Time Use Disparities and Women's Employment in India

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Abstract

Gender disparity in time allocation to paid and unpaid work is an observed phenomenon globally, and India is not an exception. The problem of gender disparity in time use is important as it could influence the economic opportunities, social well-being and over all empowerment of women. This study examines the extent of disparity that exists in time allocation in paid and unpaid activity among men and women in households across Indian states/UTs. Specifically it investigates whether the time allocation pattern in unpaid activity is different from the general trend if both male and female are employed in similar broad status of employment across the geographical regions of India. Furthermore, the study examines whether there is any significant difference in the the mean time allocated to unpaid activities between employed and unemployed women. The analysis also tries to determine the factors influencing the gender differences in time allocation to unpaid activity across the states/UTs of India.

The study further explores how the time male and female spend on unpaid labour influences female labour force participation rate (FLPR) controlling for the socio-economic and geographic factors. The findings reveals that even if male and female are employed in comparable types of work, there exists huge disparity in time allocation to unpaid activity particularly among regular salaried except in the North-Eastern region. This suggests that women are faced with double burden of paid and unpaid work in the household. There is a significant difference in time allocated to unpaid labour between employed and unemployed women which indicates that engagement in the economic activity is associated with a reduction in time women devoted to unpaid labour. Moreover, the economic growth and infrastructural development of the state/UT does not appear to substantially reduce these gender differences in time use in unpaid activity. Our results also indicate that time allocated to unpaid labour by men could only improve female engagement in self-employment by 0.10% and whereas if women engage in unpaid labour, the casual labour employment could reduce by 0.08%. Existence of gender wage gap could push more women to self-employment.

Keywords:
Female Labour Force Participation Rate (FLPR), time use, gender wage gap, Gender Time Ratio (GTR), dependency ratio, self-employment, unconditional cash transfer
JEL Codes: J16 - Economics of Gender, Non-labour Discrimination, J22 - Time Allocation and labour Supply, J31 - Wage Level and Structure, Wage Differentials, I38 - Government Policy, Provision and Effects of Welfare Programs, O18 - Regional, Urban and Rural Analyses

1. Introduction

The Cambridge dictionary defines gender disparity as a lack of equality that is connected with gender and specifically highlights unfair treatment, opportunities, and outcomes between men and women in society. Gender disparity in various forms can be experienced in the daily life of an individual. Some of them can be natality inequality due to selective abortions, mortality inequality caused by higher death rates in a specific gender, disparity in access to education and healthcare, and employment inequality as observed in pay gaps, harassment in the workplace, and time disparity within a household due to unequal distribution of time on household duties. When we observe across the globe, women are more vulnerable to disparity and experience different forms of disparities throughout their life. Among the various dimensions of gender disparities, a significant one is the gendered disparity in the allocation of time to household maintenance through unpaid care and domestic work. Globally, women spend 2.5 hours more than men in a day on unpaid care and domestic work. In addition, women and girls in total allocate 250 million hours per day to collect water, which is three times more than men and boys (UN Women and United Nations Department of Economic and Social Affairs, 2024). In the Indian context, the Time Use Survey report 2024 indicated a greater gender disparity in unpaid domestic services, with women aged 15-59 years spending up to 5 hours per day on unpaid domestic activities, compared to only 1.46 hours among men in the same age group. It is evident from the data that although there exist variations from country to country in time allocated to unpaid domestic and carework, the burden of unpaid activities in the home falls disproportionately on women.

Efforts put in terms of energy and time by a woman in unpaid activities within a household will eventually result in other forms of disparities. Disparity in time use in unpaid care and domestic responsibilities could limit women's participation in employment. Equal opportunity and impartial treatment at work are the core of a decent labour market. However, women across the globe are inadequately represented in the labour market due to the hindrances they face to enter the labour market and in continuing the job once she enters it. In the global scenario, the female participation rate in the labour force was 49% in 2023 compared to 73% for men (International Labour Organization, 2024). There exists a huge gender difference of 46%-54% in employment participation particularly in Arab states, Northern Africa, and Southern Asia compared to high-income European countries (International Labour Organization, 2024). Similarly, the regions (Southern Asia, Arab States, Northern Africa) which shows a lesser employment participation of women are also marked by higher gender gaps in time use in unpaid care and domestic work. Thus, when a woman spends more time doing unpaid activities within a household, there is an opportunity cost to lose her better employment opportunities in the labour market. In addition, they may choose not to participate in the labour market due to the burden of unpaid household chores.This might lead to a lack of financial freedom which

results in a decline in the relative bargaining position of women within the household.

It is clear from the above discussion that the disparity in time use is a significant problem in the daily life of women and could affect their employment decisions. It is disheartening to note that women of prime working age are the most disadvantaged due to the disparity in the allocation of time to domestic duties and access to leisure time. This in turn limits their participation in the labour market(Rubiano-Matulevich and Viollaz, 2019). In this context, we look at the extent of time disparity faced by women in paid and unpaid activity in a household in India taking into account their employment status. Also, we examine the disparity in time use in paid, unpaid, and other work across the states/UT's in India to understand the variation of disparity in time use across states. Further, the study analyzes how the disparity in time use affects the participation of women in the labour force in India.

The rest of the article is organized as follows: Section 2 discusses the theoretical and conceptual background of this study and brings in recent empirical literature on the disparity in time use in global and Indian scenario. From the empirical literature, research gaps are drawn and based on which objectives formulated. The data and methodology used for the analysis are discussed in detail in Section 3. In Section 4 records a comparison in the disparity in time allocation to unpaid activity across the states and UT's based on the Gender Time Ratio (GTR) and also seeks to explore the pattern of gender differences in time allocation to unpaid labour based on the employment category across the geographical regions of India. It further examines the factors that determine the GTR-unpaid activity. Section 5 analyzes the influence of the male and female time dedicated to unpaid labour on female labour force participation rate using pooled OLS regressions, and finally Section 6 sets out our conclusion.

2. Literature review

Understanding gender disparity in time use requires drawing on both theoretical perspectives and empirical evidence. The theoretical background of this study rests on the social reproduction theory and Becker's theory of allocation of time. These theories explain why women continue to bear the disproportionate burden of unpaid labour within the household. Social reproduction theorists emphasise that labour is the first premise of all human history. Capitalism categorizes all sorts of productive labour as 'legitimate work' and fails to recognize all forms of familial and communitarian labour which is invisible labour. Invisible labour is continuing to exist and supports the productive labour (Bhattacharya, 2017). Social reproduction theorists identify the relation between the productive labour and invisible labour which brings completeness to capitalism.

Beckers' theory of time allocation (Becker, 1965) clearly explains the division of labour within families based on time. Household members who are relatively efficient at market activities reduce their allocation of time to consumption activities compared to other family members. In addition, an increase in the market efficiency of any member of the family would

result in a reduction in the time allocated to consumption-related activities by the other members of the family. This is done to allow the former to allocate extra time to market activities. Therefore, the theory makes it clear that the allocation of time by any member of a household is affected by the opportunities available to other members in the household. These theories present the underlying role of women in society who largely perform unpaid labour to support existing social structures. This eventually results in their low participation in economic activities.

Women are also affected by time poverty. The concept of time poverty was first introduced by Vickery (Vickery, 1977). According to him, households need a minimum amount of time to stay at a non-poor level of consumption. The study by Vickery clearly describes the influence of time allocation by households to market and non-market work on poverty. The poverty status of a household could be changed by a change in allocation of time to market and non-market activities and the composition of household. Compositional changes are changes in the number of children in the household, changes in the number of adults in the household, and joining of two households into one. Time poverty has been documented globally, evidence shows that men spend on an average 1.6 hours in a day on unpaid care and domestic work whereas women spend 4.3 hours in a day on the same activity (Hanna et al., 2020). 379 million women of prime working age (25-54 years) do not participate in the labour market due to the unequal distribution of time on care work in their households (International Labour Organization, 2024). If the current trend persists by the year 2050, women still will be spending 2.5 hours per day on unpaid care work compared to men (UN Women, 2023).

Time-use evidence significantly documents the gender gap in the participation of unpaid labour and the higher allocation of time to unpaid labour by females. This is mainly caused by two factors. Firstly, the direct time constraints that restrains women's participation in paid work. Secondly, the gender norms which acts as barriers that assigns the role of primary care giver to females. This pattern of gendered time use is evident in global and national time use data. The study by Brahma (2024) employed a bivariate probit regression model using TUS 2019 in which individual time poverty is the dependent variable (Individual time poor=1, not=0) and household consumption poverty as the main independent variable. This analysis tried to relate household consumption poverty to the time poverty experienced by women in a household. The findings indicated that the gender gap in time poverty is greater for women in poorer households compared to women in non-poor households due to the double burden of paid and unpaid work to support household income.

Several recent empirical studies using the Time Use Survey (TUS) 2019 have examined factors that affect unpaid labour in India by considering the time spent on unpaid labour as a dependent variable and the individual and household characteristics as explanatory factors. However, a notable limitation of these analysis lies in the omission of state level or regional variations which could impact the gendered time use patterns in India's diverse socio-economic landscape. Existing evidence shows that working women in India face higher levels of time poverty

than their male counterparts due to their duties at work and home. As a result, these women are forced to choose self-employment over other productive activities, as it ensures a flexible working environment to adapt to their unpaid caregiving responsibilities (Sahu, 2024),(Gupta and Pattanaik, 2025).

Ratheesh and Anitha (2022) constructed a Gender Disparity Index taking into consideration the participation and time allocation by individuals to various SNA (System of National Accounts) production activities, Non-SNA production activities, and residual activities across Indian states. This study provides valuable information on regional variations in time disparities. But the study does not examine the impact of unpaid labour on women's participation in labour market nor does it investigate the intrahousehold patterns of time allocation to unpaid labour. The study shows that the differences between states in demographic features and availability and proper use of infrastructure create gender differences in time use on paid and unpaid labour. This results in variations in female participation in economic activities in regions. Also, comparison of the TUS of 1998 and 2019 using the dissimilarity index (DI) constructed for urban India by Thakur and Reimeingam (2022) showed that the disparity in gender-based time use has not decreased over the years. DI values were calculated to understand how the time distribution changes between male and female based on their marital status and educational qualification. The DI values indicated that there exists a public sphere dominated by men, while women remain in vulnerable employment.

Similarly, Dasgupta and Datta (2023) constructed gender distance index in paid and unpaid activities using TUS 2019 and examined the influence of caste and religion on the gendered time use using Oaxaca Blinder (OB) Decomposition technique. Based on the results, the authors concluded that the gender gap in time allocation is independent and female employment status does not adequately represent the intensity of gender gap in time use in Indian housholds. The outcome reveals that the North-South divide is sharp considering the gender distance in time use and employment. The results also suggested that the effect of the social group (SC,ST,OBC and Upper caste) is significantly different in the urban and rural sectors. The analysis using cross sectional data of 2019 ignored the intra-household differences in time allocation and could not track changes in disparities in time use over time. In a descriptive comparison of time use in six Indian states (Gujarat, Haryana, Madhya Pradesh, Meghalaya, Orissa and Tamil Nadu) using TUS 1888 & 2019 of India, Li (2023) observed that the time allocated to paid work by rural women has declined over the years compared to urban women, and reasoned that this could be due to gender norms and the inaccessibility of desirable or socially acceptable jobs. Although insightful, no empirical analysis was performed in this study.

Finally, Krishna et al. (2022) analysed the unit level data from the Employment and Unmeployment Survey of India 2011-12 and the Periodic labour Force Survey 2017-18 and estimated a probit regression model in which the dependent variable is the unpaid women's decision to participate in the labour market or not. The independent variables were socio-economic characteristics such as age, social group, general & technical education qualification, monthly

household expenditures, marital status, and size of the property. The author proposed that if households are provided with basic amenities through public provision, it is likely to increase female participation in the labour market.

The structural and institutional arrangements strongly influence the time allocated to unpaid labour within the households. The social and cultural norms that impose unpaid household work on young women restrict their participation in education and the labour market and negatively affect the development of their socioemotional skills, as examined in an empirical longitudinal study conducted in Ethiopia, India, Peru and Vietnam (Hossain and Jukes, 2025). This study was conducted in two age groups, 2000 young people born in 2001 and 1000 people born in 1994. The sample was not representative, but was intended to capture regional differences. Performing unpaid care and domestic work in the long term affects women's access to health and education and places her in a disadvantaged position in terms of employment opportunities (Asia-Pacific Economic Cooperation (APEC) Policy Support Unit, 2022).

Men's enagagement in unpaid labour could widely relax women's burden on unpaid labour. The sharing of domestic responsibilities equally results in better time allocation among the household members (Charmes et al., 2019).Policy oriented evaluations to promote female labour force participation proposed policies that reduce the burden of household responsibilities through childcare provision, improved infrastructure by giving access to clean fuel and drinking water, and incentivising father's care giving (paid paternal leave). This would substantially improve female engagement in the workforce (OECD, 2025).

The existing literature in the global and Indian context clearly indicates the time disparity faced by females in paid and unpaid activities compared to their male counterparts and the resultant gender gap observed in gainful employment. Studies empirically analyzing the influence of gender disparity in time use on FLPR are limited in the Indian context. It is clear from the literature that the gender gap in time use in paid and unpaid work is the result of age-old social and gender norms, which assign the breadwinner role to men in the household and the caregiver role to women in the household. Over time, the gradual shift from traditional gender roles neither decreased the time disparity faced by women, but ended up allocating their time to paid and unpaid work, resulting in an additional burden. Public policies like free childcare, paid paternal leave, drinking water, electricity, cooking gas will reduce the efforts of women, and thereby decrease their time for unpaid labour.

In the Indian context, studies that investigated the time allocation pattern of males and females within a household when both are in a similar employment position are limited. In addition, there is a significant research gap in the form of a lack of a state-wise comparison of time use disparities in India. Furthermore, there are limited studies that look at the influence of disparity in time use on female participation in the labour force. Understanding how men and women in the same household allocate their time to paid and unpaid labour reveals the deeper forms of inequality that restricts women in career advancement or full engagement in paid employment. State-level analysis is significant in Indian context because gender norms

and economic structures varies across India. Also the state-level analysis helps policy makers in introducing targeted policy interventions like chilcare arrangements, redistribution of unpaid carework etc. By analysing the time men allocate to unpaid labour, the study provides empirical evidence whether the redistribution of unpaid labour affects women's employment status in India.

The objectives of this study are the following.

1. To assess the extent of the disparity in time allocation across the states/UT's in India.
2. To analyze the distribution of time spent on unpaid labour by men and women with similar employment category across the states/UT's in India.
3. To investigate whether employment status is associated with differences in the amount of time male and female allocate to unpaid labour.
4. To determine the factors influencing the time disparity in unpaid labour across the states/UT's in India.
5. To assess the effect of male and female time allocation to unpaid labour on female employment status in India.

3. Data and Methodology

The analysis is conducted in two stages. The first stage examines the extend of gender disparity in time allocation to paid and unpaid activities across Indian states/UTs and check whether the time allocated to unpaid labour differs between gender based on employment status. The second stage employs state/UT-level pooled OLS regression models to identify the determinants of GTR-Unpaid activity and to analyse the implications of time use in unpaid labour by male and females on female labour force participation rates.

The entire analysis relies on the unit level data of the TUS 2019 and 2024. The TUS provides information on the allocation of time for paid, unpaid and other activities (Appendix A.1) of people aged 6 years and older through personal interviews in a 24-hour period starting from 4 AM on the date of the interview to 4 AM the following day. The activities that are performed for remuneration in cash is categorised as paid activity. Those activities that are performed without receiving any remuneration falls under unpaid activity. Other activities include those which are performed for self-care or development. The time allocated to paid, unpaid and other activity (considering only the major activity in a time slot) is aggregated using the TUS unit level data of 2019 & 2024. To calculate gender disparity in time use there are various measures like absolute difference, ratios and distributional indices (di Bella et al., 2023). We have selected Gender Time Ratio (GTR) [1]. GTR=1 indicates perfect parity, GTR<1 indicates that

[1]For example, if the average time spent by a female on unpaid activities is 300 minutes per day and that by a male is 100 minutes, the Gender Time Ratio (GTR) (GTR) is calculated as GTR = $\frac{300}{100}$ = 3. Since the GTR value is greater than 1, it indicates that the female spend significantly more time than the male on unpaid work. A higher GTR thus reflects greater gender disparity, with female devoting over three times as much time as male to unpaid activities.

female allocate comparatively less time, whereas GTR>1 indicates that the time dedicated by female is higher than the male counterparts. GTR thus helps to understand the proportional differences in time allocation on various activities by male and female.

4. Insights into the gendered time use inequality

This section elucidates the disparities associated with time use in different activities classified in TUS. It also highlights gender differences in the use of time in unpaid work when both men and women are in similar employment positions in a household. In addition, the analysis also extends by providing a detailed picture of the disparity in time use between the states / UTs. The list of activities that fall into paid, unpaid and other activities is listed in Appendix A.1.

In table 1 the time allocated by male and females during a day is classified into nine major divisions of activities as given by the International Classification of Activities for Time Use Statistics (ICATUS) (Appendix A).

Table 1: Average Time Spent (in Minutes) in a Day on Various Activities for Males and Females

Type of Activity	**2019**		**2024**		**GTR**	
	Male	**Female**	**Male**	**Female**	**2019**	**2024**
PAID ACTIVITIES						
Employment and related activities	470	343	480	344	0.73	0.72
UNPAID ACTIVITIES						
Production of goods for own final use	198	115	133	103	0.58	0.77
Domestic services for household members	95	315	86	305	3.32	3.55
Caregiving for household members	73	137	74	140	1.88	1.89
Volunteer, trainee and other unpaid work	103	100	150	111	0.97	0.74
OTHER ACTIVITIES						
Learning	421	414	422	412	0.98	0.98
Socializing, communication, community participation and religious practice	146	136	135	135	0.93	1
Culture, leisure, mass-media and sports practices	144	151	156	145	1.05	0.93
Self-care and maintenance	711	704	690	686	0.99	0.99

Source: TUS Reports 2019 and 2024. Note: The estimates refer to individuals aged 15–59 years. The estimates consider all activities in a time slot. Totals need not sum to 1440 minutes due to multiple activities being reported simultaneously.

From Table 1, a GTR of 0.72 in 2024 in employment indicates that females spend only 72% of the time that men spend on employment and related activities. On the other hand, the time allocated by women on unpaid domestic services is on an average 4 times more than that of men for both years. This invisible labour performed by women is in line with the social reproduction theory which supports the submissive role of women in the household to sustain the household. Similarly, the time allocated by females to unpaid caregiving services to household members is 2 times more than the time allocated by males. Also, time use in 2024, indicates an absence

of disparity in terms of time allocated to activities related to learning, socializing, leisure and self-care.

4.1. State/UT Gender Disparity in Time Use

We calculate the Gender Time Ratio (GTR) in time use on paid, unpaid, and other activities across the states and UTs of India in 2019 and 2024 and provide a regional comparison of the same in the table 2.

Table 2: Regional Gender Time Ratio (GTR) in Time Use, 2019 and 2024

Region	**States / UTs**	**GTR – Paid Activity**		**GTR – Unpaid Activity**	
		2019	**2024**	**2019**	**2024**
Northern India	Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Uttarakhand, Chandigarh, Delhi	0.11	0.18	5.78	6.24
Central India	Madhya Pradesh, Chhattisgarh, Uttar Pradesh	0.30	0.29	3.35	4.48
Eastern India	Bihar, Jharkhand, Odisha, West Bengal	0.15	0.18	5.10	5.44
North-Eastern India	Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, Sikkim	0.30	0.26	2.89	4.30
Western India	Rajasthan, Gujarat, Maharashtra, Goa, Dadra and Nagar Haveli and Daman and Diu	0.29	0.35	5.93	7.44
Southern India	Andhra Pradesh, Telangana, Karnataka, Kerala, Tamil Nadu, Puducherry, Lakshadweep, Andaman and Nicobar Islands	0.35	0.33	5.72	5.89
Average	All India	0.27	0.28	4.73	5.54

Source: Author's own estimation using unit-level data from TUS 2019 and 2024. Minutes spent in a day on an average per participant of age 15-59 years in paid activities and unpaid activities were considered where the activity was a major activity (considering only the major activity of the time slots).

Considering the GTR-Paid activity, the north, the east and the western regions of India scored less than the national average for both the years. The Northern region is also marked by structural gender inequalities, as given by the findings of NFHS-5 (Report of the National Family Health Survey 2019-20). NFHS-5 (International Institute for Population Sciences (IIPS) and ICF, 2021) reveals that compared to other geographical regions, Northern states have lower levels of female decision-making power and the lowest property ownership/house among females. In the eastern region, the GTR-Paid activity, fell below the national average in both the years. The findings of NFHS-5 corroborate this pattern, identifying the Eastern region as having the lowest percentage of women who were paid in cash for work and the lowest percentage of female who own a bank account with self-use. The southern region showed improvement in terms of the engagement of women in paid activities. NFHS-5 data for the Southern region are also consistent with this improvement, which highlights the higher percentage of women engaged in paid employment, along with the elevated rates of female ownership of mobile phones and bank accounts.

While observing the GTR values in unpaid activity, the gender disparity in time use in unpaid labour is evident across the regions of India. In all the regions time spend by women in unpaid labour is on an average 5 times more than that of men. The north-east and the central regions of India is better in GTR-unpaid activity as compared to other regions. The north-east region is noted for its better percentage of female decision making power in the household and higher percentage of female ownership of a mobile phone, as reported in NFHS-5.

In general, the analysis using GTR in time use clearly indicates that there is an unequal distribution of time within the household between paid and unpaid activities. It is significant to note that the regions known for their industrial and economic growth (the states of Maharashtra and Gujarat in the Western region) presented a higher gender disparity in time use. A lower GTR-Unpaid activity in the north-eastern region can be attributed to the findings of Doley and Padhan (2021), which states that there is a marked decline in women's participation in unpaid activities, particularly in the states of Assam, Mizoram and Manipur. The reason for this could be the promotion of income generating activities in non-farm sectors and state intervention with enhanced investment in the education sector. Our present findings corroborate those of Dasgupta and Datta (2023), which indicated that the gender gap in time on unpaid labour within households tends to be lower in the North-Eastern and central regions of India.

The figure 1 provides graphical representation of GTR-Unpaid activity across the states/UTs in India for the years 2019 and 2024. It reveals the persistent and continuing gender disparity in time use in unpaid labour. In 2024, most of the states and UTs exhibited GTR values above 4, which showed that women continue to bear the responsibilities associated with domestic work and unpaid child and elder care relative to men. A gradual decline in GTR is observed in some states like Himachal Pradesh, Punjab, Goa and parts of North-Eastern region which reflects moderate improvement in the distribution in unpaid labour. However, in the states of Gujarat, Maharashtra, Rajasthan, Telengana and Tamil Nadu the GTR in unpaid activity remained high as compared to other states and showed signs of worsening gender time use inequality. Our finding corroborates with the results from the studies of Ratheesh and Anitha (2022); Shastri (2025); Rathore which remarked on the linkage of gender norms and labour market segmentation that hinders the economic opportunities of women. Moreover, the analysis also shows that despite the national progress in infrastructure and policy support the time distribution in unpaid labour remains largely unfavourable for women.

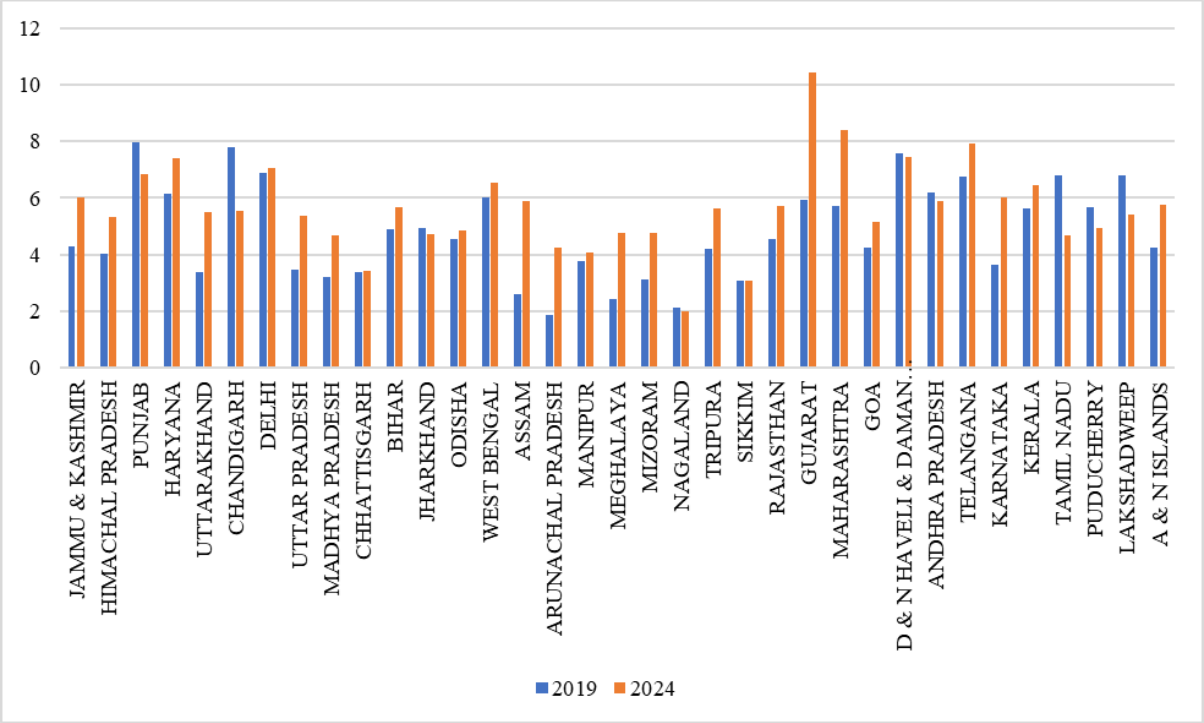


Figure 1: Comparison of GTR-Unpaid activity Values in 2019 and 2024 Across States/UTs

According to Becker's theory of allocation of time there is a division of labour within the household based on the contribution of household members to the market activities. The members who are economically more productive tends to allocate less time to domestic activities as compared to those members with lower market earnings. Drawing on this theoretical framework we examine whether the male and female who are engaged in the same employment category allocate their time similarly to unpaid activities.Since the time use surveys in India lacks data on individual earnings a comparsion of time allocation pattern based on income differences is not feasible. Table 3 presents a heat map of the GTR in unpaid work across different geographical regions of India when both male and female are engaged in a similar category of employment.

Table 3: Gender Time Ratio (GTR) (Unpaid Work) across Regions and Employment Type

Region	**2019**			**2024**		
	Self-employed	Regular	Casual	Self-employed	Regular	Casual
Northern India	3.73	6.44	4.04	4.99	4.11	3.86
Central India	2.35	5.54	1.93	3.17	4.54	3.70
Eastern India	2.57	4.47	4.02	3.97	4.72	4.29
North-Eastern India	2.08	2.84	2.96	3.15	2.59	2.99
Western India	4.79	5.23	5.93	5.06	5.82	5.67
Southern India	4.52	5.20	2.89	4.94	6.77	4.16
Average	3.34	4.95	3.63	4.21	4.76	4.11

Source: Author's own estimation using unit level data TUS 2019 & 2024

It can be seen from Table 3 that despite sharing similar employment status, the GTR values in time use on unpaid work are above 3 across all the regions of India for the years 2019 and 2024. In Northern and Western India, the GTR remains relatively high in both years. In contrast, the North-Eastern region exhibits lower GTR values, which shows a more balanced distribution of unpaid labour within the household. In the Eastern,Southern, and Western regions of India, the GTR in time use on unpaid work among regular salaried workers has increased between 2019 and 2024, revealing that even with higher employment regularity, women continue to bear the responsibility of unpaid labour. Thus, Beckers theory of allocation of time appears to have limited explanatory power in this context. The patterns in tables 2, 3 and figure 1 describe a persistent imbalance in the use of time in unpaid labour experienced by women as given by the theory of social reproduction. The findings also reflect the continued disparity in time use faced by women, which restricts their opportunities for paid employment, leisure, and self-development. The figure 2 represents the GTR-Unpaid activity across the states/UTs when both male and female in the household share similar employment status.

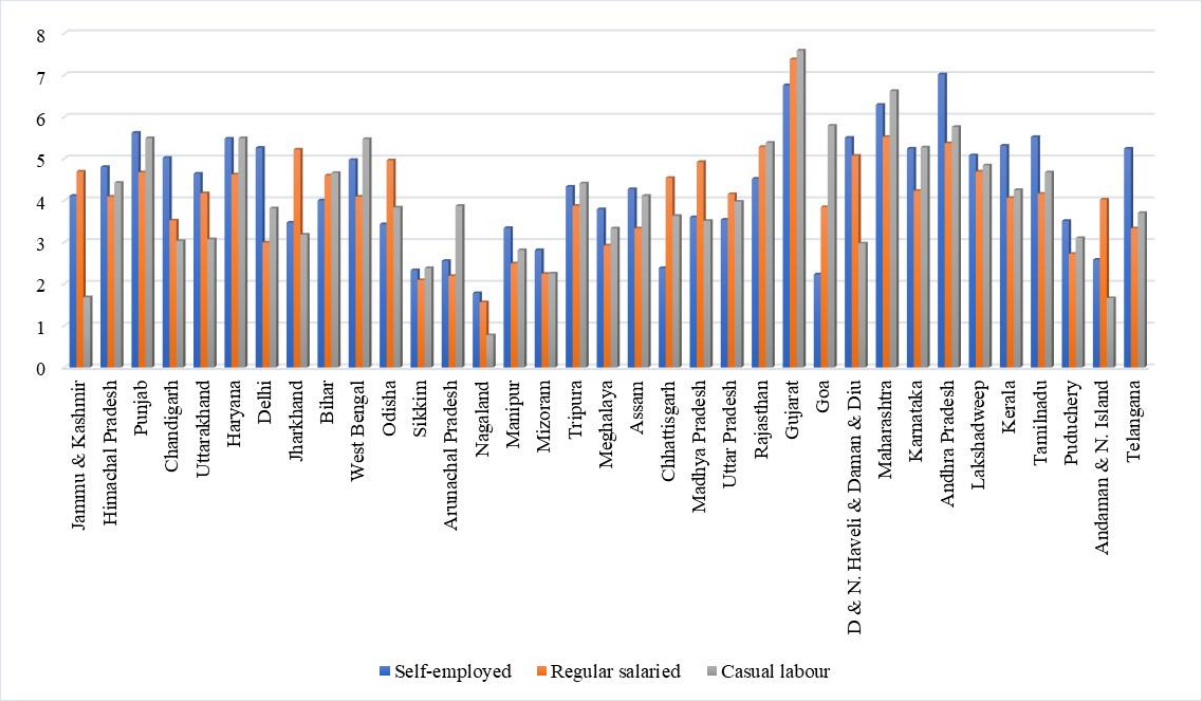


Figure 2: GTR-Unpaid Activity: Male vs Female in Same Employment Status

It can be concluded from the figure 2 that even if men and women are engaged in similar employment status, women spend relatively more time on unpaid labor across the states and UTs. The states of Rajasthan, Gujarat, Maharashtra and Karnataka display high GTR in unpaid work whereas the states of Sikkim, Nagaland and Mizoram show low GTR values, which reflects narrowing gender differences in time use.

4.2. Importance of employment in reducing the female time use in unpaid labour

Here, we verify whether the employment status of female is associated with the differences in the time allocated to unpaid labour at the household level. Table 4 presents the mean unpaid labour time for male and female based on their employment status, along with the corresponding t-statistics. We check here whether there is a difference in mean time allocated to unpaid activities of employed and unemployed male and females in the year 2024.

Table 4: Mean Unpaid Labour Time and t-Tests

	Mean Unpaid Labour Time (minutes/day)				t-values for Equality Tests			
	A1: Emp. M	A2: Unemp. M	B1: Emp. F	B2: Unemp. F	A1=B2	A1=B1	A2=B2	B1=B2
Mean	105	114	338	464	-408^{***}	-200^{***}	-139.98^{***}	96.23^{***}
SD	[152.85]	[160.67]	[190.50]	[170.61]				

Source: Author's own estimation using unit level data TUS 2024. Note: Standard deviations in brackets. A1 = Employed Male, A2 = Unemployed Male, B1 = Employed Female, B2 = Unemployed Female. t-values correspond to two-sample tests of mean equality. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

The results of hypothesis testing as reported in Table 4 shows that there is minimum difference in the time allocation to unpaid labour by men irrespective of employment status, whereas

the corresponding differences are significantly higher among women. It can be noted that unemployed women spend more time in unpaid labour than employed women. The difference is statistically significant. This result aligns with the findings of International Labour Organization (2018); Bittman et al. (2003) which noted that women who engage in paid employment reduce their time spent doing unpaid work due to the constraints associated with time and role reallocation within the households. This can be attributed to the Becker's theory of allocation of time which states that household members who participate in the market activity spend relatively less time on unpaid domestic activities.

4.3. Factors influencing GTR:Unpaid activity

It is clear from sections 4.1 & 4.2 that women allocate more time to unpaid labour compared to their male counterparts. This is regardless of the region in which they belong. Additionally, employed women allocate less time to unpaid labour as compared to the unemployed women. This section seeks to identify the factors that can explain GTR in unpaid activity across the states/UTs. Table 5 describes the variables and its source used for the analysis in OLS regression equations 1 and 3 in Sections 4.3 and 5 respectively.

Table 5: Description of the Variables Used in the Analysis

Variables	**Description**	**Source**
$LFPR_i$	Female labour force participation rate in usual status (%, ages 15–59)	PLFS 2019–2020 & PLFS 2023–2024
$FemaleUnpaid_Time_i$	Average female time spent in unpaid activity per day	TUS 2019 & 2024
$MaleUnpaid_Time_i$	Average male time spent in unpaid activity per day	TUS 2019 & 2024
$LogNSDP_i$	Lagged Net State Domestic Product Per Capita (2018 & 2022)	NSO, MoSPI, Government of India
$TSII_i$	Time Saving Infrastructure Index	NFHS 2019–20
SDG_i	State/UT Sustainable Development Goal India Index	Niti Aayog 2019 & 2023 refer Appendix A.2
$CashTransfer_i$	Indicator for States/UTs providing unconditional income transfer schemes to adult women (Ref: Not received)	Axis Bank (Mishra et al., 2024)
$FemaleEducation_i$	Proportion of women with secondary education or above	PLFS 2019–2020 & PLFS 2023–2024
$DependencyRatio_i$	Ratio of dependent population (0–14 or 65+) to the working-age population	PLFS 2019–2020 & PLFS 2023–2024
$HouseholdSize_i$	Average number of household members	PLFS 2019–2020 & PLFS 2023–2024
GWG_i	Gender Wage Gap	PLFS 2019–2020 & PLFS 2023–2024
Region	Geographic region dummies: North, Central, East, North-East, and West (Ref: South)	Ministry of Home Affairs

Note: The $LogNSDP_i$ are lagged (2018 & 2022) to minimize endogeneity.

The studies of Sahu (2024); Dasgupta and Datta (2023); Ratheesh and Anitha (2022); Thakur and Reimeingam (2022),observed that social and demographic differences across the states/UTs could affect the time allocated by females to unpaid labour.Therefore to determine the factors affecting GTR-unpaid activity, the following empirical model given by Eq.1 is used:

$$\begin{aligned} \text{GTR_Unpaid}_i = \beta_0 + \beta_1 \text{FLFP}_i + \beta_2 \text{LogNSDP}_i + \beta_3 \text{TSII}_i + \beta_4 \text{SDG}_i \\ + \beta_5 \text{CashTransfer}_i + \beta_6 \text{FemaleEducation}_i + \beta_7 \text{DependencyRatio}_i \\ + \beta_8 \text{HouseholdSize}_i + \beta_9 \text{GWG}_i + \epsilon_i \end{aligned} \tag{1}$$

The analysis employs state/UT wise GTR values in unpaid activity for the years 2019 and 2024 as the dependent variable. The explanatory variables include gender specific economic and social factors (state/UT wise female labour force participation rate, female education, unconditional cash transfer transfers for females and relative Gender Wage Gap), household-level characteristics (dependency ratio, average household size), state/UT level economic factor (log of per capita NSDP) and the infrastructural and time saving enablers (TSII). Krishna et al. (2022); Brahma (2024) have noted the significance of provsion of household amenities in reducing the burden of unpaid labour by women. Hence, to evaluate whether the provision of basic infrastructure in the state/UT could reduce GTR in unpaid activity or not we have constructed the Time Saving Infrastructure Index (TSII).[2], is constructed for each state/UT by averaging the normalized values of the following indicators from the National Family Health Survey (2019–2020):

1. Percentage of population living in households with electricity.
2. Percentage of population living in households with an improved drinking water source.
3. Percentage of population living in households that use an improved sanitation facility.
4. Percentage of households using clean fuel for cooking.

Pandoh and Singh (2025) noted that in 2024, the overall wage inequality among females in India is 60% and this could be a cause of lower participation of women in the labour market. The wage disaprity can be caused by the lower representation of women in leadership or management positions, career breaks of women as a result of motherhood or elder care, reduced working hours of women due to greater allocation of time for unpaid household duties (International Labour Organization, 2019). In India, wage rates based on broad employment status are different for men and women across regions. To capture these differences in average wage earnings between male and female, we calculate the Gender Wage Gap across States and UT's

[1]The per capita State/UT NSDP used in the model includes lagged values for the years 2018 and 2022 to address the problem of endogeneity (Henri Aurélien and Bruno Emmanuel, 2024; Byaro et al., 2024).

[2]The index value ranges from 0 to 1. A higher index value indicates better time-saving infrastructure, while a lower value indicates poorer time-saving infrastructure.

of India using the following Eq.(2), where W_m is the male wage and W_f is the female wage. The average annual earnings of men and women in self-employment, regular jobs, and casual labour in 2019 and 2024 are estimated using the quarterly estimates provided in the Annual Reports of Periodic labour Force Surveys July 2019-June 2020 & July 2023-June 2024.

$$\text{Gender Wage Gap} = \left(\frac{W_m - W_f}{W_m} \right) \times 100 \tag{2}$$

Table 6 shows the results of pooled OLS regression analysis that determines the factors influencing GTR in unpaid activities.

Table 6: Determinants of GTR- Unpaid Activities

Independent Variables	**Model 1**	**Model 2**	**Model 3**
Female labour force participation rate (%)	-0.05 ** (0.02)	-0.05 *** (0.01)	-0.04 ** (0.01)
Log per capita NSDP	-0.08 (0.69)	–	1.27 * (0.52)
TSII	4.97 * (2.21)	–	–
SDG India Index	–	0.14 *** (0.03)	–
Unconditional cash transfer for women (Ref: Not received)	0.51 (0.45)	0.43 (0.40)	0.19 (0.41)
Female education — secondary & above	0.05 (0.03)	–	0.05 * (0.02)
Dependency ratio	0.09 * (0.04)	0.004 (0.03)	0.03 (0.03)
Average household size	-0.85 (0.61)	0.17 (0.49)	0.10 (0.51)
GWG	0.04 (0.02)	0.12 (0.01)	0.05 *** (0.02)
Constant	0.10 (8.34)	-3.83 (2.90)	-13.92 (7.10)
Number of observations	33	66	66
R-squared	0.63	0.41	0.36

Note: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. In Model 1, the number of observations is limited to 33 because TSII indicator values are available only for 2019. *Source:* Author's own estimation using PLFS (2019, 2024), TUS (2019, 2024), and NFHS (2019–20).

The results shows that the participation of females in the labour market would reduce the GTR values only by 0.05%, indicating the limited effect of female paid labour in narrowing the gender gap in unpaid labour. Charmes et al. (2019) based on the comprehensive compilation of 133 time use surveys conducted across 76 countries using time diaries, found that in the emerging economies women spent the longest hours in unpaid labour (4 hours and 36 minutes) as compared to women in developed countries (4 hours and 20 minutes). Despite the higher capital intensity of household production in a developed country context, the difference in time alloted to unpaid labour comparing the emerging economies is only 16 minutes. This finding confirms with the present study. An increase in time allocated to unpaid activities by women when there is an increase in the number of dependent family members and household size is evident from our results. Our results imply that the persistence of gender wage gap creates disincentive for female labour force participation which in turn contributes to higher levels of unpaid labour performed by women.

The positive and statistically significant coefficient of log per capita NSDP, SDG India Index and TSII with GTR-Unpaid activity reinforces the persistence of gender gap in time use

on unpaid labour regardless of economic and infrastructural development. This suggests that, although better time saving infrastructure reduces the overall effort required for unpaid tasks, still the time spent in unpaid labour by women is disproportionately more than men.

Alonso et al. (2019) noted that there is gender gap of 20% in unpaid labour even in nordic countries while analysing the factors influencing time spent on unpaid labour with GDP per capita of 18 advanced and emerging economies in the world. Our results also confine with this finding which shows that development alone could not translate in reducing women's burden on unpaid labour.

5. Time use in unpaid labour and Women's Employment

Female labour force participation in India can be influenced by various factors like education level, wage rate, income of the household, household size, number of dependent family members, cash transfers from the government, provision of childcare and elder care services, and the availability of time for paid work (Dutta, 2022; Sahu, 2024; Gupta and Pattanaik, 2025; Hossain and Jukes, 2025). Therefore, we explore the critical factors that can affect women's participation in the labour market with a special emphasis on the explanatory variables "Male-unpaid labour time" and "female-unpaid labour time". The other explanatory variables incorporated are the gender specific economic and social factors (state/UT wise female labour force participation rate, female education, unconditional cash transfer transfers for females and relative Gender Wage Gap), household-level characteristics (dependency ratio, average household size), state/UT level economic factor (log of per capita NSDP) and the geographic region (North, East, North-East, West and South) . The given empirical model analyse the impact of time allocated by males/females to unpaid activity on female labour force participation.

$$\begin{aligned}\text{LFPR}_i = {} & \beta_0 + \beta_1\,\text{MaleUnpaid_Time}_i \backslash \text{FemaleUnpaid_Time}_i + \beta_2\,\text{FemaleEducation}_i + \beta_3\,\text{HouseholdSize}_i \\ & + \beta_4\,\text{DependencyRatio}_i + \beta_5\ \log(\text{NSDP}_i) + \beta_6\,\text{GWG}_i \\ & + \beta_7\,\text{CashTransfer}_i + \beta_8\,\text{North}_i + \beta_9\,\text{Central}_i \\ & + \beta_{10}\,\text{East}_i + \beta_{11}\,\text{NorthEast}_i + \beta_{12}\,\text{West}_i + \varepsilon_i \end{aligned} \tag{3}$$

Note. The same model specification is estimated separately for the self-employed, regular salaried, casual labour, and total LFPR categories. The GTR_Unpaid_i is replaced by MaleUnpaidTime_i to eliminate the endogeneity problem associated with the variable.

The female unpaid labour time and male unpaid labour time are included as the key explanatory variables in the female labour force participation models in Table 7. Male unpaid labour time is important because contribution by men to household duties and care responsibilities could reduce the burden and time use disparity faced by women in the household (Charmes et al., 2019; OECD, 2025). This can eventually leads to women's participation in the labour

Table 7: Determinants of Female Labour Force Participation by Employment Type

	LFPR-SE-1	LFPR-SE-2	LFPR-RS-1	LFPR-RS-2	LFPR-CL-1	LFPR-CL-2	LFPR-Total-1	LFPR-Total-2
Male unpaid labour time (min)	0.10*	–	−0.02	–	−0.08*	–	0.02	–
	(0.05)		(0.04)		(0.03)		(0.05)	
Female unpaid labour time (min)	–	0.10	–	−0.02	–	−0.08*	–	−0.006
		(0.06)		(0.04)		(0.03)		(0.05)
Female education	0.14	0.19	0.40	0.39	−0.55***	−0.59***	0.42	0.40
	(0.28)	(0.28)	(0.22)	(0.22)	(0.16)	(0.16)	(0.24)	(0.24)
Average household size	18.25*	14.93*	−8.02	−7.24	−10.23*	−7.67	−0.72	−0.46
	(7.25)	(7.56)	(5.81)	(6.02)	(4.12)	(4.33)	(6.34)	(6.57)
Dependency ratio	−0.48	−0.30	0.10	0.06	0.38*	0.24	0.33	0.32
	(0.34)	(0.36)	(0.27)	(0.29)	(0.19)	(0.21)	(0.30)	(0.31)
Log per capita NSDP	−1.12	−3.45	5.99	6.52	−4.86	−3.06	9.21	8.85
	(6.42)	(6.38)	(5.14)	(5.08)	(3.65)	(3.65)	(5.61)	(5.54)
GWG	0.76***	0.70***	0.71***	−0.69***	−0.05	−0.008	0.63***	0.62***
	(0.14)	(0.14)	(0.11)	(0.11)	(0.08)	(0.08)	(0.12)	(0.12)
Cash transfer for women (Ref: Not received)	−8.56	−7.93	4.63	4.48	3.94	3.45	−5.60	−5.63
	(4.54)	(4.59)	(3.64)	(3.65)	(2.59)	(2.63)	(3.97)	(3.99)
Northern region	4.37	4.02	5.79	5.89	−10.17**	−9.90**	−7.60	−6.98
	(6.49)	(6.60)	(5.20)	(5.26)	(3.69)	(3.78)	(5.67)	(5.74)
Central region	11.33	15.91	−3.39	−4.43	−7.90	−11.43*	20.35*	21.01*
	(9.46)	(9.33)	(7.59)	(7.43)	(5.39)	(5.34)	(8.27)	(8.10)
Eastern region	14.44*	11.70	1.35	2.00	−15.76***	−13.65***	0.19	0.83
	(7.58)	(8.01)	(6.08)	(6.38)	(4.32)	(4.59)	(6.63)	(6.96)
North-Eastern region	10.22	11.27	2.27	2.05	−12.47**	−13.28***	11.14	12.06*
	(6.94)	(6.89)	(5.57)	(5.49)	(3.95)	(3.95)	(6.07)	(5.99)
Western region	1.23	4.33	3.34	2.63	−4.54	−6.93	−2.85	−2.45
	(8.35)	(8.33)	(6.70)	(6.63)	(4.76)	(4.77)	(7.30)	(7.23)
Intercept	−33.86	−18.42	−1.75	−5.09	135.26*	123.33*	−119.53	−110.44
	(95.0)	(94.5)	(76.2)	(75.3)	(54.12)	(54.16)	(83.0)	(82.1)
Observations	66	66	66	66	66	66	66	66
R-squared	0.68	0.67	0.77	0.77	0.63	0.62	0.47	0.47

*Notes:*LFPR-SE: Labour force participation rate of females in self-employment, LFPR-RS: Labour force participation rate of females in regular salaried jobs, LFPR-CL: Labour force participation rate of females in casual labour & LFPR-Total : Total Labour force participation rate of females. Standard errors are in parentheses.$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$. Source: Author's own estimation using unit level data of TUS 2019 & TUS 2024.

market. Also, male unpaid labour time is less likely to be affected by the participation of females in the workforce. Hence, this serves as an exogeneous proxy to explain the gender norms and sharing of household responsibilities.

Observing Table 7, the effect of male unpaid labour time on the general employment status of women, the results indicate that an additional 60 minutes of unpaid labour performed by men is associated with an increase in female participation in self-employment by 6% . This shows that the redistribution of unpaid labour could promote entrepreneurial activities among women. Furthermore, if the time allocated to unpaid work by women increases by 60 minutes, it could reduce their participation in casual employment by 5%. A rise in female education secondary and above might result in a reduction in casual labor for women. Our results are in line with the findings of Asadullah et al. (2024), who noted that in South Asia (excluding Bangladesh), women's participation in the labor force remains low despite increased educational attainment, largely due to patriarchal norms and early marriages.

The relative gender wage gap is an important indicator that tells the extent of wage disparity in different types of jobs between regions. The major reason for the wage gap in India is lower education and job experience of women as compared to men (Bhalla and Kaur, 2011). The relative GWG in our result is having a positive relationship with LFPR in self-employment. This could be a necessity driven employment because even if females earn less compared to males in self-employment, households might push women to work or this might be employing in low pay jobs due to flexibility, social acceptability and lack of other suitable employment options (Sumalatha and Roy, 2024; Aldan, 2021). While *GWG* can result in lesser participation of female in regular salaried employment. Among the variables that captured state/UT level household characteristics (average household size and dependency ratio), an increase in the number of household members by one unit could generate self-employment among females by 18%, whereas their participation in casual labour decreases by 10%.

While considering the impact of state/UT level public policies aimed at women empowerment, we considered the unconditional cash transfers to the adult women initiated by the state/UT's. There are studies that found unconditional transfers do not bring about a change in FLPR (Baird et al., 2018), if women belonging to poorer households receive a small regular income, she will be less motivated to work. In contrast, there are studies in international context that found women participated in self-employment or invested in assets when they receive conditional or unconditional cash transfers (Fenoll and Quaranta, 2025; Ambler et al., 2017; Natali et al., 2016). In our study, 16 states provided cash transfers to women in the working age group. However, the coefficient of unconditional cash transfers for female is not significant in our analysis. With the southern region serving as the reference category, the region-specific estimates indicate that the central and north-eastern regions of India exerts a positive regional effect on female employment as compared to southern region. In conjunction with this, participation rate in self-employment among females increases by 14% if the women belongs to eastern region. Also, North, East and North-Eastern regions discourages female employing as

casual labour.

The regression analysis above underscores the underlying nature of female labour force participation across three different employment categories and the total female labour force paticipation. The findings make it clear that male time allocated to unpaid activity constrains women's engagement as casual labour whereas their participation in self-employment increases. The positive and significant association of male-unpaid labour time with total participation in the female labor force could enhance female engagement in self-employment. In addition, the time dedicated by females to unpaid work could reduce their participation in casual labor jobs. The results also point out the importance of higher education in reducing women's participation in informal work. Characteristics at the household level, such as the number of family members, affect the employment decisions of women, reflecting the time constraints faced by women. The gender-specific factor covered by the relative gender wage gap shows the structural disparities encountered by women in the working environment that force them to take up less secure forms of employment.

6. Conclusion

Our study looked at the extent of disproportionate allocation of time between paid and unpaid labour among males and females and also explored the time allocation pattern among males and females who share similar employment status across the states/UTs in India. Furthermore, the study investigated whether the employment status of male and female is associated with any difference in time allocated to unpaid labour. In addition, it determined the factors that influenced the GTR-unpaid activity across the states/UTs in India. Furthermore, the analysis investigates whether the time men and women allocate to unpaid labour influences female labour force participation or not.

The results of the state/UT wise analysis that looked at the gender disparity in time use reveal that on an average women devote only 0.27 times as much time as men to paid work, whereas they spend 5.54 times more time than men to unpaid labor. The North-East states, in particular Sikkim, Nagaland, and Meghalaya with low GTR, are the states that have the highest female labour force participation in the year 2024 (annual report of PLFS 2023-24). From this it is clear that in these states there is gender parity in terms of unpaid labour. Women in the states of Gujarat, Maharashtra, Rajasthan, Telangana and Tamil Nadu are in a disadvantaged position in terms of time use, as these states showed a high GTR-Unpaid activity for the years 2019 and 2024. In spite of the economic development of these states, the gender disparity in time use is evident from our analysis. It is clear that there exists a gender disparity in time allocation even if both men and women are in a similar position of employment in the household. The disparity in time allocation to unpaid labour is higher in Eastern, Western and Southern regions of India if both male and female are regular salaried. Hence, the social reproduction

of invisible labour performed by women is normalized and makes women overwhelmingly responsible for the duty of the unpaid labour even though they share similar employment status with men. The results of hypothesis testing put forward the significance of participation of women in the labour market in reducing the time allocated to unpaid labour.

The regression results clearly point out that economic growth and the time-saving infrastructure of the state alone cannot reduce the burden of unpaid work that women perform in their day-to-day lives. The result highlighted the importance of redistribution of unpaid labour at home to improve women's participation in the labour force. Holding other factors constant, if the time allocated to unpaid labour by males increases by 60 minutes, then the self-employment of females in the labour force would increase by 6%. In addition, the importance of reducing the wage gap in regular salaried earnings to increase the contribution of women to gainful employment is also evident in our results.

Acknowledgements

We acknowledge the use of unit-level data of TUS 2019 & 2024 and Periodic Labour Force Survey data available in the website of Ministry of Statistics and Programme Implementation (Government of India) which formed the basis of our analysis.

Declaration of Conflicting Interests

The authors declared that they had no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, or publication of this article.

Appendix

Appendix A. ICATUS Division of Activities

Table A.8: Description of ICATUS Broad Activity Divisions

ICATUS Activity Division	**Description of the Activity**
Employment and related activities	Time devoted to paid work, self-employment, work-related tasks (including commuting), and searching for a job.
Production of goods for own final use	Manufacturing or collecting goods for household use, such as farming, fishing, collecting firewood, fetching water, or home-based production for own consumption.
Unpaid domestic services for household members	Household duties like cooking, cleaning, washing, shopping, and overall management performed without remuneration.
Unpaid caregiving for household members	Taking care of children, the elderly, or sick household members without remuneration.
Unpaid volunteer, trainee, and other unpaid work	Community or organizational work performed without receiving payment, including volunteering, apprenticeships, and unpaid trainee work.
Learning	Time allocated to education, training, studying, or homework.
Socializing, communication, community participation, and religious practice	Communication with family, friends, community members, attending social meetings, and participation in religious practices.
Culture, leisure, mass-media, and sports practices	Participation in cultural activities, watching TV, listening to music, reading, using the internet for leisure, and playing sports.
Self-care and maintenance	Personal care activities such as sleeping, eating, resting, health care, and personal hygiene.

Source: TUS Report 2019

Appendix A.1. Classification of activities in TUS 2019 and 2024

Paid Activities

1. Self-employment for production of goods
2. Self-employment for production of services
3. Regular wage/salary for production of goods
4. Regular wage/salary for production of services
5. Casual labour for production of goods
6. Casual labour for production of services

Unpaid Activities

1. Care for children, sick, elderly, differently-abled persons in own households
2. Production of other services for own consumption
3. Production of goods for own consumption

4. Voluntary work for production of goods in households
5. Voluntary work for production of services in households
6. Voluntary work for production of goods in market/non-market units
7. Voluntary work for production of services in market/non-market units
8. Unpaid trainee work for production of goods
9. Unpaid trainee work for production of services
10. Other unpaid work for production of goods
11. Other unpaid work for production of services

Other activities include self-development/ self-care/ self-maintenance, etc.

Appendix A.2. SDG- India Index

Sustainable Development Goal India Index was released in 2018 by NITI Aayog to monitor the progress of states and UT's as per the targets fixed for each SDG in India and to create a competetive spirit among the states/UT's to improve their performance. In 2018, SDG India Index measured only 62 indicators, covering 13 SDG's and 39 targets. In 2023, SDG India Index covers 16 SDG's with 70 targets and 113 indicators. The raw indicator values are normalized for each goal. The goal score of state/UT thus computed is used to categorize them into:

1. Achiever(the Index score equals 100)
2. Front Runner (the Index score is between 65 and 99)
3. Performer (the Index score is between 50 and 64)
4. Aspirant (the Index score is less than 50)

In 2023-2024, Kerala, Uttarakhand and Tamil Nadu are the top performers in SDG India Index. The aspirants or states with poor SDG India index are Nagaland, Meghalaya, and Jharkhand.

Table A.9: State Classification by Gender Time Ratio (GTR): Paid, Unpaid, and Other Activities

Category	Paid GPI	Unpaid GPI	Other GPI
Low	Jammu & Kashmir, Punjab, Haryana, Uttarakhand, Delhi, Uttar Pradesh, Bihar, Odisha, Assam, Tripura, Goa	Uttarakhand, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Odisha, Assam, Sikkim	Himachal Pradesh, Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand, Odisha, Gujarat, Maharashtra, Lakshadweep, A & N Islands
Medium	Himachal Pradesh, Chandigarh, Jharkhand, Odisha, West Bengal, Rajasthan, Karnataka, Kerala, Puducherry, Lakshadweep	Jammu & Kashmir, Himachal Pradesh, Bihar, Jharkhand, West Bengal, Tripura, Rajasthan, Gujarat, Maharashtra, D & N Haveli, Telangana, Karnataka, Tamil Nadu, Puducherry, A & N Islands	Jammu & Kashmir, Haryana, Uttarakhand, Uttar Pradesh, West Bengal, Tripura, Rajasthan, Daman & Diu, Telangana, Kerala
High	Chhattisgarh, Sikkim, Gujarat, Maharashtra, D & N Haveli, Daman & Diu, Andhra Pradesh, Telangana, Tamil Nadu, A & N Islands	Punjab, Haryana, Chandigarh, Delhi, West Bengal, Gujarat, Maharashtra, Daman & Diu, Andhra Pradesh, Telangana, Kerala, Lakshadweep	Punjab, Jammu & Kashmir, Chandigarh, Delhi, Assam, Goa, Sikkim, D & N Haveli, Andhra Pradesh, Karnataka, Tamil Nadu, Puducherry

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