social inclusion.

7. Conclusion:

This case study research highlights that PWDs in Sildoobi experience multidimensional disadvantages encompassing health, education, economy, and social participation. Although some governmental and NGO assistance exists, it remains fragmented and inadequate. The resilience and talents of PWDs indicate their potential to contribute meaningfully if empowered through inclusive policies and community support.

Recommendations:

1. Expand disability pension schemes with increased financial support.
2. Ensure accessible infrastructure in schools and public spaces.
3. Establish local rehabilitation centres with physiotherapy, counselling, and assistive technology.
4. Train caregivers, especially mothers, in disability management and self-care.
5. Strengthen convergence between government, NGOs, and community leaders for holistic disability inclusion.

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11

Whether Gender Differences in Financial Literacy are significant – Evidence from Rural Households of Cachar District, Assam

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Abstract

Despite advances in the 21st century, gender disparities remain evident in many spheres, including financial literacy and financial inclusion. Empirical studies on this issue, particularly in rural areas, are limited. Against this backdrop, the present study examines whether gender differences in financial literacy are statistically significant in the Cachar district of rural Assam. Based on primary data collected from 482 households composite financial literacy indices were constructed. The findings reveal significant gender disparities at district, block, and village levels. The study recommends expanding financial literacy centres, community-based workshops, and gender-sensitive financial education initiatives.

Key Words: *Gender, Financial Literacy, Household, Household Level Financial Literacy Index.*

JEL Classification Codes: J16, D14, G21, C83

1. Introduction

Financial literacy has become an essential part of individual life in this 21st century. But the issue of financial illiteracy or lack of financial knowledge is noticeable especially in underdeveloped

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nations, where individuals often lack access to quality general education as well as basic financial literacy. A large portion of the population remains unaware of financial matters due to a low level of financial knowledge, which consequently restricts their ability to make informed financial choices. Studies from developed countries show that individuals and households with financial literacy find it comparatively easier to engage in an inclusive financial system and enhance their capability to execute significant financial transactions.

A systematic analysis of empirical studies, meta-analyses, and reviews from diverse geographic and cultural contexts was conducted, with an emphasis on multidimensional components of financial literacy. Gender differences in the financial literacy of adults focus on financial awareness and skills to address persistent disparities and their underlying determinants. Findings reveal consistent gender gaps favouring men in financial knowledge, skill and confidence compared to women. Patriarchal biases hinder female financial literacy in rural India where economic development and female autonomy are constrained by this bias (Sardana, 2024). This gender difference in financial literacy is evident among women of various demographics and requires targeted financial education interventions to address these gaps, particularly for vulnerable groups (Adamska, 2023). This ongoing disparity highlights the need for targeted efforts to enhance financial literacy for women in rural areas. Moreover, the literature is scarce regarding the conceptual and measurement-related aspects of financial literacy at the household level, which covers all adult household members, thereby restricting the evaluation and inquiry into gender differences in financial literacy. In this respect, this study has utilised the conceptual framework of financial literacy developed by Roy and Nath (2025). They distinguished themselves from other macro-level studies by framing financial literacy exclusively in terms of symptom dimensions viz., financial awareness and financial knowledge. It is certainly very important to empirically test and conduct household-level studies to explore inter-household and intra-household variations in the level of financial literacy. At this backdrop, the present study attempted to investigate whether gender differences in financial literacy are significant in the rural households of Cachar district, Assam. This district is chosen as the study area because it is moderately financially

included as found from the study conducted by CRISIL (2018). Since financial literacy is the backbone of meaningful and effective financial inclusion, it is thus, naturally an interesting thing to investigate the status of financial literacy in the same region, and to explore if there are any staple gender differences in the level if financial literacy.

2. Review of Literature

2.1 Conceptualisation of financial literacy

The systematic conceptualisation of financial literacy is of utmost importance as it helps in measuring financial literacy in the right direction. Attempts to provide the precise meaning of financial literacy are made from time to time by various financial experts, economists and institutions. Alba and Hutchinson (1987) have used the term 'financial literacy' for the first time in the literature, defining it as a specialised kind of consumer expertise required for the successful management of one's financial affairs. This definition, although not very specific, hints towards the financial skill/ knowledge of a person. Klapper et al. (2015) have developed a clear understanding of financial literacy by conceptualising it in terms of financial knowledge. However, scholars such as Atkinson et al. (2007), Remund (2010), and Fanta et al. (2016) have presented a relatively broader view of financial literacy by integrating the knowledge and behavioural aspects of finance. Financial literacy, according to Bhushan and Medury (2013), is the capacity to make wise decisions and evaluate how money can be used and managed. Gupta (2017) viewed FL as a combination of skills and knowledge that enables the individual to comprehend the principles of finance, making informed monetary decisions and choosing financial products that influence their financial well-being. As per Remund's work (2010), financial literacy comprises financial awareness, knowledge and behaviour. Atkinson and Messy (2012) defined financial literacy as a combination of awareness, knowledge, skills, attitude, and behaviour that are essential for making informed financial choices and ultimately achieving personal financial well-being (APEC, 2014). It has identified four common issues related to financial literacy viz. knowledge, skills, attitude, and behaviour for assessing financial literacy. A revolutionary attempt to create a sound definition of financial literacy came in 2012 when

G20 leaders highlighted the importance of national strategies for financial education by endorsing the principles set by the Organisation for Economic Co-operation and Development (OECD) and its International Network on Financial Education (Karakurum-Ozdemir et al., 2018). The OECD (2015) describes financial literacy as a combination of awareness, knowledge, skills, attitudes, and behaviours that are essential for making informed financial choices. Most recent literature, such as the National Centre for Financial Education Report of India (2015), Gunther and Ghosh (2018), and Bhatt (2017), among others, has also conceptualised financial literacy in a similar manner as the OECD has done.

However, it is worth noting that all the definitions of financial literacy in the literature were related to the individual level, and these definitions could not provide a deep insight into household-level financial literacy. The noteworthy surveys on financial literacy at global and national level like Global Financial Literacy Survey (Klapper et al., 2015), National Strategy for Financial Literacy in US (Poll, 2015), National Centre for Financial Education Report of India (2015) etc. were fundamentally trying to evaluate the cross-country and cross-state financial literacy status based on households where the ultimate target sampling unit is an eligible respondent from each household. This sort of exercise is silent about the level of financial literacy for the entire household. However, individual-level financial literacy cannot be a true reflection at the household level. This research gap in the literature calls for a conceptualisation of household-level financial literacy, providing a comprehensive emphasis on inter-household comparative studies on financial literacy.

2.2 Financial literacy and gender disparity

The existing study identified a gender gap in financial literacy, highlighting that women generally possess lower financial awareness and skills compared to men and this gap persists across various demographics Sarıgül (2024). Espinoza-Delgado & Silber (2023) in their findings revealed a significant gender difference in financial literacy across Argentina, Chile, and Paraguay, particularly in financial knowledge. Women generally exhibit lower financial awareness and skills, contributing to the overall gender gap in financial literacy in these countries. Sarpong-Kumankoma et al. (2023) identified that males of Ghana

exhibit higher financial literacy than females, primarily due to differences in how literacy is produced rather than demographic factors. This gap suggests that unobserved behavioural traits and cultural norms influence financial awareness and skills differently between genders. Rathakrishnan et al. (2024) conducted a study on gender differences in financial literacy among Eastern University students and found that male students generally scored higher in financial awareness and skills across various topics, including insurance, investments, and savings. Sahabuddin & Hadianto (2023) also conducted a study among students in higher education institutions and found that males exhibit better financial literacy and behaviour than females. It highlighted that financial literacy significantly influences money-related behaviour.

Kaur & Sharma (2024) highlight the gender disparity in financial literacy, noting that women often exhibit lower financial awareness and skills compared to men, as supported by Dewi (2022), Damong& Perez (2024), and Nursjanti & Amaliawiati (2024). Societal expectations and cultural norms significantly shape differences in financial awareness and skills, influencing economic empowerment and financial decision-making for both genders (Adiandari, 2023). On both objective and subjective financial knowledge, men often score higher than women (Blanco et al., 2024). Huang & Kosnik (2024) in their research highlighted that women generally exhibit lower financial literacy levels than men, primarily due to a lack of confidence in their financial skills and knowledge. Addressing this gap requires mandated financial education to enhance awareness and competence among women. Dzulkepli et al. (2024) identified a significant gender disparity in financial literacy, emphasising differences in financial knowledge and access. It identifies key themes such as financial inclusion and awareness, indicating that these gaps impact personal economic well-being. Smolo et al. (2023) found that males show higher financial knowledge and skills than females. Women, while participating in financial decision-making, tend to under-invest in financial education, contributing to the observed gender gap in financial literacy.

3. Objective

To examine gender disparities in terms of financial literacy among rural households in Cachar district of Assam.

4. Methodology

4.1 Data Source and Sampling Design

The current research is based on primary data collected from rural households in Cachar district through a field survey conducted during the months of June and July of 2022. During this field survey, interviews were conducted with all adult members of each household. If any member is found to be absent on a specific day of the field visit, the household is revisited to ensure that the absentee can be interviewed. The sampling design employed in this study utilises a Multi-Stage Random Sampling method, which comprises three distinct stages.

Stage I. In the first stage, out of the fifteen community development blocks of Cachar district, three blocks are selected. The selection process was guided by supply-side macro-level parameters related to financial inclusion. The chosen blocks represented three distinct categories: one block demonstrating a comparatively high degree of financial inclusion, another exhibiting a moderate level, and a third showing relatively lower financial inclusion. To select the Community Development Blocks (CDBs) within the research area according to their varying degrees of financial inclusion, a Block-level Financial Inclusion Index was constructed using three specific indicators: the number of bank branches per 100 villages, bank branches per 10,000 households, and bank branches per 100,000 population. For each of these indicators, an index has been formulated using the United Nations Development Programme's Maximum-Minimum approach, and a simple average of these indices has been calculated to establish the Block-level Financial Inclusion Index (BLFII), which ranges from 0 to 1.

Category 1: $0 \leq BLFII \leq 0.40$	Low Level of Financial Inclusion
Category 2: $0.41 \leq BLFII \leq 0.70$	Moderate Level of Financial Inclusion
Category 3: $0.71 \leq BLFII \leq 1$	High Level of Financial Inclusion

Stage II: At this step, two villages were selected from every block, ensuring that one village contains at least one bank branch within its territorial boundaries, while the other lacks any bank branch. Thus, in the current research, there are a total of six sample villages.

Stage III: The final step involves selecting sample households through a simple random sampling method without replacement. To establish the appropriate sample size, researchers employed Yamane's (1967) statistical formula, which is designed for a known population. Based on this formula's calculations, the study determined that 482 households would constitute the total sample size. The mathematical expression developed by Yamane is presented as follows.

$$n = \frac{N}{1 + N.e^2} \quad \text{..... (1)}$$

where n = Sample size i.e., total number of sample households in a sample village

N = Population size and here it means the total number of households in the village

e = Level of precision or sampling error

4.2 Conceptual Framework

4.2.1 Household Level Financial Literacy- Meaning and Dimensions

Conceptualization of financial literacy is made in line with the work of Roy and Nath (2025), where a household is said to be financially literate if it is aware of/informed about all types of important financial aspects like financial products and instruments, financial activities etc. and does possess the necessary skill/knowledge for utilising, planning and successfully managing these financial aspects. This definition represents two dimensions of financial literacy viz. awareness/ information[1] and financial knowledge/skill[2]. It tries to make a point that a household is deemed financially literate if it possesses both financial awareness and knowledge. In contrast to other significant studies on financial literacy at both national and international levels, such as those by OECD (2015), Gunther & Ghosh (2018), and Bhatt (2017), the current research does not incorporate the dimensions of financial behaviour and financial attitude, as these may be considered as the outcome of financial literacy. A sufficient level of awareness and knowledge

1 The words financial awareness and financial information are used synonymously

2 The words financial knowledge and financial skill are used synonymously

pertaining to finance may enable a household to engage in a financially desirable manner and cultivate an appropriate financial attitude. Therefore, financial behaviour and financial attitude are regarded as outcome variables of financial literacy, rather than mere symptoms. The conceptualisation of financial literacy through the lenses of awareness and knowledge also facilitates the collection of relevant data from all adult household members. This is attributable to the fact that levels of awareness and knowledge regarding financial matters can significantly differ among individuals. For instance, the head of the household and their spouse may lack familiarity with financial applications and their functionalities. At the same time, their children may be well-versed in these technologies and their usage Roy and Nath (2025).

4.2.2 Dimensional Indicators of Financial Literacy

The dimensional indicators of financial literacy i.e. financial awareness and financial knowledge are shown in the following Table 1.

Table 1: **Dimensional Indicators of Financial Literacy**

Financial Awareness Indicators	Financial Knowledge Indicators
1. Awareness of traditional saving products like savings account, recurring deposit, long-term government securities etc.	1. Basic numeric skills like capable of doing addition, subtraction, multiplication and division
2. Awareness of non-traditional saving products like investment plans in mutual funds, corporate bonds etc.	2. Calculation of simple average and percentages
3. Awareness of various loan products	3. Calculation of simple interest
4. Awareness of various insurance products	4. Calculation of compound interest (both on savings and loans)
5. Awareness of various modern modes of payment like debit card, credit card, pay TM etc.	5. Difference between a current account and a savings account
6. Awareness of net banking	6. Knowledge of the stock market

7. Awareness of various financial apps	7. Knowledge of using modern modes of payment like debit card, credit card, pay TM etc.
8. Awareness of the business correspondent model[1] of banking	8. Knowledge of using various consumer apps like Flipkart/ Amazon
9. Awareness of no-frill account[2]	9. Knowledge of using various financial apps
10. Awareness of various financial schemes of the government/financial institutions/NGOs	10. Knowledge of net banking
11. Awareness of financial scams like hacking of savings account, cheat funds etc.	11. Understanding the impact of inflation
12. Awareness of the current economic environment like inflation	12. Knowledge of financial risk diversification

Source: Roy and Nath (2025)

4.3 Analytical Framework

4.3.1 Construction of Household-Level Financial Literacy Index

This research has developed a composite Financial Literacy Index designed to assess financial literacy at household level. The index serves as an aggregate indicator of financial literacy, capturing the average performance of households across two

1 Business correspondents, as intermediaries of banking institutions, offer a limited number of financial and banking services like bank account opening, deposits, withdrawals from savings accounts, loan applications etc. The utilisation of BCs also allows banks to provide their limited range of banking services at a reduced cost, both in urban and rural areas (RBI, 2009).

2 In 2005, the Reserve Bank of India initiated the 'No Frills' account to provide fundamental banking services, including maintaining a zero-balance savings account, access to mobile and internet banking, a complimentary Debit Card, and quarterly account statements for individuals from low-income backgrounds. Moreover, the service fees associated with the No Frills account were significantly lower than those associated with standard savings accounts (RBI, 2005).

fundamental aspects of financial literacy: financial awareness and financial knowledge. The development of this Financial Literacy Index requires completion of the following two steps.

Step I: Construction of Dimensional indices

$$FAWI_J^M = \frac{1}{N}\sum_{i\neq j=1}^{n}\frac{AFAW_{ij}}{TFAW} \; ; 0 \leq FAW_J^M \leq 1 \quad \text{.....(2)}$$

j = 1,2, 3….m and i = 1,2, 3……n

Where, $FAWI_j^M$ = Financial Awareness Index of the j^{th} household

$AFAW_{ij}$ = Actual Number of financial awareness indicators on which the i^{th} adult male member of the j^{th} household has the awareness/information

TFAW = Total number of financial awareness indicators under question

n = Total number of adult members of the j^{th} household

m = Total number of sample households in the study area

$$FAWI_J^M = \frac{1}{N}\sum_{i\neq j=1}^{n}\frac{AFAW_{ij}}{TFAW} \; ; 0 \leq FAW_J^M \leq 1 \quad \text{.....(3)}$$

j = 1,2, 3….m and i = 1,2, 3……n

Where, FKI_j^M = Financial Knowledge Index of the j^{th} household

AFK_{ij} = Actual number of financial knowledge indicators on which the i^{th} adult male member of the j^{th} household has the relevant knowledge/skill

TFK = Total number of financial knowledge indicators under question

n = Total number of adult members of the j^{th} household

m = Total number of sample households in the study area

Similarly, the dimensional indices of financial awareness and financial knowledge for females can also be measured using the above indexes.

Step II: Construction of Household Level Financial Literacy Index ($HLFLI_j$)

$$HLFLI_j^M = \frac{\left(FAWI_j^M + FKI_j^M\right)}{2} \; ; 0 \leq HLFLI_j^M \leq 1 \quad \ldots\ldots\ldots (4)$$

j = 1,2, 3….m and i = 1,2, 3……n

Where, $HLFLI_j^M HLFLI_j^M$ = Financial Literacy Index of the jth household

$FAWI_j^M$ = Financial Awareness Index of the jth household

FKI_j^M = Financial Knowledge Index of the jth household

n = Total number of adult members in the j^{th} household

m = Total number of sample households in the study area

Similarly, the Household Level Financial Literacy Index for female adult household members can be measured by applying the above HLFLI index for male members.

The categorisation of households based on their level of financial literacy is presented in Table 2.

Table 2: Categorisation of Household-Level Financial Literacy

HLFLI	Level of Household based Financial Literacy
0 ≤ HLFLI≤ 0.20	Very Low
0.21 ≤ HLFLI≤ 0.40	Low
0.41 ≤ HLFLI≤ 0.60	Moderate
0.61 ≤ HLFLI≤ 0.80	High
0.81 ≤ HLFLI ≤ 1	Very High

Source: Roy and Nath (2025)

5. Data Analysis, Findings and Discussion

In order to look into the status of financial literacy of rural Cachar, a gender-based data analysis was conducted to assess the financial literacy levels of both male and female adults in terms of financial literacy and its dimensions i.e., financial awareness and financial knowledge. The analysis of data was conducted at three distinct levels: District level, Block level and the village level. This approach provides additional insights that contribute to achieving the objective of the study. The detailed analysis follows below.

Table 3: Gender Differences in Financial Literacy in Cachar District

Financial Awareness Index				**Financial Knowledge Index**				**Financial Literacy Index**			
Male	**Female**	**Gender gap**	**t-statistic**	**Male**	**Female**	**Gender gap**	**t-statistic**	**Male**	**Female**	**Gender gap**	**t- statistic**
0.417	0.206	0.211	21.73*	0.288	0.157	0.131	15.09*	0.352	0.188	0.164	18.86*

* means significant at one per cent

Source: Based on authors' calculation from primary data

Table 3 indicates the state of financial literacy at household level among adult males and females in rural Cachar. The average values of the financial literacy index for male and female adult household members reveal that on the average, male adults demonstrate a higher level of financial literacy compared to females, with the t-value confirming a statistically significant gender gap in the average financial literacy achievements between the two groups. It is also evident from Table 3 that male adults exhibit greater financial awareness and knowledge than their female counterparts, and these gender disparities are statistically significant as well.

Table 4: Inter-block Gender Gap in Financial Literacy

Block	Financial Literacy Index			
	Male	Female	Gender gap	F-value
Barjalenga	0.296	0.167	0.129	F (2, 479) df =13.61*
Salchapra	0.424	0.217	0.207	
Kalain	0.337	0.179	0.158	

* means significant at one per cent

Source: Based on authors' calculation from primary data

Table 4 represents the gender gap in financial literacy at the inter-block level. As revealed in this table, all blocks have witnessed a positive gender gap, indicating that men are more financially literate than women. Gender differences in financial literacy between the blocks are found to be highest in the Salchapra block, while they are least in the Kalain block. F- value in Table 4 shows that blocks are significantly different from each other on the matter of gender gap in financial literacy.

Table 5: Intra-block Gender Gap in Financial Literacy

Block	Financial Literacy Index			
	Male	Female	Gender Gap	t- statistic
Barjalenga	0.296	0.167	0.129	9.95 *
Salchapra	0.424	0.217	0.207	12.09*
Kalain	0.337	0.179	0.158	12.28*

* means significant at one per cent

Source: Based on authors' calculation from primary data

Table 5 reveals that all three blocks show a significant gender gap in financial literacy, with males consistently scoring higher than females. Salchapra has the widest gender gap (0.207), followed by Kalain (0.158) and Barjalenga (0.129). Thus, intra-block analysis indicates that within the blocks, females are lagging behind males in terms of financial awareness and skill in the study area.

Table 6: Inter-village Gender Gap in Financial Literacy

Village	Financial Literacy Index			
	Male	Female	Gender gap	F-value
Duarbond Grant	0.307	0.182	0.125	F (5, 476) df = 7.35*
Silcoorie Grant	0.303	0.171	0.132	
Srikona Part I	0.420	0.215	0.205	
Salchapra Part II	0.446	0.249	0.197	
Bhairabpur Part I	0.295	0.168	0.127	
Brahman Gram	0.365	0.198	0.167	

* means significant at one per cent

Source: Based on authors' calculation from primary data

The status of inter village gender differences in the level of financial literacy is shown in Table 6 It shows that between each sample village, financial literacy among male adult members on the average is higher as compared to that of female members. Gender gap in financial literacy is found highest in Srikona Part I village while it is lowest in Duarbond Grant. The F- value indicates that there is statistically significant difference in the gender gap across the sample villages.

Table 7: Intra-village Gender Gap in Financial Literacy

Village	Financial Literacy Index			
	Male	Female	Gender Gap	t statistic
Duarbond Grant	0.307	0.182	0.125	7.03*
Silcoorie Grant	0.303	0.171	0.132	7.16*
Srikona Part I	0.420	0.215	0.205	10.16*

Salchapra Part II	0.446	0.249	0.197	7.10*
Bhairabpur Part I	0.295	0.168	0.127	7.21*
Brahman Gram	0.365	0.198	0.167	10.47*

* means significant at one per cent

Source: Based on authors' calculation from primary data

Intra-village analysis carried out in Table 7. All villages show a notable gender gap, indicating that men are relatively more financially literate than their female counterparts. It is true for all the sample villages. The largest gender gap is found in Srikona Part I, followed closely by Salchapra Part II and Brahman Gram. Salchapra Part II has the highest male and female scores, suggesting relatively better financial literacy. All t-statistic values indicate that the gender differences are statistically significant within the sample blocks.

6. Conclusion:

The empirical results of the investigation indicate that the status of gender disparities concerning the levels of financial literacy in Cachar district of rural Assam, at the household level, in two dimensions such as financial awareness and financial knowledge, is significantly below acceptable standards. A significant gender disparity is observed in both inter-block and intra-block analyses, as well as in inter-village and intra-village analyses in financial literacy, along with their respective dimensions. This suggests that between the community development blocks and between sample villages, there are substantial differences related to financial literacy. Moreover, the findings regarding analyses conducted within blocks and within villages exhibit a similar trend.

Thus, efforts must be put by the government, financial institutions and NGOs in developing the financial skills of the rural households in making better financial management and planning. The role of financial literacy centres in this regard could be very handy, which are unfortunately absent in the study area. Thus, utmost care should be taken in establishing a good number of financial literacy centres, community-based workshops targeting women, gender-sensitive financial education campaigns, and integration of financial literacy in school curricula, especially for girls, which might develop sound

financial skill amongst the women and make them financially empowered.

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Intra-Household Gender Inequality in Daily Time Burden and its Socio-Economic Correlates: Evidence from the Indian TUS2024

Sandip Dutta[1] & Sagarika Dey[2]

Abstract

This study examines intra-household inequality in daily time burden among household members using unit level data from the Indian Time Use Survey, 2024. The survey provides 24-hour activity diary information for each individual, allowing measurement of how daily responsibilities are distributed within households. A Time-Burden Index is constructed from the number of activity episodes in the diary and normalised to capture relative daily activity engagement. The analysis focuses on the working-age population and employs a survey-weighted estimation framework that accounts for clustering, stratification and sampling weights. To address the bounded nature of the dependent variable, a fractional logit model is estimated.The results reveal substantial inequality in the allocation of daily workload within households. Women experience a significantly higher share of time burden compared to men even after controlling for age, caste, religion, education, marital status and place of residence. The study highlights that intra-household allocation of daily workload is an important dimension of welfare and that policies addressing gender equality must also consider total daily workload within households.

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Keywords: *Time Use Survey, Intra-household inequality, Gender inequality, Time burden,Total daily workload.*

JEL codes: D13, J16, J22, D31

1. Introduction

Time use reflects how individuals organise their daily lives and responsibilities. Although every individual has the same twenty-four hours available in a day, the intensity and distribution of daily activities differ considerably. Individuals allocate their time across a variety of activities, including paid employment, domestic work, caregiving, personal care and leisure. The cumulative demands arising from these activities determine the overall workload experienced by an individual. Within households, however, responsibilities are rarely shared equally. In many societies, particularly in developing countries, women shoulder a disproportionate share of daily responsibilities. Their contribution extends beyond participation in paid employment to include a substantial amount of unpaid domestic and care giving work that is indispensable for household maintenance and social reproduction. Since conventional economic indicators primarily focus on labour market participation and paid employment, they often fail to capture the full extent of women's contribution to household welfare. Consequently, important dimensions of workload remain invisible in conventional assessments of economic activity.

Understanding how time is allocated is therefore important for assessing individual well-being, household functioning and gender relations.Time-use surveys provide a comprehensive framework for examining work and daily responsibilities. By recording all activities undertaken during a specified reference period, they make it possible to analyse how individuals allocate time across different domains of life. Such information is particularly valuable for understanding gender inequalities because it captures both market and non-market activities. The Indian Time Use Surveys (TUS) conducted in 1998, 2019 and 2024 have generated important evidence on the gendered nature of time allocation in the country.

A substantial body of literature documents significant disparities between men and women in the distribution of paid and unpaid work in India (Danhoa & Uppal, 2014; Reddy et al., 2021; Das & Nayak, 2022). Reddy et al. (2021), for instance, observed that

men spend considerably more time in paid activities, whereas women devote substantially more time to unpaid domestic and care giving work. Similar patterns are evident from the findings of the Indian Time Use Surveys. According to the 2024 Time Use Survey, 60.8 per cent of men participate in paid activities compared to only 20.7 per cent of women. Furthermore, among those who participate, men spend an average of 473 minutes per day on paid work compared to 341 minutes for women. In contrast, 81.5 per cent of women participate in unpaid domestic services, whereas the corresponding figure for men is only 27.1 per cent. Among those who participate in unpaid domestic services, women spend, on average, approximately 201 additional minutes per day on those activities compared to their male counterparts. These figures representing combined national estimates that cover both rural and urban sectors

The literature also highlights the persistence of the 'double work burden' experienced by women. Studies by Kulshreshtha and Singh (2005), Craig (2007) and Choudhary et al. (2009) argue that many women perform a second shift at home after completing their market work. Choudhary et al. (2009) found that a majority of women devote six to eight hours to paid activities and subsequently undertake household and caregiving responsibilities, leaving limited time for leisure and personal care. This dual responsibility often results in a heavier overall workload for women compared to men.

In addition to gender, several socio-economic characteristics have been found to influence patterns of time allocation. Marriage often increases women's involvement in unpaid domestic work and constrains their participation in paid employment (Sudarshan & Bhattacharya, 2009; Mehrotra & Parida, 2017). Educational attainment also plays an important role, with women possessing lower levels of education tending to spend more time on unpaid domestic activities (Singh & Pattanaik, 2019; Das & Nayak, 2022). These findings suggest that time allocation is shaped by the intersection of gender with broader social and demographic factors.

While existing studies have significantly enhanced our understanding of gender differences in time use, most analyses focus on the amount of time spent on specific categories of activities, particularly paid and unpaid work. Such an approach provides valuable insights into patterns of participation but

offers only a partial understanding of the overall workload experienced by individuals. Comparatively less attention has been devoted to examining the cumulative burden arising from the complete range of activities performed during a day and to assessing how this burden varies among members within the same household. The activity-episode information available in the TUSs provides an opportunity to move beyond conventional measures of time allocation and evaluate the aggregate burden associated with daily responsibilities.

Against this backdrop, the present chapter uses unit-level data from the TUS 2024 to examine the distribution of daily responsibilities within households. A Time-Burden Index (TBI) is constructed from recorded activity episodes to capture the overall workload experienced by individuals. Specifically, the chapter seeks (i) to examine whether female members experience a greater daily time burden than male members within households, (ii) to analyse the role of household relationships in shaping gender differences in responsibilities, and (iii) to investigate the influence of socio-economic characteristics such as education, marital status, age, caste, religion and sector on individual time burden.

2. Data and Methods

The study uses unit-level data from the recent Indian Time Use Survey, conducted in 2024, by the National Statistical Office (NSO).The study restricts the sample to the working-age population aged 21 to 59 years, resulting in a final sample size of 2,84,511 observations. The primary variable of analysis is the Time Burden Index (TBI) which is constructed for each individual from the 24-hour activity diary information. While traditional time-use models focus strictly on the total duration of activities, contemporary gender equity research emphasizes that the structural quality and fragmentation of time are critical components of a person's total burden (Bittman & Wajcman, 1999). Specifically, highly fragmented time, where a day is broken into many short, interrupted activity episodes, directly creates a higher time burden. Following this framework, every individual's day is divided into several activity episodes treated as blocks representing participation in daily activities. For each individual, the total number of these blocks is aggregated and normalised by the maximum number of blocks observed in the

sample using standard feature scaling (OECD and European Commission, JRC, 2008). The index therefore captures the relative level of daily activity engagement rather than the mere duration of time spent. Thus,

$$\text{TBI} = \frac{\text{Total Activity Blocks of Individual}}{\text{Maximum Blocks Observed}}$$

The index ranges between 0 and 1. A higher value indicates a greater involvement in daily activities, implying a more fragmented and busier daily routine and therefore a higher daily time burden. The TBI is calculated separately for males and females.

The TUS follows complex sampling. Therefore, simple regression would treat all individuals as independent observations and produce incorrect statistical significance. The analysis employs a survey estimation framework to account for the complex sampling design of the TUS. The estimation incorporates sampling weights to ensure that the results are representative of the population. In addition, primary sampling units (PSUs), corresponding to villages in rural areas and urban blocks in urban areas, are treated as clusters, and stratification is also taken into account. Adjusting for weights, clustering and stratification produces unbiased estimates and appropriate standard errors.

Given that the TBI is bounded between 0 and 1, a Fractional Logit Model (FLM) is employed for estimation. This model is appropriate for dependent variables within a fixed interval and ensures that predicted values remain within the feasible range. The model estimates the expected level of daily time burden as a function of demographic and socio-economic characteristics. Table 1 presents a detailed description of the variables used in the regression analysis. To examine intra-household allocation of responsibilities, a household role variable is included wherein individuals are classified into the following categories: (i) Head of household (ii) Spouse of head (iii) Married child (iv) Spouse of married child (v) Unmarried child and (vi) Other members. This variable helps identify how daily responsibilities differ across members occupying different positions within the family structure.

Table 1: Description of Explanatory Variables used in FLM

Variable	Description
Female	Gender Dummy (= 1 if individual is female; 0 otherwise)
Spouse Head	Relation to head Dummy (= 1 if individual is spouse of head; 0 otherwise)
Married Child	Relation to Head Dummy(= 1 if individual is married child; 0 otherwise)
Spouse of Married Child	Relation to Head Dummy(= 1 if individual is Spouse of Married Child; 0 otherwise)
Unmarried Child	Relation to Head Dummy(= 1 if individual is Unmarried Child; 0 otherwise)
Other Relations	Relation to Head Dummy(= 1 if Other Relations; 0 otherwise)
ST	Caste Dummy (=1 if Scheduled Tribe, 0 otherwise)
SC	Caste Dummy (= 1 if Scheduled Caste, 0 otherwise)
OBC	Caste Dummy (= 1 if Other Backward Class, 0 otherwise)
Muslim	Religion Dummy (=1 if Muslim; 0 otherwise)
Christian	Religion Dummy (=1 if Christian; 0 otherwise)
Sikh	Religion Dummy (=1 if Sikhism; 0 otherwise)
Other Religions	Religion Dummy (=1 if Other Religions; 0 otherwise)
Married	Marital Status Dummy (=1 if married; 0 otherwise)
Divorced/ Widowed	Marital Status Dummy (=1if Divorced/Widowed; 0 otherwise)
Primary	Education Dummy (=1 if individual has primary education; 0 otherwise)
Secondary	Education Dummy (=1 if individual has secondary education; 0 otherwise)
Higher Secondary	Education Dummy (=1 if individual has higher secondary education; 0 otherwise)
Graduate & above	Education Dummy (=1 if individual is Graduate & above; 0 otherwise)

Sector	Sector Dummy (=1 if Urban, 0 otherwise)
Age	Age of the Individuals in Years

Source: Authors

3. Analysis and findings:

3.1 Descriptive Analysis

Table 2 presents the descriptive statistics on socio-economic profile of the individuals included in the analysis. The sample includes both male and female individuals across different caste, religion and educational categories. A majority of individuals are currently married, reflecting the life-cycle stage of the selected population. The mean age of individuals is 37.21 years.

Table 2: Socio-Economic Profile of Sample Households/Individuals

Variable	Category	Percentage
Gender	Male	49.42
	Female	50.58
Caste	ST	13.89
	SC	17.12
	OBC	42.60
	General	26.38
Marital Status	Unmarried	14.21
	Married	80.85
	Widowed/Divorced	4.94
Religion	Hindu	78.01
	Muslim	12.42
	Christian	5.90
	Sikh	1.56
	Others	2.11
Education	No Schooling	15.91
	Primary	35.4
	Secondary	15.4
	Higher Secondary	14.54
	Graduation & above	18.75
Sector	Rural	61.29

	Urban	38.71
Age	Mean Age	37.21

Source: Based on authors' calculation from TUS 2024

Table 3 presents the average time burden by gender. The tableshows that female members have a higher average daily time burden than male members. This suggests that before controlling for socio-economic characteristics, household responsibilities are unequally distributed between men and women. The raw difference provides preliminary evidence of gender disparity in daily activities.

Table 3: Average TBI by Gender

Gender	Mean
Male	0.455
Female	0.554

Source: Based on authors' calculation from TUS 2024

Table 4 presents the average time burden by gender and place of residence. It shows that the gender gap in time burden is present in both rural and urban areas, but it is more pronounced in urban areas (diff = 0.103) compared to rural areas (diff = 0.097). In both cases, females consistently report a significantly higher time burden than males.

Table 4: Average TBI by Gender and Sector[1]

Area	Mean		Mean Difference	t-statistic
	Male	Female		
Rural	0.456	0.553	-0.097***	-142.44
Urban	0.454	0.557	-0.103***	-95.42

Note: *** denotes significant at one percent

Source: Based on authors' calculation from TUS 2024

Table 5 presents the average time burden by gender and education. It shows that the gender gap in time burden is present at all levels of education, but it is most pronounced at the secondary level (diff = 0.115), followed by higher secondary (diff = 0.112), primary (diff = 0.106) and graduate & above (diff

1 Descriptive statistics were calculated using survey-weights. Differences between groups were assessed using the Adjusted Wald test within the survey estimation framework in Stata 17, as standard t -tests are inappropriate for complex survey designs.

= 0.088). At all levels of education, females consistently report a significantly higher time burden than males

Table 5: Average TBI by Gender and Education

Levels of Education	Mean TBI		Mean Difference	t
	Male	Female		
Primary	0.456	0.562	-0.106	-125.53
Secondary	0.457	0.572	-0.115	-94.20
Higher Secondary	0.453	0.565	-0.112	-84.51
Graduate & above	0.458	0.546	-0.088	-74.23

Source: Based on authors' calculation from TUS 2024

3.2 Regression Analysis

The marginal effects of variables obtained from the survey-weighted FLR are shown in Table 6. These marginal effects represent the change in the share of time burden associated with a change in the explanatory variable, holding other variables constant.

Table 6: Marginal Effects from Survey-Weighted Fractional Logit Model

Variable	dy/dx	z
Female	0.074***	76.37
Spouse of Head	0.030***	29.16
Married Child	-0.014***	-13.76
Spouse of Married Child	0.027***	18.14
Unmarried Child	-0.019***	-6.81
Other Relations	-0.013***	-7.32
ST	-0.001	-0.47
SC	-0.000	-0.04
OBC	0.004***	2.68
Muslim	0.016***	6.71
Christian	-0.002	-0.71
Sikhism	0.006	0.83
Other Religions	-0.000	-0.06
Married	0.013***	4.89
Divorced/Widowed	0.015***	5.40

Primary	0.022***	20.01
Secondary	0.030***	21.79
Higher Secondary	0.029***	19.31
Graduate & above	0.028***	17.28
Sector	-0.003	-1.41
Age	-0.000	-0.23
No. of observations	284,511	
Survey-Adjusted F(21, 9904)	1,562.47***	

*** denotes significant at one percent

Source: Based on authors' calculation from TUS 2024

The results of the FLM are explained hereunder:

a) Gender Inequality in time burden

The marginal effect of being female is 0.074 and statistically significant, indicating that females have, on average, a 7.4 percentage points highershare of time burden compared to males (base category), holding other characteristics constant. Importantly, the gender difference remains significant even after controlling for age, caste, religion, education, marital status and sector. Thus, the highershare of time burden observed among women cannot be explained solely by socio-economic disadvantage. Rather, it reflects an unequal allocation of daily responsibilities within households. The finding confirms the presence of intra-household gender inequality in the overall daily workload.

b) Household roles and the mechanism of inequality

To understand how this inequality operates within the household, the study examines the relation-to-head variable. Using the household head as the base category, spouse of head and spouse of married child show a significantly highershare of time burden. Married child and unmarried child show a significantly lower share of time burden compared to household head. A cross-tabulation between relation to head and gender indicates that the spouse in both categories is predominantly female. Therefore, the highershare of burden observed for spouses largely corresponds to wives within the household. This suggests that heavy daily workloads specifically domestic and routine activities such as cooking, cleaning and caregiving are concentrated on wives rather than equally distributed

among members. The result highlights that gender inequality is embedded in household structure and role expectations. Women's higher hare of time burden is not only a general gender difference but is specifically linked to their role within the family.

c) Socio-economic determinants of time burden

Married individuals exhibit a significantly highershare of time burden compared to unmarried individuals (base category). Marriage increases domestic responsibilities, including household management and caregiving, thereby raising daily workload. Education is positively associated with time burden. Individuals with higher education levels experience a significantly higher share of time burden compared to those with no schooling (base category). This highlights the concept of second shift, where educated individuals, especially women, participate in paid employment while still performing unpaid household labor, leading to a higher total workload.Although a one-year increase in age reduces the share of time burden of an individual, the effect is not statistically significant. Compared to individuals belonging to the general caste (base category), only members of Other Backward Classes experience a statistically significant highershare of time burden. So, social disadvantage is associated with greater engagement in daily activities, particularly among OBC members.Religious affiliation appears to be associated with daily workload, as Muslim individuals experience significantly higher share of time burden compared to Hindu individuals (base category).Although individuals in urban areas have a lower share of time burden compared to those in rural areas (base category), the effect is not statistically significant.

4. Conclusion:

This study examined the distribution of daily time burden among household members using data from the Indian Time Use Survey, 2024. The descriptive analysis revealed that females bear a higher average daily time burden than males. This differential was found to be pervasive across rural and urban areas and also across educational categories. While the difference in daily work load was higher in urban areas, the gap was lower in case of primary and higher education and higher in case of intermediate education. The regression results further

confirmed that disparity in daily work load persists even after controlling for socio-economic and demographic characteristics such as education, marital status, caste, religion, age, and sector of residence. Thus, the greater workload borne by women cannot be attributed solely to differences in these characteristics. Rather, it points to the existence of structural intra-household gender inequality in the allocation of daily responsibilities.

The household role variable provides additional insight into the mechanisms through which this inequality operates. Compared to household heads, spouses were found to shoulder a significantly larger share of the total workload. Given that the majority of the household heads are male and spouses are generally women, this finding suggests that wives perform a disproportionate share of routine and essential household activities. Gender inequality, therefore, appears to be reinforced through socially defined household roles and expectations. Although gender emerges as the primary determinant of time burden in this study, socio-economic characteristics also play an important role in shaping the distribution of daily workload.

The evidence of intra-household gender inequality in the allocation of daily responsibilities carries several important policy implications. First, policies aimed at promoting gender equality should extend beyond participation in paid employment and take into account the distribution of the total daily workload, including unpaid domestic and care giving activities. Second, investments in basic household infrastructure—such as improved access to water supply, clean cooking fuel, and other labour-saving amenities—can substantially reduce the time burden borne by women. Third, awareness and sensitization programmes should be encouraged to promote a more equitable sharing of household responsibilities among family members, thereby fostering gender equality within households.

The findings also underscore the importance of institutional recognition of unpaid household labour. In a recent landmark judgment, the Supreme Court of India recognized homemakers as "nation builders" and assigned a notional value of ₹30,000 per month to their unpaid domestic and caregiving services for the purpose of compensation claims. By acknowledging that household work generates significant economic value despite being unpaid, the Court highlighted the limitations of conventional labour market indicators in assessing gender

inequality. The present study reinforces this perspective by demonstrating that women bear a disproportionately larger share of the total daily workload within households. Taken together, these findings suggest that achieving greater gender equality requires both the recognition of unpaid work and a more equitable distribution of domestic responsibilities among household members.

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13

Institutional Accountability and Gender Wage Equality under the Equal Remuneration ACT, 1976

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Abstract

Gender wage equality remains a critical labour governance issue in India despite legal safeguards. The Equal Remuneration Act, 1976, was enacted to eliminate wage discrimination and uphold the principle of equal pay for equal work. This paper critically examines the Act, focusing on institutional and implementation challenges that limit its effectiveness. Using a doctrinal approach, it analyses statutory provisions, constitutional mandates, judicial interpretations, and academic literature. The study finds that weak enforcement, limited institutional oversight, and restricted access to remedies continue to impede wage parity. Strengthening accountability, statutory clarity, and enforcement mechanisms is essential for achieving substantive gender wage equality.

Keywords: *Gender, Wage Equality, Equal Remuneration Act, 1976, Labour Law, Institutional Accountability.*

1. Introduction:

The principle of equal pay for equal work is a fundamental component in ensuring gender equality and labour justice. It ensures that men and women are equally remunerated for performing the same or similar work without discrimination. In India, this principle is reflected in Article 39(d) of the Constitution, which directs the state to secure equal pay for

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equal work for both men and women. Despite the constitutional mandate, gender based disparity in wages continues to exist across different employment sectors, indicating structural inequalities and weak labour law enforcement.[1] According to the Periodic Labour Force Survey (PLFS) 2022–23, women workers in India continue to earn significantly less than men on average, and various estimates suggest that women earn approximately 18–20 percent less than men for comparable work. This persistent wage gap highlights the limitations of existing legal and institutional mechanisms in ensuring wage equality.[2]

To address such discrimination, the Equal Remuneration Act of 1976 was passed to prevent gender-based discrimination in employment and to guarantee equal compensation for men and women workers.[3] The Act acknowledges wage equality as a statutory right, which is a major legislative step toward attaining gender justice. However, the efficiency of the organisations in charge of enforcing the Act, such as labour departments, inspectors, and advisory committees, determines how well it is actually put into practice.[4]

The term "institutional accountability" describes these enforcement agencies' duty to guarantee adherence to the law and to successfully handle infractions. The practical effectiveness of equal compensation laws is frequently diminished by inadequate inspection systems, low worker awareness, and restricted access to grievance procedures.[5] Consequently, a gap continues to exist between the legal guarantee of equal pay and the actual conditions experienced by workers. Therefore, to assess the effectiveness of the Equal Remuneration Act, 1976, in addressing gender wage inequality and guaranteeing the realisation of equal pay for equal work in practice, a critical analysis of institutional accountability is required.

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1 Jain,M.P.(2018). *Indian constitutional law*(8thed.).LexisNexis.

2 Government of India, Ministry of Statistics and Programme Implementation.(2023). *Periodiclabourforcesurvey* 2022–23. https://mospi.gov.in.

3 Government of India. (1976). *The Equal Remuneration Act, 1976*. https://labour.gov.in

4 Srivastava, S. C. (2000). Equal pay for equal work in India. *Journal of the Indian Law Institute, 42*, 232-262.

5 International Labour Organization.(2022).*Global wage report 2022–23: The impact of COVID-19 and inflationon wages and purchasing power.* https://www.ilo.org

2. Objectives of the Study:

a. To examine the legal framework of the Equal Remuneration Act, 1976 and its function in upholding the equal pay for equal work principle.
b. To analyse the institutional mechanisms such as labour departments, inspectors, and advisory bodies that are in charge of upholding the Equal Remuneration Act's provisions.
c. To determine the gap between the Act's practical application and its legal provisions and assess the impact of institutional accountability on the achievement of gender wage equality.

3. Methodology:

This study uses a doctrinal and analytical methodology to critically examine statutory provisions, constitutional mandates, and institutional mechanisms related to the principle of equal pay for equal work. It evaluates the role of enforcement authorities such as labour departments and inspectors in implementing the provisions of the Act and ensuring compliance. The study also relies on secondary sources, including books, journal articles, government reports, and official websites to assess the effectiveness of the existing legal and institutional framework and aims to identify gaps between the legal provisions and their practical implementation, particularly in relation to institutional accountability and enforcement of equal remuneration laws.

4. Significance of the Study:

This study is important because it examines institutional responsibility for ensuring gender wage parity under the Equal Remuneration Act of 1976, with a focus upon how the equal pay for equal work principle is actually carried out.

I. **Legal and Institutional Significance:** By investigating the role of law enforcement organisations like labour departments and inspectors in guaranteeing adherence to equal remuneration provisions, the study improves understanding of the legal and institutional framework established under the Equal Remuneration Act, 1976.
II. **Policy Significance:** The study identifies gaps in the application of laws related to equal payment and provides insights to promote the establishment of institutional

frameworks and more effective enforcement methods to achieve gender wage equality.

III. **Socio-Economic Significance:** The study highlights the importance of equal wages in promoting economic justice and workplace equality while dealing with the bigger issue of gender-based wage inequality and its impact on female employees.

IV. **Practical Significance:** The study helps in understanding the difficulties in achieving wage equality and the need for enhanced institutional accountability in enforcing equal remuneration laws through analyzing the gap between legal provisions and their implementation.

1. **Legal Framework of Equal Remuneration in India:**

The legal framework governing equal remuneration in India is based on the constitutional promise of equality and supported by specific laws that aim to prevent gender-based wage discrimination. Over time, the principle of "equal pay for equal work" has evolved through both legislation and important judicial decisions, becoming a crucial part of Indian labour law. This framework helps in understanding how wage equality is defined, structured, and actually protected within the Indian legal system.[6]

Constitutional Foundation of Equal Pay:

The legal framework of equal remuneration in India is rooted in the constitutional principle of equality. Article 39(d) of the Constitution directs the State to ensure equal pay for equal work for both men and women.[7] Even though this principle is covered under the Directive Principles of State Policy and is not directly enforceable in court, it still plays a significant role in guiding labour legislation. Over the years, the Supreme Court has interpreted the principle of equal pay as emerging from Articles 14 and 16 of the Constitution, connecting wage equality with the broader constitutional right to equality. This recognition at the constitutional level laid the basis for later statutory measures aimed at addressing and reducing gender-based wage discrimination.

6 Srivastava, S. C. (2000). Equal pay for equal work in India. *Journal of the Indian Law Institute, 42, 232-262*.

7 Jain, M.P.(2018). *Indian constitutional law* (8thed.).Lexis Nexis

Objective and Scope of Equal Remuneration Act, 1976:

The Equal Remuneration Act, 1976 was enacted to ensure that men and women receive equal pay for the same work and to prevent discrimination in workplaces on the basis of gender. It applies to both public and private sectors and focus to promote wage equality wherever men and women are carrying out the same or similar work. The motive of the Act is not just to correct existing inequalities but also to prevent discriminatory practices from happening at the stage of recruitment and in service conditions.[8]

Key Substantive Provisions of the Act

i. Section 4 of the Act mandates that employers shall pay equal remuneration to menand women workers for the same work or work of a similar nature.[9]
ii. Section 5 further prohibits discrimination in recruitment and other serviceconditions.[10]

The Act defines "same work or work of a similar nature" as work requiring similar skill, effort, and responsibility performed under similar working conditions. These provisions form the core substantive framework for ensuring wage equality under the statute.

International and Policy Influence:

The legal framework on equal remuneration in India is also shaped by international labour standards. India is a signatory to the ILO Equal Remuneration Convention, 1951 (No. 100), which calls on member states to ensure equal pay for men and women for work of equal value.[11] The Convention focuses on eliminating wage discrimination and has played an important role in influencing domestic laws such as the Equal Remuneration Act, 1976. The way Indian law aligns with these international standards shows the country's broader commitment to promoting gender justice within its labour system.

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8 Government of India. (1976). *EqualRemuneration Act, 1976*. https://labour.gov.in
9 Section 4, EqualRemuneration Act, 1976
10 Section5,EqualRemuneration Act,1976
11 International Labour Organization. (1951). *Equalremunerationconvention, 1951(No.100)*.https://www.ilo.org

2. Institutional Accountability under the Equal Remuneration Act, 1976

The effectiveness of the Equal Remuneration Act, 1976 does not depend solely on its statutory provisions but largely on the institutions responsible for its implementation. Institutional accountability determines whether the principle of equal pay for equal work is translated from a legal mandate into a practical reality. Therefore, an examination of the enforcement framework and administrative mechanisms under the Act becomes essential.

Enforcement Authorities and Administrative Responsibility:

The effective implementation of the Equal Remuneration Act, 1976 depends upon the functioning of enforcement authorities designated under the Act. The appropriate government, whether at the central or state level, bears the primary responsibility for ensuring compliance with the statutory mandate of equal pay for equal work. Labour departments are entrusted with the administration of the Act and are responsible for supervising wage practices within their respective jurisdictions. Institutional accountability, therefore, begins with the obligation of the State machinery to actively monitor and enforce the provisions of the Act.[12]

Role and Powers of Inspectors

The Act provides for the appointment of inspectors to ensure effective enforcement of its provisions. Inspectors are empowered to enter work places, examine wage records, require the production of documents, and investigate complaintsrelating to wage discrimination.[13] These powers are intended to serve as a preventive and corrective mechanism against violations. However, the practical effectiveness of inspection depends upon administrative capacity, frequency of inspections, and institutional transparency. Weak inspection systems and limited manpower often reduce the deterrent impact of the Act.

Advisory Committees and Gender Representation

The Act provides for the constitution of advisory committees to promote employment opportunities for women and reduce

12 Goswami,V.G.(2016).*Labourandindustriallaws*.CentralLawAgency.

13 MinistryofLabourandEmployment.(2023).*Annualreport2022–23*.https://labour.gov.in

gender-based discrimination in recruitment and service conditions.[14] These committees are expected to advise the government on increasing women's participation in employment and ensuring equitable workplace practices. The presence of such committees reflects the legislative intention to combine enforcement with policy guidance. However, the effectiveness of these bodies depends upon their composition, independence, and regular functioning.[15]

Accountability Gaps in Enforcement Mechanisms

Although the Act establishes institutional mechanisms for enforcement, practical challenges weaken accountability. Official statistics reveal that labour inspection activity in India has declined markedly over the past decade: nationwide inspections under the Factories Act dropped from approximately 1,18,000 in 2014 to just 67,674 in 2023, representing a 43% reduction in oversight of hazardous and general workplaces. This decline has been attributed to staffing shortages, inadequate training, and resource constraints within labour departments.[16]

Furthermore, data from government audits indicate persistent vacancies in enforcement cadres, with labour enforcement officer posts showing up to 39% vacancies in some states, contributing directly to shortfalls in inspections and follow-up actions.[17]

Digital initiatives like the Ministry of Labour & Employment's Shram Suvidha Portalreport that, as of May 2025, over 9.18 lakh inspections were assigned and 9.10 lakh inspection reports submitted via the online portal; however, such digital reporting mainly reflects procedural compliance and does not necessarily ensure effective on-ground enforcement of standards like wage discrimination monitoring or workplace safety.[18] At the

14 EqualRemunerationAct,1976, section6

15 Srivastava,S.C.(2012).*Industrialrelationsandlabourlaws*(6thed.).Vikas Publishing

16 *The Times of India.* (2025, September 2). Poor inspection of hazardous factories raises safety concerns in Andhra Pradesh. https://timesofindia.indiatimes.com/city/vijayawada/poor-inspection-of-hazardous-factories-raises-safety-concerns-in-andhra-pradesh/articleshow/123640012.cms

17 Comptroller and AuditorGeneral of India.(2025). Report *on compliance audit oflabour enforcement*. https://cag.gov.in/webroot/uploads/download_audit_report/2025/Final-rReport-No.04-WOBCW-English-UP---signed-07-05-2025-0689b2ec7244ad9.46184642.pdf

same time, persistent informality in employment continues to challenge enforcement, with more than 90% of Indian workers engaged in the informal sector, severely limiting there a chof statutory wage and social security protections and complicating grievance reporting.[19]

Moreover, lack of awareness among workers and limited access to grievance redressal mechanisms reduce the reporting of violations despite government efforts to streamline complaint filing, for example through portals like Samadhan, which logged over 63,000 complaints filed with 45,600 disposed of by mid-2024.[20] These factors collectively create a gap between statutory guarantees and on-ground enforcement, raising serious concerns about the adequacy of institutional accountability under the Act.

2. Gaps and Enforcement Challenges:

While the Act provides statutory guarantees against wage discrimination, the effectiveness of these protections is often undermined by practical and institutional shortcomings. Enforcement mechanisms face multiple challenges, ranging from limited inspection capacity to low worker awareness. Understanding these gaps is crucial to assess why legal safeguards do not always translate into on-ground compliance.

Institutional Capacity Gaps

A major challenge in enforcement is the limited capacity of labour institutions. Many states report high vacancy rates among labour officers, sometimes up to 39%, resulting in delayed inspections and inadequate follow-uponviolations.[21]

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18 Ministry of Labour and Employment. (2025, May). *Shramsuvidha portal operational data*. https://labour.gov.in/en/shram-suvidha-portal-1

19 International Labour Organization, & Government of India. (2025). *Informal employment trends in India.* https://www.drishtiias.com/current-affairs-news-analysis-editorials/news-editorials/24-11-2025/print/manual

20 *Business Standard*. (2024, September 1). Labour ministry to launch revamped Shram Suvidha portal. https://www.business-standard.com/economy/news/labour-ministry-to-soon-launch-revamped-portal-for-ease-of-doing-business-124090100452_1.html

21 Comptroller and AuditorGeneral of India.(2025). *Report oncompliance audit oflabour enforcement.* https://cag.gov.in/webroot/uploads/download_audit_report/2025/Final-rReport-No.04-WOBCW-English-UP---signed-07-05-2025-0689b2ec7244ad9.46184642.pdf

Staffing shortages, limited training, and insufficient resources reduce the ability of enforcement agencies to ensure compliance with wage and labour standards. These institutional constraints create disconnect between statutory protections and their practical realization.

Informality of the Workforce

Enforcement is further complicated by the prevalence of informal employment, which constitutes over 90% of India'sworkforce.[22] Informal workers often lack formal contracts and official documentation, leaving them outside the effective reach of labour inspections. Consequently, wage discrimination and other statutory violations remain difficult to monitor, particularly in sectors like construction, domestic work, and small-scale manufacturing, where informal employment dominates.

Procedural and Digital Challenges

Digital initiatives such as the Shram Suvidha Portal have streamlined reporting and inspection assignment, with over 9 lakh inspections assigned and reports submitted by May 2025.[23] While these tools improve procedural compliance, they do not always ensure substantive enforcement. Many violations, including non-payment of wages and underreporting of working hours, remain unaddressed, reflecting a gap between digital monitoring and on-ground accountability.

Awareness and Grievance Redressal Gaps

Worker awareness and access to grievance mechanisms constitute another significant enforcement challenge. Low awareness of rights, combined with underutilization of complaint portals**,** weakens the practical protection of workers. The Samadhan portal, for instance, logged over 63,000 complaints filed, but only 45,600 were resolved bymid-2024.[24]

22 International Labour Organization, & Government of India. (2025). I*nformal employment trends in India.* https://www.drishtiias.com/current-affairs-news-analysis-editorials/news-editorials/24-11-2025/print/manual

23 Ministry of Labour and Employment. (2025, May). *Shram suvidha portal operational data*. https://labour.gov.in/en/shram-suvidha-portal-1

24 *BusinessStandard*.(2024,September1).Labourministrytolaunch revampedShramSuvidhaportal. https://www.business-standard.com/economy/news/labour-ministry-to-soon-launch-revamped-portal-for-ease-of-doing-business-124090100452_1.html

This highlights that statutory guarantees do not always translate into effective remedies, leaving many violations unresolved and accountability mechanisms underutilized.

5. Key Findings:

1. **Limited Institutional Capacity –** High vacancy rates among labour enforcement officers (up to 39%) and under staffed inspection teams significantly reduce the ability to monitor and enforce wage laws effectively.
2. **Prevalence of Informal Employment –** Over 90% of Indian workers are employed in the informal sector, making wage compliance and enforcement particularly challenging.
3. **Procedural Compliance vs. Substantive Enforcement –** Digital platforms like the Shram Suvidha Portal streamline reporting but often reflect paper work completion rather than actual enforcement of labour standards.
4. **Low Worker Awareness and Underutilization of Grievance Mechanisms –** Many workers are unaware of their rights, and complaint portals like Samadhan show a significant number of unresolved cases, indicating gaps in practical protection.
5. **Disconnect between Statutory Guarantees and On-Ground Implementation –** Despite strong legal frameworks, enforcement deficits create a gap between the law's intent and real-world protection, raising concerns about institutional accountability.

6. Conclusion :

A constant gap between statutory guarantees and actual implementation can be seen by the examination of the Act's enforcement mechanisms. The prevalence of informal employment and institutional constraints, like high labour officer vacancy rates and inspection capacity limitations, significantly reduces workers' protection against wage discrimination. Low worker awareness and poorly utilised grievance redressal mechanisms create enforcement gaps, and procedural compliance through digital platforms including the Shram Suvidha Portal does not always translate into substantive enforcement.

A comprehensive approach will be required to address these issues: expanding coverage to informal workers through targeted

outreach, simplifying reporting procedures, and demanding registration can help fill the enforcement gap; strengthening institutional capacity by filling vacancies, improving training for labour inspectors, and improving resource allocation is essential; also, improving awareness campaigns, providing easy access to grievance redressal portals, and ensuring timely resolution of complaints will empower workers to exercise their rights effectively.

Lastly, implementing periodic checks, transparent reporting, and accountability procedures will raise the credibility and effectiveness of enforcement organisations. By combining these strategies, it is possible to fill the gap between legislative intent and practical application, ensuring the significance and value of statutory protections against wage discrimination. The strength and responsiveness of the organizations have been entrusted with defending workers' rights will determine the future of labour law enforcement in addition to legislation.

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Workmen v. State of Andhra Pradesh, (2002) 1 SCC 98.

14

Women and Sattriya Dance

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Abstract

Sattriya dance, one of the eight recognized classical dance forms of India, originated with the spread of neo vaishnavism in Assam under the spiritual leadership of Srimanta Sankardeva in the fifteenth–sixteenth century. Historically, the performance tradition remained largely confined to male bhakats within satras, reflecting the gendered structure of religious and cultural spaces. Women's participation was absent in formal satra performances. However, with the gradual transformation of sattriya from a monastic ritual practice to stage performance, especially after its recognition as a classical dance form by the Sangeet Natak Akademi in 2000, significant shifts occurred in gender participation. Women performers increasingly entered the field, reshaping the performance context and interpretative dimension of the dance. This paper attempts to examine the historical exclusion and contemporary inclusion of women in sattriya dance. It analyses how changing socio-cultural conditions, modern education, state patronage, and youth aspirations have contributed to expanding opportunities for women. The study also explores how this transformation aligns with broader discussions on gender equity, cultural labour, and empowerment within the framework of human capital and gender dividend. Historical, descriptive and analytical methods are used. Data are collected through comprehensive literature review of the existing literature.

Keywords: *Sattriya Dance, Inclusion, Exclusion, Transformation.*

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1. Introduction

A dance is a form of intentional, rhythmic bodily movement performed to express one's thoughts, ideas, emotion, story, or participate in social and ritual life. A classical dance is a type of dance that has well defined technique, codified movement, gestures, posture, expression and performance. It is systematically organised, has a set of rules and whose training requires standard progression. Sattriya dance was recognised as a classical dance in the year 2000 under the Sangeet Natak Academi as it fulfilled the criteria of a classical dance of textual foundation, codified technique, historical continuity, and a developed aesthetic system.

Srimanta Sankardeva the descendent of Shiromani Bhuyan Chandibar, whom Durlabh Narayan the king of Kamata settled in Kamrup in mid14th century started the neo vaishnavaite movement in Assam. He believed in the worship of one supreme deity and his religion was called the "Ek Sarana Nama Dharma". The movement started as a result of the response to the kind of exploitations done by priests and religious leaders in the name of religion to the common man. In order to propagate his new found religion he composed devotional songs, dramas, music etc and also established institutions such as namgarhs and satras. Sattriya dance was a dance form that originated in the satras of Assam and was a medium of devotion and storytelling to the masses through more elaborate and specific movements and expressions. The sattriya dance is an extraordinary fusion of elements from both classical and traditional dance. For centuries, the sattriya dance was preserved, practiced and propagated by the monks of the satras. Finally, on 15 November 2000, sattraiya dance got recognition as the classical dance of Assam by the Sangeet Natak Akademi under the chairmanship of Dr Bhupen Hazarika.

2. Objectives:

a) To examine the historical exclusion and contemporary inclusion of women in sattriya dance.

b) To analyses how changing socio-cultural conditions, modern education, and the historical of sattriya dance as a classical dance has contributed to expanding opportunities for women.

c) To analyse how the transformation aligns with broader discussions on gender equity, cultural labour, and empowerment.

3. Methodology:

Historical, descriptive and analytical methods are used. Data are collected through comprehensive literature review of the existing literature.In its early phase, sattriya was strictly confined to the religious institutions of Assam, particularly the satras (vaishnavite monasteries). Sattriya dance functioned primarily as a devotional medium rather than a public performance art. It was performed by male bhakats (monks) within the monastic space. The performance tradition, including the enactment of ankiya naat and several vaishnavite devotional literary and musical forms composed within the Ekasarana tradition like borgeet, dasavatara composition, episodes of bhagawat gita, devotional narrative centred on Shri Krishna etc, when performed through movement and abhinaya inside the satra, they became part of the sattriya dance tradition. Women were excluded from performing within this sacred monastic framework, as the satra system was predominantly male-oriented and regulated by strict religious codes. Thus, in its formative centuries, sattriya dance remained a sacred, male-dominated ritual practice limited to ecclesiastical spaces rather than a public, gender-inclusive stage tradition.

The spatial confinement of sattriya to the satra meant that performance was embedded within religious observances and festival rituals, rather than staged for secular audiences. The authority of the Satradhikar and monastic hierarchy determined who could learn, perform, and transmit the art form. Even female roles in dramatic presentations were enacted by male performers, reflecting both monastic discipline and prevailing socio-religious norms. This restriction ensured ritual purity and doctrinal control but simultaneously limited broader social participation. This till the 20th century sattriya dance was limited to satras with monastic male devotional context.

The recognition of sattriya dance as a classical dance by the Sangeet Natak Akademi in 2000 marked a historic transformation in its performance history and social reach. Until the late twentieth century, sattriya dance had largely remained within the devotional and monastic framework of the satras, where it was used to act as a medium to exchange ideas of the new

found religion performed by the male bhakats. This institutional validation opened new avenues for stage presentation, academic research, and formal pedagogy, leading to its incorporation into universities, cultural academies, and private dance institutions across Assam and other parts of India.

One of the most significant outcomes of the sattriya dance being recognised as a classical dance form is that the increased participation of women. Once excluded from monastic performance spaces, women gradually entered the field as students, performers, choreographers, and scholars. Today, as a classical stage tradition, sattriya dance is practiced and performed by both men and women, reflecting a broader and more inclusive artistic community. The number of practitioners has grown substantially, and with this expansion, institutions dedicated to teaching Sattriya dance have increased in multiple numbers within a modern pedagogical framework.

However, it is important to note that this expansion has not disrupted the traditional satra-based form of the dance. Within the satras, the performance of sattriya dance continues to follow the age-old monastic codes, where only male monks perform as part of ritual service. Thus, two parallel yet interconnected streams now coexist: the traditional monastic form and the classical stage form. Rather than replacing the satra legacy, classical recognition has enabled sattriya dance to extend beyond its earlier confines while preserving its devotional core. This dual continuity—expansion without erasure—demonstrates the resilience and adaptability of the tradition in negotiating modernity without compromising its foundational identity.

The inclusion of sattriya dance within the canon of Indian classical dances and the subsequent rise in women's participation brought about a significant transformation in its social, aesthetic, and performative dimensions. Historically rooted in a monastic structure where performance was restricted to male bhakats, sattriya dance underwent a gradual but profound shift as women entered the field as students, performers, and teachers. This transition marked not merely an increase in numbers but a reconfiguration of the dance's public identity—from an exclusively male devotional practice to a gender-inclusive classical stage tradition. The most visible transformation came in the costume, presentation and the way it was taught. The inclusion of women in sattriya dance brought transformation

across several interconnected areas of the tradition. Structurally, the shift from an exclusively male monastic practice to a gender-inclusive classical form altered the social composition of practitioners, allowing women to emerge not only as performers but also as teachers and scholars. Aesthetic changes became visible in costume and stage presentation, with the incorporation of Assamese textiles such as the mekhela-chador, refined ornamentation, and greater attention to visual design suited to proscenium performance. This created a shift from ritual minimalism to aesthetic refinement. The performance space itself expanded from the confined ritual settings of satras to national and international stages, festivals, and academic institutions. In its earlier phase, the transmission of sattriya was primarily confined to the monastic guru–shishya system within the satras. Training was informal yet rigorous, embedded within religious discipline and daily ritual practice. Knowledge was imparted orally. With its recognition as a classical dance and the growing participation institutional training expanded significantly. Sattriya dance began to be taught in dance schools, academies, and universities through structured syllabi, graded levels, and examinations, making the pedagogy more systematic, accessible, and professionally oriented. Thus, the inclusion of women and the classical stage evolution have not disrupted the original satra legacy; rather, they have broadened the scope of the tradition.

4 Conclusions:

The journey of sattriya dance from a strictly male monastic tradition to an inclusive classical dance form reflects both continuity and positive transformation. It was expansive but not disruptive. The satra tradition continues unchanged within its ritual framework. In its early phase, sattriya dance was limited to the satras , where it was performed only by male bhakats as part of religious ritual and devotional service. Over time, especially after its recognition as a classical dance, the scope of the tradition widened. Women began to learn, perform, and teach sattriya dance, which greatly increased the number of practitioners and brought new energy to the form. With this inclusion came changes in costume, stage presentation, choreography, and institutional training, making the dance more accessible and visible at regional, national, and international

levels. Dance schools, universities, and cultural academies began offering structured courses, allowing both men and women to pursue sattriya dance professionally. However, even with all these developments, the traditional Satra system has remained unchanged in its ritual practice, where performance continues to follow age-old monastic rules and remains male-only. This balance between preservation and expansion is what makes sattriya dance unique today. It has grown in reach and participation without losing its devotional roots. The inclusion of women has strengthened the tradition rather than disrupted it, allowing sattriya dance to move forward while still respecting and protecting its sacred legacy.

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