

# Women's Work in India: Evidence from changes in time use between 1998 and 2019

Nicholas Li\*

Toronto Metropolitan University

September 13, 2022

## Abstract

I provide evidence on long-run changes in women's work for six Indian states common to the 1998-99 and 2019 time-use surveys. Rural women experienced large decreases in work time (especially paid work) but urban women did not. Men experienced larger declines in paid work but partly compensated with greater self-employment. Changes in self-reported "principal usual activity status" that are typically used to measure labour force participation do not provide an accurate measure of these changes in work time. Declining work for rural women is observed regardless of self-reported usual activity status, education level, caste/religious group, or state. Leisure time for women increased, reducing the gender-gap in leisure by 50%.

---

\*Email: [nicholas.li@ryerson.ca](mailto:nicholas.li@ryerson.ca). Thanks to Urmilla Chatterjee, Ashwini Deshpande, Shari Eli, Bisma Khan, Obeid Ur-Rehman, and seminar participants at Toronto Metropolitan University and the RES 2022 Ashoka Hub meeting for helpful comments. This research has been supported by a Social Sciences and Humanities Research Council Institutional Grant.

## 1. Introduction

During the last two decades India has experienced rapid economic growth and demographic change. Indian women have more education and less children than ever before, but female labour force participation (FLFP) rates remain very low (around 30%) and by some measures have even declined during this period, particularly for rural women. Understanding this phenomenon is critical from the perspective of promoting gender equity and reaping an economic growth dividend from India's current demographic structure. A large literature has explored the extent to which supply-side and demand-side factors have contributed to low and stagnant female labour force participation in India. Several studies highlight labour-supply explanations where income growth in conjunction with social norms (related to caste and education) lead to withdrawal from the labour force as jobs considered "suitable" for women are limited in cases where their when their income is no longer required (Eswaran et al. (2013), Klasen and Pieters (2015) and Afridi et al. (2018)). Other studies put more emphasis on labour-demand explanations where low female labour force participation results from weak growth of paid employment and a substantial decrease in demand for agricultural labour driven by smaller farm sizes and mechanization (Kapsos et al. (2014), Klasen and Pieters (2015), Chatterjee et al. (2015), Desai (2017), Afridi et al. (2020)). Gender norms – particularly the unequal burden of domestic work and childcare, but also restrictions on mobility – can play a prominent role in both types of explanations as low female labour force participation ultimately reflects an equi-

librium mismatch between jobs that are “suitable” or “desirable” for women and the jobs that are available (Deshpande (2019), Jayachandran (2020)).<sup>1</sup>

Much of the literature focuses on female labour force participation measured by India’s National Sample Survey (NSS) and Periodic Labour Force Survey, which ask respondents about the usual activity status of household members.<sup>2</sup> While these data have the advantage of being nationally representative and extending back to the 1980s, there is some concern that the way they record women’s work may lead to biased inference regarding both levels and trends (Kapsos et al. (2014), Desai (2017), Kapur et al. (2021)). Recent studies using alternative data sources – the India Human Development Survey (IHDS) and Center for Monitoring the Indian Economy (CMIE) data – suggest that job fragmentation and high labour force churn can lead to underestimation of female labour force participation and the willingness to take work when it is available (Desai and Joshi (2019), Sarkar et al. (2019), Dhanaraj and Mahambare (2019), Deshpande and Singh (2021)). Numerous papers (Hirway and Jose (2011), Srijia and Vijay (2021), Deb (2021), Deshpande and Kabeer (2021)) have also used time-use data to show how much of women’s work in India is invisible, both because women do work that *should* be classified as work based on System of National Account (SNA) definitions but do not report their usual principal activity status as working, and because women do most of the unpaid domestic service work that does not qualify as “work” according to SNA definitions but is critical to the economy and household welfare (e.g. care-giving and household maintenance).

My contribution here is to combine two waves of representative time-use data for six Indian states to shed light on changes in work and non-work activities for Indian women. I use the surveys conducted by the National Sample Survey Organization, which implemented a time-use pilot between July 1998 and June 1999 for six states (Gujarat, Haryana, Madhya Pradesh, Meghalaya, Orissa, and Tamil Nadu) and in 2019 implemented a nationally representative time-use survey throughout the calendar year. While these surveys have been used individually, this is the first study to combine them to shed light on long-run trends in time-use in India. Although time-use data is not suitable for examining churn or attachment to the labour force, it offers an invaluable snapshot of how the average person in India spends their time and also provides insight into what women are doing when they are not doing activities classified as “work” according to SNA.

An advantage of the Indian time-use data is that they record usual principal activity status (see note 1) in a format identical to the NSS employment surveys used to measure labour force participation. They also record whether each activity is paid or unpaid (e.g. self-employed in own-farm or home enterprise) and whether it occurs at home or away. While my analysis is based on only two years of data, the survey years are not affected by shocks like the coronavirus pandemic, demonetization, or major recessions, making them more likely to capture long-run trends. The states chosen for the 1998 time-use survey are not “representative” for India but they were chosen to capture the regional and cultural diversity of India, and are important in

their own right as they together account for a quarter of India's population.

My analysis highlights three long-run trends novel to the literature on FLFP and women's work in India. First, hours worked fell substantially for rural women (90 minutes a day or 36% reduction) with two thirds of this decline being driven by fewer hours of paid work (53 minutes a day or a 46% reduction). This occurs despite only a small decline in reporting of work (from 38.2% to 36.6%) or paid work (32.1% to 29.6%) as the usual principal activity status. Hours of paid and unpaid work for urban women were stable despite a large increase in work (from 16.4% to 26.5%) and paid work (from 14.3% to 20.5%) as the usual principal activity status. Changes in hours of work thus paint an unambiguously more negative picture of trends in women's work in India than changes in usual principal activity status in these data, with work hours declining for rural women regardless of their self-reported usual principal activity status.

Second, I find substantial declines in work hours for men despite minimal changes in usual principal activity status. The decline in paid work for rural (104 minutes a day) and urban men (147 minutes a day) is larger than for rural women. However, men partly compensated for this by increasing self-employment work such that their overall work time only declined by 60 minutes a day in rural areas and 37 minutes a day in urban areas. In addition to highlighting a disconnect between usual principal activity status and time-spent working, these patterns suggest that some of the factors affecting women's work directly, such as lack of employment opportunities

in rural areas due to mechanization and smaller farm sizes, also apply to men. These data suggest that spillovers from the male labour market – through intensifying competition for paid work and substitution of male for female work in self-employment activities – are important for understanding trends in women's work.

Third, I find that the decrease in women's work was not associated with a large increase in time spent on (non-SNA) domestic services. Total time spent on non-leisure activities (combining SNA with non-SNA domestic work) fell by almost as much as hours worked (70 minutes a day). Changes in the burden of care for dependents (children and the elderly) or household maintenance (cooking, cleaning, washing) have not been the main drivers of declining work hours for women. Instead, time at work has been replaced with activities that are typically classified as leisure, with the largest change being an increase in time spent watching TV (40 minutes a day). The diffusion of television in rural India seems to have played an important role in these trends, consistent with the view that the frequently monotonous lives of the rural poor make television very attractive (Banerjee and Duflo (2011)). Leisure also increased for men but by less than for women, leading to a decrease in the leisure surplus that Indian men enjoyed relative to women from 51 to 26 minutes a day between 1998 and 2019, a 50% reduction. Non-SNA domestic production also became slightly more equal, rising for men (7 minutes a day) and falling for women (4 minutes a day).

I examine several dimensions of heterogeneity that have been emphasized in the literature – income, education, caste/religious group – and confirm that some of

the typical cross-sectional patterns observed for FLFP are also observed for minutes worked, e.g. there is a negative relationship between household per capita expenditure and work time for women and a U-shape between women's education and work time. I find that for rural women the decline in work between 1998-2019 occurs within every education and caste/religious group category and in every state, while for urban women the picture is more nuanced. Leisure increased for women and especially men in low expenditure households, but leisure decreased for men in high expenditure households in urban areas. A similar pattern can be seen with respect to education, where increases in leisure for individuals with low education levels have reduced leisure inequality significantly, especially for men. The reduction of leisure inequality between men and women, and between the rich and the poor, is a novel finding in the Indian context and demonstrates the unique insights offered by time-use data.

Overall, time-use data paint a more negative picture of trends in women's work in India between 1998 and 2019 than changes in labour force participation. However, the same data also paint a more complicated picture of trends in gender equality by highlighting a large negative trend for men's work minutes and a reduction in the gender-gap for leisure and domestic work. In the concluding discussion I offer some interpretations for these patterns and hypothesize that they resulted from structural change in India that lead to weak growth of paid employment in certain sectors (agriculture, male-dominated urban manufacturing and services) combined with gender

norms that lead men (but not women) to increase tertiary sector self-employment as a response.

## **2. Time-Use data for six Indian states in 1998-99 and 2019**

India's two time-use surveys were implemented using a similar survey module and measurement methodology (24-hour recall). Both surveys use two-stage sampling (random sampling of villages/urban blocks and random sampling of households within each selected village/urban block) and stratification (based on districts, village size and town size). Both surveys are representative at the state/sector and annual level when using sampling weights and both collected time-use data for all household members aged 6 and older. In the six common states, 18,628 households were sampled between 1998Q3-1999Q2 and 31,126 were sampled throughout the 2019 year. Both surveys record whether each activity was paid and whether it was carried out at home or away from home.

There are a few differences worth noting. In 1998-99, individuals were first asked about which days of the following week would be normal and whether there would be any variant days (e.g. weekends without work for some workers, days of travel to market towns, etc.). Individuals were subsequently interviewed the day after a normal day and potentially the day after up to two "variant" days about their time-



use during the previous 24 hours. Over 93% of the days with recorded time-use were reported as “normal,” so most individuals only report a single day. In 2019, individuals were only asked about the previous 24 hours. To preserve comparability, I construct the average “day” for the 1998-1999 survey by combining normal with “variant” days weighted by their reported frequency for each individual, but in practice average time-use is similar if using only “normal” days for each individual.

Another difference is that in 1998-99, data are recorded in blocks as small as 10 minutes across 155 activities. In 2019, data are recorded in 30-minute blocks across 165 activities and multiple activities can be recorded in a single block. To preserve comparability, I only use the “major” activities in 2019 so that time-use sums to 24 hours.<sup>3</sup> I manually created a concordance from 2019 categories to 1998-99 categories at the 1-digit level (for 1998-99) and matched some detailed categories for this analysis. For the categories I analyze here, there is little ambiguity in the concordance due to a clear delineation of SNA work, non-SNA work (household maintenance and care), learning, and leisure (social/cultural/mass media and personal care/self-maintenance). A concordance would be less reliable within detailed SNA categories but there is minimal ambiguity in the division between primary (agriculture, forestry, hunting and fishing, mining), secondary (construction, processing/manufacturing), and tertiary sectors (services, retail and distribution).

Both surveys ask about principal usual activity status using a similar format to the NSS employment surveys (e.g. household enterprise work, paid work, education,

domestic duties, domestic duties and free collection/manufacturing for household use) but the 1998-99 survey also asked about usual subsidiary activity status. When comparing FLFP across surveys I use principal usual activity status to preserve comparability. Individuals who report SNA work of any kind as their principal usual activity status are classified as working or participating in the labour force.

I restrict my analysis to women aged 25-59. This ensures that changes in time spent in school have a minimal effect (usual status in education rises from 0.26% to 0.6% over the period for this age range) and that associated delays in marriage and fertility play less of a role (the proportion of never married women rises from 2.3% to 3.3% for this age range). However, qualitative results are similar if the age threshold is lowered to 15, a commonly used cutoff in the Indian literature.

Note that throughout the rest of the paper, I refer to time-use in terms of minutes, which refers to average minutes per day (24 hour recall period).

## **2.1. Principal usual activity status and minutes of work**

Table 1 presents the overall trends in work based on principal usual activity status and minutes spent on work. The first two rows report facts that are generally well-known about principal usual activity status: 1) most women who report work as their principal usual activity status are primarily engaged in paid work; 2) there has been little change in this measure over the two decades between surveys; 3) it is higher in rural than urban areas but rural areas have been trending down relative to urban

areas. The next three rows present new insights about women's work from time-use data: 1) SNA work decreased by over 60 minutes on average, driven by an increase in the share of the population in urban areas combined with a large decline in minutes of work in rural areas (88 minutes) and a small increase in urban areas (2 minutes); 2) paid work fell almost 40 minutes overall, and by more in rural areas (53 minutes) than urban areas (5 minutes).

In terms of principal usual activity status, paid work accounts for the vast majority of women's work. However, in terms of minutes, unpaid SNA work is very important in rural areas, highlighting the disconnect between the substantial SNA work performed by rural women and their low likelihood of reporting such work as their principal usual activity status. This unpaid work ranges from free collection and processing for own use (e.g. water, fuel, fodder, grinding grains) to work for household farms and enterprises. Interestingly, minutes of paid work are actually higher in urban areas than rural areas in 2019 even though women in rural areas are 9 percentage points more likely to report that their principal usual activity status is paid work. This could be related to the seasonality of agricultural work – women engaged in full-time paid agricultural labour during seasonal peaks may be more likely to report this as their principal usual activity status than women doing part-time paid work throughout the year – or to differences in the importance attached to work and domestic identities by rural and urban women.

The most expansive definition of work – which I refer to as “non-leisure” – com-

bines time spent on dependent care and household maintenance with traditional SNA activities but excludes leisure (social/cultural/mass media activities and personal care/self-maintenance). This measure is much higher than work, reflecting the large care and domestic work burden undertaken by Indian women, but it also exhibits a substantial decline of almost 70 minutes, with a larger decline in rural areas (75 minutes) than urban areas (42 minutes). Domestic work for women fell by 4 minutes overall, which implies that most of the decrease in work time was re-allocated to leisure. While the burden of domestic work is still likely to constrain women's work in SNA activities, *changes* in the burden of domestic work along gender normative lines do not account for the large decrease in women's work in the last two decades. Women in rural areas largely substituted SNA work for leisure, while women in urban areas largely substituted domestic (non-SNA) work for leisure.

The next eight rows highlight the relationship between principal usual activity status and time spent on work and non-leisure. Women who report work as their principal usual activity status spend over four hours more on activities classified as SNA work than those who do not. They also consume 100 fewer minutes of leisure, a clear reflection of the double-burden of work and domestic duties. Among women who do not report work as their principal usual activity status, the two major categories recorded in NSS questionnaires are "attended domestic duties only" and "attended domestic duties and was also engaged in free collection of goods (vegetables, roots, firewood, cattle feed, etc.), sewing, tailoring, weaving, etc. for household use."

Women in the latter category report two more hours of SNA-classified work than those in the former category but two hours less than women who report work as their principal usual activity status. SNA work activities are much less important for the urban women whose principal usual activity status is not working. Regardless of principal usual activity status, the data indicate a substantial decline in work and non-leisure. Women reporting work as their principal usual activity status in 2019 worked 56 minutes less and spent 52 minutes more on leisure than their counterparts in 1998-99. Women who did not report work as their principal usual activity status in 2019 worked 78 minutes less and spent 80 minutes more on leisure than their counterparts in 1998-99. An implication of the smaller decline in work minutes for women who report work as their principal usual activity status is that this status has become more informative about cross-sectional differences in work and leisure minutes over time.

The last five rows replicate the first five but for men aged 25 to 59 instead of women. There is almost no change in work measured by principal usual activity status for rural or urban men but a large decrease in minutes. Overall work time for men fell by 51 minutes. This is almost as large as the decline for women (66 minutes). For men, this effect is driven by declines in both rural (59 minutes) and urban (36 minutes) areas combined with a population shift to urban areas where men work more minutes. The decline in paid work for men (112 minutes) is even more dramatic and represents a much larger absolute decline and similar percent decline compared

to women. The decrease in paid work minutes is much larger in urban areas (147 minutes) than rural areas (104 minutes), the reverse of the pattern seen for women.

An important point about men's work and gender norms in this context is that the large decline in paid work for men is partly offset by increases in home enterprise work, leading to much smaller changes in total minutes worked. For women, especially in rural areas, there was no such offset and minutes working for household farm and non-farm enterprises declined alongside paid market work. Leisure for men also increased (44 minutes) but by less than for women, absorbing most of the decrease in work time. Domestic work also increased slightly for men (7 minutes overall). An interesting finding during this period is that the distribution of non-SNA "domestic" work became slightly more equal (the male deficit shrunk by 11 minutes) and the distribution of leisure became substantially more equal (the female deficit shrunk from 51 to 26 minutes, an almost 50% reduction).

Table 1: Changes in work (principal usual activity status) and minutes of work per day for women aged 25 to 59 in six Indian states

Sector Year	All		Rural		Urban	
	1998	2019	1998	2019	1998	2019
Usual status=work	0.320	0.331	0.382	0.366	0.164	0.265
Usual status=paid work	0.271	0.264	0.321	0.296	0.143	0.205
Minutes work	206	140	248	161	99	101
Minutes paid work	103	64	115	62	70	66
Minutes non-leisure	582	512	605	529	523	481
Min. work (status=work)	380	324	382	320	370	333
Min. non-leisure (status=work)	650	598	654	600	628	594
Min. work (status=not work)	124	49	165	68	46	17
Min. non-leisure (status=not work)	549	470	574	488	503	441
Min. work (status=domestic)	105	30	145	44	43	13
Min. non-leisure (status=domestic)	549	457	575	471	509	440
Min. work (status=domestic+goods)	241	114	253	122	116	63
Min. non-leisure (status=domestic+goods)	598	537	605	542	524	501
<i>Men</i>						
Usual status=work	0.974	0.967	0.977	0.972	0.967	0.958
Usual status=paid work	0.564	0.559	0.520	0.520	0.668	0.628
Minutes work	491	440	487	428	498	462
Minutes paid work	337	225	299	195	427	280
Minutes non-leisure	531	487	528	477	539	506

Data for Gujarat, Haryana, Madhya Pradesh, Meghalaya, Orissa, and Tamil Nadu from 1998-99 and 2019 time-use surveys using included sampling weights. Usual status=work is defined as a self-reported principal usual activity status code 11 through 53 and follows the convention of excluding households with code 93 (attended domestic duties and was also engaged in free collection of goods (vegetables, roots, firewood, cattle feed, etc.), sewing, tailoring, weaving, etc. for household use). Work in the time-use survey is based on SNA classification (goods or service produced for the market and goods produced for own final use, plus associated travel time). Non-leisure also includes the codes associated with household maintenance, education, and care for others.

## 2.2. Sector of work

Table 2 provides a more detailed breakdown of total work and paid work for women and men by primary, secondary, and tertiary sectors to highlight the role of structural change. In rural areas, minutes of primary sector work fell dramatically for men and women, with 85% of the decline for men and 58% of the decline for women

coming from decreases in paid work. Note that the decline in paid primary sector work was larger for men than women but the decline in self-employed (i.e. own-farm) primary sector work was larger for women than men, which is suggestive of some crowding out of own-farm work opportunities for women. There were minimal changes in secondary sector work but notable increases in tertiary sector work, with small increases for women (split equally between paid and self-employed work) and large increases for men driven mainly by self-employment.

In urban areas, primary sector work fell by almost 50% for men and women but plays a much smaller role. Minutes of secondary sector work fell for men and women. For men, there were large decreases in minutes of paid work in both the secondary sector (45 minutes) and tertiary sector (88 minutes). These decreases in paid work for men were partly offset by increases in self-employed work in the secondary sector (12 minutes) and especially the tertiary sector (over 100 minutes). Changes in secondary and tertiary sector work were minimal for urban women although there was a modest increase in tertiary sector work (16 minutes) mostly driven by self-employment.

These sectoral patterns shed additional light on the structural change underlying the results in Table 1. Self-employment in the tertiary sector is clearly the most important avenue available to compensate for decreases in paid work. Men experienced the largest decline in minutes of paid work, driven by agriculture in rural areas and both manufacturing and services in urban areas, but partly offset this with large increases in self-employment in services. Rural women were equally affected by the



decline in demand for paid agricultural labor but did not compensate nearly as much as rural men, although they did slightly increase self-employed work in the tertiary sector. Urban women did not experience large changes in paid work minutes but also did not participate in the boom in self-employed tertiary sector work experienced by urban men.

Table 2: Changes in sector of work for ages 25 to 59 in six Indian states (minutes per day unless specified/italicized)

Sector	All		Rural		Urban	
	1998	2019	1998	2019	1998	2019
<i>1-digit work categories: Women</i>						
Work in primary sector	164.3	71.2	217.5	101.3	29.3	15.3
Paid work in primary sector	69.3	17.5	91.9	24.4	12.0	4.7
Work in secondary sector	18.2	18.5	16.5	17.6	22.4	20.3
Paid work in secondary sector	12.4	10.7	10.8	10.0	16.5	12.0
Work tertiary sector	23.6	50.0	14.2	41.8	47.3	65.3
Paid work in tertiary sector	20.9	33.9	12.6	26.6	41.9	47.5
<i>1-digit work categories: Men</i>						
Work in primary sector	262.2	124.1	356.2	180.2	39.3	22.1
Paid work in primary sector	139.2	27.2	186.3	38.0	27.6	7.6
Work in secondary sector	71.0	69.7	53.8	64.3	111.8	79.6
Paid work in secondary sector	59.4	49.5	44.3	48.9	95.2	50.6
Work tertiary sector	157.4	246.5	77.4	184.0	347.1	359.9
Paid work in tertiary sector	138.2	144.0	67.9	104.1	304.6	216.4

Data for Gujarat, Haryana, Madhya Pradesh, Meghalaya, Orissa, and Tamil Nadu from 1998-99 and 2019 time-use surveys using included sampling weights. Work in the time-use survey is based on SNA classification (goods or service produced for the market and goods produced for own final use, plus associated travel time).

### 2.3. Detailed time-use for women

Table 3 provides a more detailed classification of domestic activities for women. The first three rows report time spent at home and the division of SNA work between work performed at home and away. There was a substantial increase in time spent

at home between 1998-2019 driven entirely by urbanization and an increase for rural women. Time spent working away from home fell in rural areas but increased in urban areas. Time working at home fell in both rural and urban areas. These figures indicate that women did not substitute decreases in work away from home with work at home.

The next panel reports non-SNA work and leisure time based on the 1-digit classification in the 1998-99 survey (excluding work by sector, which was already reported in Table 2). Time spent on household maintenance barely changed, increasing slightly in rural areas and decreasing a lot in urban areas, while care for others remained fairly constant. Within leisure, social/cultural activities and mass media increased dramatically even as time spent on personal care and self-maintenance fell.

The last panel reports time-use for some of the most detailed categories. There was little change in time spent sleeping/resting but a large increase in time spent watching TV, which rose by 40 minutes overall and 45 minutes in rural areas but only 13 minutes in urban areas. The rural-urban difference appears to be driven by the extensive margin, i.e. a rise in the share of rural households reporting any TV viewing from 46% to 73% (vs. a smaller increase from 87% to 91% for urban households).<sup>4</sup> Rural women also increased time spent socializing (12 minutes) and engaged in religious practices (6 minutes). Time spent teaching children is low and barely changed in these data. Time spent caring for others fell in the data but time-use surveys may underestimate “passive” care for young children or dependent adults. However, the

share of households with an adult whose usual principal activity status is “not seeking work because disabled” is low (0.4%) and has not changed over time. The average number of children under 6 also declined, which likely reduced the passive burden of care. By assuming that children under 6 spend 24 hours at home and using data on time spent at home by children aged 6-11 on the day of the survey, I can compute minutes of potential “passive” childcare. Whether summing across children, or taking the maximum across all children in the household, the burden of “passive” care for children appears to have fallen over time.

The data show small increases in average time spent on some household maintenance tasks (7 extra minutes cleaning clothes, 12 extra minutes cleaning the house and 8 extra minutes cooking) but these are offset by decreases in time spent on other household maintenance tasks. Time spent seeking a job and the percent of women who report seeking a job as their usual principal activity status are both very low but increased slightly over the period. Time spent traveling for work fell alongside the decline in work for rural women but rose slightly for urban women, with a similar pattern observed for total travel time.

Table 3: Changes in detailed time-use for women aged 25 to 59 in six Indian states (minutes per day unless specified/italicized)

Sector Year	All		Rural		Urban	
	1998	2019	1998	2019	1998	2019
Time at home	1178.2	1256.0	1132.7	1239.4	1293.5	1286.9
Time working at home	47.1	23.9	54.4	26.3	28.7	19.4
Time working away	158.9	115.8	193.9	134.3	70.2	81.5
<i>1-digit categories (non-SNA work)</i>						
Household maintenance	326.4	323.0	310.8	320.6	365.9	327.5
Care-giving	47.5	43.0	44.3	42.4	55.6	44.2
Community service	0.6	3.5	0.6	3.5	0.5	3.6
Learning	1.2	3.1	0.7	2.0	2.3	5.1
Social/cultural act./media	53.3	175.7	31.4	161.7	108.8	201.8
Personal care/self-maintenance/sleep	805.0	751.9	803.9	749.2	807.9	756.9
<i>Select detailed categories</i>						
Sleep/rest	589.7	582.4	590.2	581.8	588.4	583.7
TV	41.0	79.2	21.9	66.7	89.5	102.5
<i>Percent with TV</i>	57.7	79.6	46.2	73.4	86.9	91.1
Social	59.5	68.1	59.5	71.9	59.3	61.0
Religious	11.2	15.1	8.6	14.2	17.8	16.8
Personal hygiene	57.8	66.0	58.5	67.2	55.8	63.8
Teaching children	2.4	2.8	1.2	2.2	5.4	4.0
<i>Number of children under 6</i>	0.8	0.5	0.9	0.6	0.7	0.4
Total time children under 12s at home	1645.1	1080.0	1743.3	1165.2	1395.9	921.6
Maximum time children under 12 at home	812.7	636.1	839.2	664.0	745.4	584.4
Clean clothes	28.7	36.0	23.8	31.5	40.9	44.4
Clean house	47.8	59.4	47.3	59.4	49.3	59.6
Cooking	204.5	212.0	195.4	214.5	227.5	207.4
Seeking job	0.0	0.1	0.0	0.1	0.0	0.1
<i>Percent seeking job as usual status</i>	0.1	0.4	0.0	0.4	0.2	0.6
Travel for work	19.4	14.1	24.1	15.8	7.5	10.7
All travel	25.1	21.8	28.7	21.5	15.9	22.3

Data for Gujarat, Haryana, Madhya Pradesh, Meghalaya, Orissa, and Tamil Nadu from 1998-99 and 2019 time-use surveys using included sampling weights. Work in the time-use survey is based on SNA classification (goods or service produced for the market and goods produced for own final use, plus associated travel time). Percent with TV is based on non-zero reported minutes of TV consumption in the time-use survey, percent seeking a job as principal usual activity status is based on individuals reporting code 81. Total time for children under 12s at home is the sum of all minutes there are children under 12 at home, based on the assumption that children under 6 spend 24 hours at home and using observed time at home for children aged 6-11. Maximum time children under 12 at home is the maximum across all children under 12 in the household.

## 2.4. Heterogeneity by education, expenditure, social group and state for women and men

I now examine levels and trends in work time with respect to several dimensions of heterogeneity emphasized in the literature. One of the more consistent findings in the literature is a U-shape between female labour force participation and both education and income, consistent with the modernization pattern discussed in Goldin (1994).<sup>5</sup> Whether these same relationships hold for minutes of SNA work, and whether total “non-leisure” follows this pattern is less clear in the existing literature so these data are illuminating.

I begin by graphing the relationship between work and household monthly per capita expenditure. Between 1998 and 2019, mean monthly per capita expenditures increased almost 460% in real terms for the sample states.<sup>6</sup> Figure 1 plots a locally weighted regression line for rural and urban women in the top two panels. For rural women we observe a downward sloping relationship between minutes worked and household per capita expenditures. The large increase in real expenditures between 1998 and 2019 (about 1.5 log points) is therefore unsurprisingly associated with a substantial decrease in minutes worked. The 1998 and 2019 curves for the work time – expenditure relationship lie almost on top of each other, suggesting a stable relationship, but there is a downward shift in the non-leisure time – expenditure curve for the poor. For urban women, the relationship between work and expenditure is U shaped and has shifted to the right over time. This implies that women in lower in-

come households work less and those in intermediate income households work more in 2019 relative to 1998-1999. The decrease in non-leisure time for the poorest households is similar for rural and urban households, but for the poorest urban women it reflects an even greater decrease in domestic work because their SNA work hours increased. A plausible interpretation for these patterns is that technological shocks to leisure utility (e.g. television) and/or labour-saving domestic inputs (e.g. availability and cost of appliances for cooking/cleaning/washing) raised the returns to time spent on leisure relative to domestic production. Turning to men in the bottom two panels of Figure 1, we see a very different relationship between work hours and household expenditure. In 1998-1999, the work time – expenditure curve is flat at low levels of expenditure and then declines, but the curves shift substantially by 2019. Men in low expenditure households work much less in 2019 than in 1998 while men in high expenditure households work *more*, especially in urban areas. In 2019 the relationship between men's work time and household expenditure became positive for the poorest households.

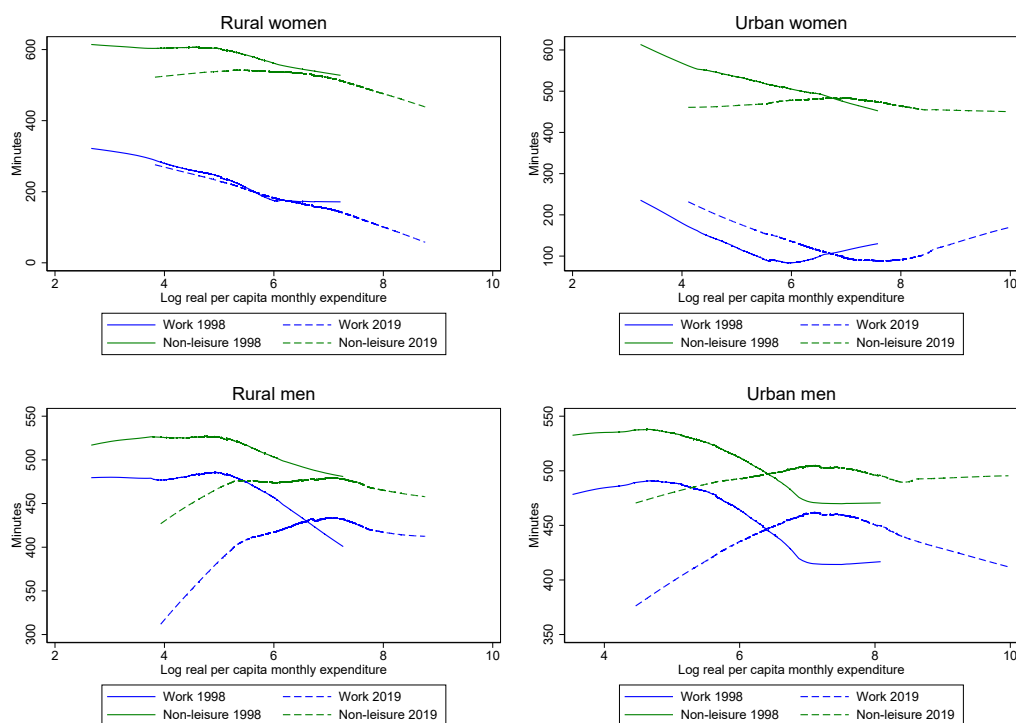


Figure 1: Time spent on work and non-leisure (work+domestic non-SNA production) versus household per capita monthly expenditure (log 2019 rupees) for women and men by sector and year.

Figure 2 reports average time spent on work, paid work, and non-leisure for individuals with different completed education levels. For rural women, the decline in work time occurs within every educational category but the decline in non-leisure is not observed for the most educated rural women. For urban women, the decline in non-leisure is observed at every level of education but the decline in work time is small and observed only for the most and least educated women. For men, there are large declines in work and increases in leisure for less educated men and virtually no

changes for the most educated men.

Note that for women, especially urban women, there is a clear U-shaped relationship between education and minutes of paid and total work. This has been interpreted in the literature as evidence that the gender norms are less binding on work at the highest education levels, either because attitudes themselves change or because the types of jobs available to the most educated women are viewed as more suitable. For men, the relationship between education and paid work is flatter and in urban areas is closer to an inverted U. One consequence of this is that as education levels rise overall and education levels converge between men and women, we would expect to see some convergence of work, especially for paid work in urban areas. This is exactly what was observed in Table 2, which shows that in urban areas, paid work for women rose slightly even as it declined substantially for men. This U-shape may play a smaller role going forward, however, as Figure 2 shows that the relationship between education levels and minutes of paid and total work has flattened over time for both men and women.

These findings on heterogeneous changes in work and leisure over time echo those of Aguiar and Hurst (2009), who use time-use data to show that leisure increased for the average American between 1965 and 2005. They find that the increase in leisure is larger for individuals with low education, particularly young men, and that only the most-educated men experienced a decrease in leisure. India displays a similar pattern between 1998 and 2019, with increases in leisure concentrated among



households at the bottom of the expenditure and education distribution, particularly for men, leading to a decrease in leisure inequality.<sup>7</sup>

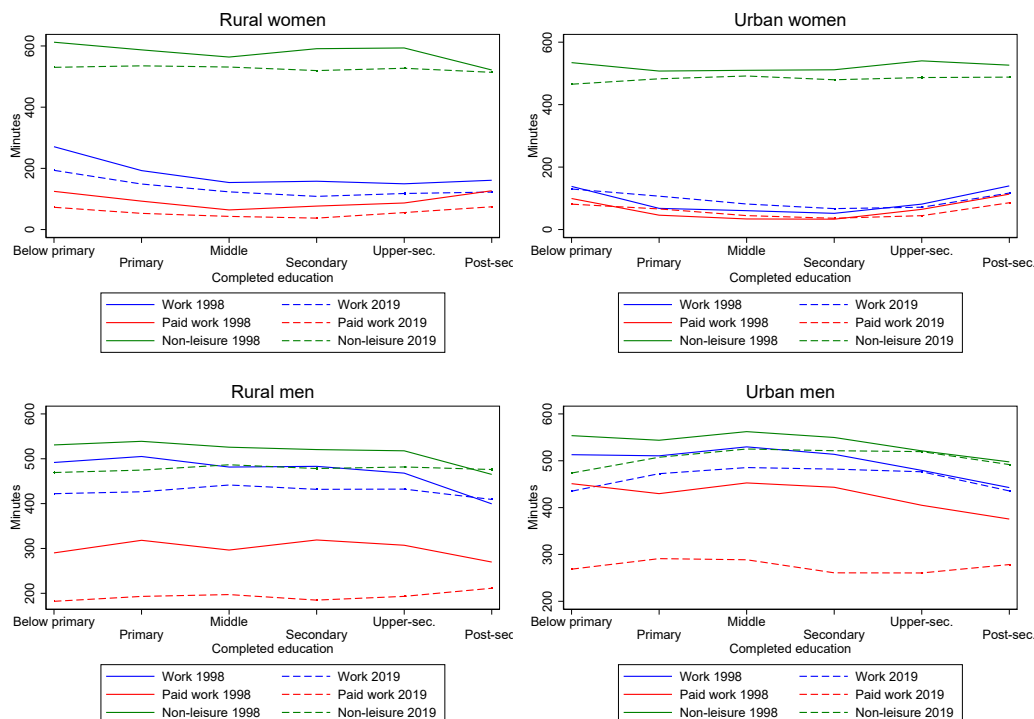


Figure 2: Time spent on work and non-leisure (work+domestic non-SNA production) versus completed education for women and men by sector and year.

Table 4 considers two other dimensions of heterogeneity: caste/religious group, and state. The general finding in the literature is that lower caste women have higher labour force participation rates, although this may largely reflect the greater necessity of work rather than weaker gender norms (Eswaran et al. (2013)). The first panel shows that there are large differences in work hours for women across caste/religious groups in both rural and urban areas (columns 1 through 4). Hindu “scheduled

caste" (SC) and "scheduled tribe" (ST) women work the most while "Hindu other" and Muslim women work the least, with "Christians" (mostly in Meghalaya) in the middle. These differences may partly reflect the need to supply more labour due to relative poverty rather than weaker gender norms, but men from the groups with the highest hours of work by women also tend to work fewer hours than the men from the other groups, consistent with a more egalitarian intra-household division of SNA work. While these differences are large in the cross-section, there is no clear pattern in terms of changes between 1998-2019. Minutes of work fall substantially for women (and men) in rural areas for every caste/social group.

The second panel presents separate measures work and paid work minutes for each of the six states in the sample. In rural areas there are modest differences in hours worked for women across states in 1998 (from 213 minutes in Orissa to 292 minutes in Meghalaya) and an even wider range of hours of paid work (from 34 minutes in Haryana to 161 minutes in Tamil Nadu). The importance of paid work varies significantly across states and sectors, with Tamil Nadu a clear outlier for both men and women. The range of work hours for men is much smaller overall (462 minutes in Tamil Nadu to 517 minutes in Gujarat) but even larger for paid work (126 minutes in Meghalaya to 372 minutes in Gujarat), which is consistent with the use of self-employed labour to maintain male work levels despite differences in the structure of the economy and labour market demand. All states experienced a decline in work minutes for rural women and men, but the differences across states are large.

For women, the decline ranges from 55 minutes in Tamil Nadu to 175 minutes in Haryana. The importance of paid work in driving this decline also varies substantially – in Tamil Nadu 80% of the decrease in rural women’s work is accounted for by a decrease in paid work, while in Haryana almost all of the decrease was driven by unpaid work.

The trends in work for urban women are more variable, with increases in states like Gujarat and Tamil Nadu and large decreases in Haryana and Meghalaya. These differences are not always accompanied by proportional changes in work for men or paid work for women – for example, in Haryana the decline in work for urban women occurred despite no change in paid work for urban women and only a small decrease in work for urban men, while in Meghalaya it was associated with a large decline in paid work for women and a large decline in work for men. Understanding the differences across states is beyond the scope of this paper but these differences do suggest that the factors underlying declining work by rural women cannot be easily reduced to a single factor like declining paid work for women or spillovers from competition with men who also face declining work opportunities.

Table 4: Changes in work (minutes per day) for individuals aged 25 to 59 by social group and state

	Women				Men			
	Rural 1998	Rural 2019	Urban 1998	Urban 2019	Rural 1998	Rural 2019	Urban 1998	Urban 2019
<i>Caste/religious group</i>								
Hindu ST	310	207	175	144	498	437	471	452
Hindu SC	274	160	157	133	473	433	487	451
Hindu Other	229	152	94	96	490	424	503	463
Muslim	185	82	50	56	490	446	505	490
Christian	232	175	129	132	438	410	443	427
<i>State</i>								
Gujarat	260	196	72	84	517	463	515	500
Gujarat (paid)	132	69	50	53	372	214	433	301
Haryana	279	104	135	80	496	428	475	453
Haryana (paid)	34	23	57	58	296	216	434	278
Madhya Pradesh	250	168	96	98	498	418	450	435
Madhya Pradesh (paid)	114	44	69	54	260	130	374	227
Meghalaya	292	150	196	141	483	379	457	346
Meghalaya (paid)	55	35	152	93	126	121	339	225
Orissa	213	108	112	87	469	403	520	455
Orissa (paid)	64	34	62	48	253	178	466	224
Tamil Nadu	252	197	113	123	462	448	504	447
Tamil Nadu (paid)	161	117	90	82	322	271	436	288

Data for Gujarat, Haryana, Madhya Pradesh, Meghalaya, Orissa, and Tamil Nadu from 1998-99 and 2019 time-use surveys using included sampling weights. Work in the time-use survey is based on SNA classification (goods or service produced for the market and goods produced for own final use, plus associated travel time).

### 3. Discussion

“Feminization” of work refers to labour markets becoming more feminine in terms of female participation or in terms of characteristics associated with historical female labour such as flexibility, precarity, informality, limited skill formation, and low social status (Standing (1999), Richler (2012), Akorsu (2016)). The longer-term decline in female labour force participation has generally been interpreted as an indicator of

de-feminization of work in India (Abraham (2013)) but certain metrics are suggestive of both aspects of feminization in a rural (Pattnaik et al. (2017)) and urban context (Mitra (2019), Ratho (2020)). The time-use data presented here provide a nuanced picture of both aspects of feminization in the last two decades. In terms of relative female participation in labour markets, there was some convergence in minutes of paid agricultural work for men and women. However, in rural areas this was driven by large decreases for both men and women and coincided with large increases in tertiary sector self-employment for men that actually increased the rural gender gap in work minutes. Relative female participation in urban labour markets increased as the gender gap in minutes of work and paid work shrank, but this was also driven by large decreases for men rather than increased participation by women. In both rural and urban areas, the shift towards self-employment for men could be viewed as evidence of feminization of work, as this work is unpaid, flexible, and potentially more precarious and informal. However, these changes in the characteristics of work were not accompanied by increased participation by women in labour markets.

One explanation for these trends is that they resulted from the nature of structural economic change in India interacting with gender norms. Mechanization and shrinking farm sizes have contributed to a substantial decline in the need for agricultural labour (Afridi et al. (2020)). Both men and women participated heavily in agricultural labour markets out of necessity and both genders consequently experienced large negative shocks to demand for their labour in rural areas. Gender norms

put more pressure on men to work, so men in rural areas responded much more than women by increasing self-employment in the tertiary sector, the main outlet for underemployed labour. In urban areas, economic growth was highest in skilled services rather than labour-intensive manufacturing, resulting in weak demand for paid labour, especially among the less educated. For urban men this led to large decreases in paid work that were also offset by increased self-employment in the tertiary sector. In both rural and urban areas, increased self-employment by men may have crowded out opportunities for self-employment by women, implying that the lack of convergence in SNA work minutes between men and women in India in the last two decades is largely a story of economic growth that was not very labour intensive combined with gender norms that put more pressure on men to be breadwinners.

A more detailed analysis would be useful to help understand why paid work fell so much for urban men but not urban women. The association between education and paid work is more positive for women than men in urban India, so part of this phenomenon is related to rising education levels combined with growing demand for skilled services. However, Figure 2 shows that paid work fell for urban men regardless of education level (though by less for the most educated) and barely changed for women (including at lower education levels). This suggests that an additional factor is that labour demand rose more rapidly for occupations compatible with traditional female gender norms, ranging from health and education for more educated women to domestic services and the care economy for less educated women.<sup>8</sup> Whether a con-

tinuation of this trend will be enough to generate increases in work time for women in rural or urban India going forward is unclear, but a stark fact revealed by the time-use data is that urban women were the only group that did not experience a decline in paid work minutes in the last two decades.

The lack of tertiary sector self-employment growth for Indian women also deserves further study, as this was the only type of work that increased substantially during this period. Recent research shows that women-owned businesses are more likely to hire women in India, regardless of sector, so lack of tertiary sector entrepreneurship may also limit paid employment opportunities for women (Chiplunkar and Goldberg (2021)). The lack of growth in self-employment for women may be largely a labour supply story, i.e. Indian men, but not women, are compelled by gender norms to work, and self-employment in the tertiary sector is undesirable but the last resort of the underemployed. However, it is also likely that barriers to female entrepreneurship, related to travel, safety, discrimination, and access to capital among other factors, have played an important role (Tripathi and Singh (2018), Rajan et al. (2019), Mondal (2021)). In studying the barriers women face in entering this sector, research and policy should also consider the implications of heightened competition from men due to weak growth in their paid employment opportunities and the lack of government policies to compensate. While the Mahatma Gandhi National Rural Employment Guarantee Act provided a policy response to declining agricultural work prospects, there is no such program for urban residents to date although urban

employment programs are currently under consideration (Nanda (2021)).

The explanation offered above for work trends is based on weak labour demand in certain sectors combined with the gender normative response of self-employment, but changes in leisure and domestic work technologies may have also played an independent role and one that could be explored further. Increases in leisure, largest for rural women and individuals with lower income and education levels, could be driven by push factors like the worsening labour market, but they could also be driven by pull factors. Much of the growth in leisure during this period is related to a single activity – watching TV – that has undergone large changes in quality and accessibility, particularly in rural areas. As access to television and newer technologies like social media and video games grows, there may be important implications for labour supply and the willingness to work for a given wage. Whether this will disproportionately affect work by men, the young, and the less educated, as in the United States, or will exhibit different age, gender, and class dynamics in the Indian context, is a question that could be answered by future time-use surveys. More generally, the “feminization of leisure,” driven by decreases in SNA work minutes for rural women and non-SNA (domestic) work minutes for urban women, has not received much attention in the literature but may have interesting implications for the leisure/entertainment industry. For domestic work, the increased availability and affordability of labour-saving technology coincided with a decrease in domestic (non-SNA) work for urban women but not for rural women. Whether this was due



to changes in expectations and norms regarding the quality of domestic work in rural areas or differences in technology adoption seems worthy of further investigation and could shed light on how to reduce the domestic work burden and further shrink the gender gap in leisure and/or work.

Looking ahead, collection of more time-use data for India and other developing countries could lead to further insights on work and gender, particularly if households could be sampled at multiple points in time to capture labour market attachment, churn and seasonality. The global coronavirus pandemic that occurred after the 2019 time-use survey was collected disproportionately affected women's work through school closures and other mechanisms (International Labour Organization (2021)), making such measurement more urgent. Future research could also delve more deeply into how household structure and marital matching (e.g. education, age, extended family) shape the intra-household division of work, domestic production and leisure, and explore whether these patterns have changed over time. In particular, understanding interactions between spouses in terms of the self-employment margin could help shed light on the extent to which lack of paid opportunities for men indirectly limits self-employment opportunities for women by crowding out female labour in household farm or non-farm enterprises.

## References

Abraham, V., "Missing Labour or Consistent De-feminisation," *Economic and Political*

*Weekly*, 2013, 48(31), 99–108.

Afridi, F., M. Bishnu, and K. Mahajan, “Gendering Technological Change: Evidence from Agricultural Mechanization,” *IZA Discussion Paper No.12666*, 2020.

—, T. Dinkelman, and K. Mahajan, “Why Are Fewer Married Women Joining the Work Force in India?,” *Journal of Population Economics*, 2018, 31(3), 783–818.

Aguiar, M. and E. Hurst, *The Increase in Leisure Inequality, 1965-2005*, AEI Press, 2009.

—, M. Bils, K.K. Charles, and E. Hurst, “Leisure Luxuries and the Labor Supply of Young Men,” *Journal of Political Economy*, 2021, 129(2), 337–382.

Akorsu, A.D., “Feminization of Labor,” *The Wiley-Blackwell Encyclopedia of Gender and Sexuality Studies*, 2016.

Banerjee, A. and E. Duflo, *Poor Economics*, Public Affairs, 2011.

Bhattacharyya, A. and S.K. Haldar, “Does U Feminisation Work in Female Labour Force Participation Rate? India: A Case Study,” *Indian Journal of Labour Economics*, 2020, 63, 143–160.

Chatterjee, U., R. Murgai, and M. Rama, “Job opportunities along the rural-urban gradation and female labor force participation in India,” *World Bank Policy Research Working Paper*, 2015.

Chaudhary, R., “Working or Not: What Determines Women’s Labour Force Participation in India?,” *IWWAGE Working Paper*, 2021.

Chiplunkar, G. and P.K. Goldberg, "Aggregate Implications of Barriers to Female Entrepreneurship," *NBER Working paper 28486*, 2021.

Deb, S., "Unpaid Work and Work Participation of Women: Insights from India's Time Use Data," *Working Paper*, 2021.

Desai, S., "Declining female labour force participation in Rural India: The Demand Side," *Ideas for India*, 2017.

— and O. Joshi, "The Paradox of Declining Female Work Participation in an Era of Economic Growth," *Indian Journal of Labour Economics*, 2019, 62, 55–71.

Deshpande, A., "The visible and invisible barriers to Indian women working," *The India Forum*, 2019.

— and J. Singh, "Dropping Out, Being Pushed Out or Can't Get in? Decoding Declining Labour Force Participation of Indian Women," *IZA Discussion Paper 14639*, 2021.

— and N. Kabeer, "Norms that matter: Exploring the distribution of women's work between income generation, expenditure-saving, and unpaid domestic responsibilities in India," *WIDER Working Paper/2021/070-2*, 2021.

Dey, S. and A. Pandit, "38% of health staff infected with Covid in India are women," *Times of India*, 2020.

- Dhanaraj, S. and V. Mahambare, "Family structure, education and women's employment in rural India," *World Development*, 2019, 115, 17–29.
- Eswaran, M., B. Ramaswami, and W. Wadhwa, "Status, Caste, and the Time Allocation of Women in Rural India," *Economic Development and Cultural Change*, 2013, 61(2).
- Fletcher, E.K., R. Pande, and C. Troyer, "Women and Work in India: Descriptive Evidence and a Review of Potential Policies," *CID Working Paper*, 2017.
- Goldin, C., "The U-Shaped Female Labor Force Function in Economic Development and Economic History," *NBER Working paper 4707*, 1994.
- Hirway, I. and S. Jose, "Understanding Women's Work Using Time-Use Statistics: The Case of India," *Feminist Economics*, 2011, 17, 67–92.
- International Labour Organization, "ILO Monitor: COVID-19 and the world of work. Eight edition.," *ILO Monitor*, 2021.
- Jayachandran, S., "Social Norms as a Barrier to Women's Employment in Developing Countries," *NBER Working Paper 27449*, 2020.
- Kapsos, S., E. Bourmpoula, and A. Silberman, "Why is female labour force participation declining so sharply in India?," *ILO Research Paper No. 10*, 2014.
- Kapur, D., M. Vaishnav, and D. Verley, "What is women's work? Reflections from four North Indian urban clusters," *Working paper*, 2021.

- Klasen, S. and J. Pieters, "What Explains the Stagnation of Female Labor Force Participation in Urban India?," *World Bank Economic Review*, 2015, 29(3), 449–478.
- Mitra, A., "Women's Work in Response to Urbanization: Evidence from Odisha," *ANTYAJAA: Indian Journal of Women and Social Change*, 2019, 4(1), 92–106.
- Mondal, S., "Overcoming barriers to access and agency for women entrepreneurs in India," <https://www.theigc.org/blog/overcoming-barriers-to-access-and-agency-for-women-entrepreneurs-in-india/> 2021. Accessed: 2022-07-15.
- Nanda, P.K., "Parl panel recommends MNREGS-like job scheme for urban poor," <https://www.livemint.com/economy/parl-panel-recommends-mgnregs-like-job-scheme-for-urban-poor-11628108280192.html> 2021.
- Pattnaik, I., K. Lahiri-Dutt, S. Lockie, and B. Pritchard, "The feminization of agriculture or the feminization of agrarian distress? Tracking the trajectory of women in agriculture in India," *Journal of the Asian Pacific Economy*, 2017, 23(1), 138–155.
- Rajan, S., M. Chawla, and P. Sahni, "Powering the Economy with Her: Women Entrepreneurship in India," <https://www.bain.com/insights/powering-the-economy-with-her-women-entrepreneurship-in-india/> 2019.
- Ratho, A., "Promoting female participation in urban India's labour force," *ORF Issue Brief No. 348*, 2020.

Richler, Z., "Feminization of Labor," *The Wiley-Blackwell Encyclopedia of Globalization*, 2012.

Sarkar, S., S. Sahoo, and S. Klasen, "Employment transitions of women in India: A panel analysis," *World Development*, 2019, 115, 291–309.

Srija, A. and S.S. Vijay, "Female Labour Force Participation in India: Insights Through Time Use Survey," *Review of Market Integration*, 2021, 12(3).

Standing, G., "Global Feminization Through Flexible Labor: A Theme Revisited," *World Development*, 1999, 27, 583–602.

Tripathi, K.A. and S. Singh, "Analysis of barriers to women entrepreneurship through ISM and MICMAC: A case of Indian MSMEs," *Journal of Enterprising Communities: People and Places in the Global Economy*, 2018, 12(3), 346–373.

Ullas, S.S., "In a first, women schoolteachers outnumber men," *Times of India*, 2021.

## Notes

1. See Fletcher et al. (2017) and Chaudhary (2021) for recent reviews.
2. Labour Force Participation in India is traditionally measured using survey instruments that ask respondents about their usual activity status. Principal usual activity status is defined as the activity status on which a person spent the most time (the so-called "major time criterion") during the 365 days preceding the date of the survey. A person is first categorized as belonging to the labour force or

not based on activities during the previous year, and then a more detailed activity status classification is applied to different types of “work” and “non-work” – “work” categories include self-employment, salaried employment, casual wage labour, and employment in public works, while “non-work” categories include attended educational institutions, attended domestic duties only, attended domestic duties and was also engaged in free collection of goods, sewing, tailoring, weaving, etc. for household use, and not able to work due to disability. Subsidiary activity status refers to the second most common activity of the individual during the previous 365 days that was carried out for at least 30 days, if applicable. Reported labour force participation is typically measured using either principal usual activity status, or the combination of principal and subsidiary usual activity status.

3. Although activity blocks have variable duration in the 1998-1999 survey, 70% of blocks (accounting for 86% of time) are in 30 or 60 minute intervals. Results (available on request) are almost identical when the 1998-1999 data are rounded into 30 minute slots using different rounding methods.
4. Internet usage is not recorded specifically in the 2019 survey but “other mass media use” (which excludes reading or listening) is an order of magnitude smaller than TV viewing. The share of time for this category increased by 700% relative to “accessing information by computing” and “mass media and entertainment not classified elsewhere” in the 1998-1999 survey but the level is still low.
5. See Klasen and Pieters (2015) and Fletcher et al. (2017) among many others for evidence from the National Sample Survey employment surveys, but also Bhattacharyya and Haldar (2020) for evidence of an opposite pattern using census data.
6. I convert the nominal values to 2019-2020 rupees using the all-India agricultural labourers price index.
7. Note that the increase in leisure in India is somewhat larger for younger men and (to a lesser degree) women, which also echoes the findings of Aguiar et al. (2021). However the decline in SNA work is largest for older women.

8. Although existing time-use data are not detailed enough to look at gender differences within detailed occupational categories (for example, all government work is a single category), other data sets might shed light on this phenomenon. For example, recent data show that one third of health care workers (Dey and Pandit (2020)) and more than half of teachers in India are women (Ullas (2021)).