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Education, Patriarchy, and Time Allocations of Married Couples^{*}

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Abstract

How married couples allocate their time across activities has been studied in developed countries, but remains an open question in many developing countries. We pool the 2019 and 2024 waves of the India Time Use Survey (TUS), the two most recent nationally representative surveys, to analyze the time spent on paid work, household production, child care, and several other activities. We focus on the role of spouses' relative education level – which has been seen as a measure of within-household bargaining power – as well as each partner's own education level and a measure of patriarchy in the state. We find that, compared to women with lower or the same education level, women with higher education than their husbands are more likely to participate in and spend more time on paid work, at the cost of time spent on household production, leisure, childcare, and sleep. Surprisingly, men with more educated wives also spend somewhat more time on paid work than other men. In addition, they more often engage in household production and childcare activities, which leads to reduced intrahousehold inequality in time spent on unpaid activities. Combined with the relations between time use and wives' and husbands' own education or patriarchy, our results suggest that the impact of relative education is more complex than its role for intrahousehold bargaining power would suggest.

Keywords: relative education, time allocation, gender, bargaining power

JEL Classification: J22, J16

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1 Introduction

The time allocated to various activities shapes the economy by influencing the relative prices of goods and services, the growth of real output, and the income distribution (Juster & Stafford, 1991). At the micro-level, how individuals use their time has consequences for their health and overall well-being (Bird & Fremont, 1991; Gershuny, 2013; Phipps et al., 2001). Consequently, economists have exploited time-use data to study economic behavior. In particular, they paid considerable attention to differences between how the two partners in a couple spend their time. This has primarily been done in developed countries, whereas couples' time allocation across paid and unpaid activities in developing countries remains understudied. This paper contributes to the literature by studying the time allocation of couples in India, with a focus on gender differences and the role of relative education.

Reducing gender differences in time allocation is one of the targets in the United Nations Sustainable Development Goals (SDG). SDG 5 focuses on gender equality, and Target 5.4.1 specifically aims to *recognize and value unpaid care and domestic work through the provision of public services, infrastructure, and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate*.¹ An important tool in this context is *measuring the proportion of time allocated to care and housework by men and women*.² A considerable gender gap in time allocated to paid and unpaid work is documented for many countries, indicating the need for further research into factors associated with time allocation and potential policies that can reduce the gap.

Competing theories on the economic decision-making of couples have evolved in the literature. One class of thought considers that once they form a household, individuals maximize a joint household utility function, pooling household resources. This traditional unitary household model, going back to the seminal work of Becker (1965), has been criticized and challenged empirically in later years (Lundberg & Pollak, 1996). Alternatives have been

¹<https://sdgs.un.org/goals/goal5>

²<https://unstats.un.org/sdgs/metadata/files/Metadata-05-04-01.pdf>

developed in which both members of the couple retain their own utility function and reach some equilibrium outcome through noncooperative (Lundberg & Pollak, 1994) or cooperative (Chiappori, 1992) bargaining, with the final outcome not only depending on individual preferences, but also on the bargaining process and bargaining power of both partners. In the collective model of Chiappori (1992), for example, the household utility function is a weighted average of individual utility functions, with weights determined by each partner's bargaining power. The bargaining weights can stem from economic or non-economic sources or from the threat of withholding the share of resources or dissolving the union. Noncooperative and collective models have been applied numerous times in developed countries, with results that vary with country, period studied, and measure of bargaining power (Altuzarra et al., 2020). The gap in the literature for developing countries is primarily driven by data limitations (Moeeni & Moeeni, 2021). Addressing this gap remains critical.

The literature has considered several indicators to measure intrahousehold bargaining among spouses. Researchers have examined whether an individual in the family with more economic resources has a higher bargaining power, comparing annual earnings (Bittman et al., 2003; Geist, 2005), current or predicted wages (Kimmel & Connelly, 2007), or options outside of marriage should the marriage dissolve. These financial measures of power are not without critique. They require wage or earnings information for both partners, restricting the analysis to dual-earner couples. This is not suitable for analyzing countries like India, where female labor participation has remained quite low.

Instead, education has garnered interest as an indirect measure driving *potential* wages and earnings. An individual's education promotes greater exposure, better options in the labor market, greater autonomy, and economic independence (Maitra, 2004), increasing bargaining power (Moeeni, 2021). It has also been established that relative rather than absolute education accurately predicts couples' bargaining and resource sharing (Greenstein, 2000). In this paper, we therefore focus on the female partner's education level relative to that of her husband, interpreting this as a measure of her intrahousehold bargaining power. We follow the relative-resource approach used in the literature (Datta Gupta & Stratton, 2010;

Garcia Roman, 2021; Moeeni & Moeeni, 2021; Sofer & Thibout, 2019; Weitzman, 2014). This states that relative education is a suitable measure for bargaining power, since education is highly correlated with earnings and hence with an individual's economic power. Moreover, the literature justifies treating education as exogenous, since most individuals have completed their education before getting married (Datta Gupta & Stratton, 2010). An additional advantage of using education rather than wages is that information on completed education is normally available for everyone, irrespective of their employment status.

India is an interesting country for examining this topic for the following reasons. First, there has been a sharp increase in female education in the last few decades, but there is no evidence of a reversed gender gap or of shifting gender norms, contrary to the global trend (Lin et al., 2020). Second, marriage is near-universal, primarily arranged between families, with self-selection accounting for less than 5 percent of all marriages, while divorces are still uncommon (Allendorf & Pandian, 2016). Third, education plays only a little role in marriage matching, which is more about religion, caste and kinship network (Lin et al., 2020).

The relation between relative education and time allocations remains unknown and is open to empirical investigation. On the one hand, a higher relative education increases potential earnings and labor market opportunities. On the other hand, it may raise intrahousehold bargaining power. Provided there are suitable jobs and women see working as attractive, women with a higher relative education can bargain to participate in paid work or work more hours. Alternatively, they can choose to remain out of the labor force and spend time on other activities, such as leisure. Finally, despite the rise in female education, female labor force participation remains low, and Indian women continue to spend the highest time on unpaid work when compared to most other countries (OECD, 2014). The society is still governed by strong patriarchal norms (Singh et al., 2021), which can prevent a rise in the number of suitable jobs for women.

To examine how relative education shapes intrahousehold bargaining and time allocations across paid and unpaid activities, we pool the Indian Time Use Surveys (TUS) 2019 and

2024, the two most recent nationwide cross-sectional surveys on time-use. Pooling allows us to increase the statistical power and to obtain more precise estimates. The surveys collected detailed information on the allocation of time across paid and unpaid activities for each member of the household older than five years of age. We classify the time allocations on work (also referred to as paid work or market work in the paper), household production, leisure, sleep, and (for families with children) childcare.

We estimate Logit and Tobit models to examine how couples' relative education alters their participation and time allocations across activities, controlling for own (absolute) education level, age and couples' age difference, household characteristics such as caste and religion (Eswaran et al., 2013), and, in some specifications, a measure of patriarchy at the state level (Gruber & Szoltysek, 2016; Singh et al., 2021). We examine whether a higher relative education allows women to substitute time away from household production and childcare for market work. We also study whether husbands compensate by increasing their time allocated to household production and childcare activities. In a heterogeneity and sensitivity analysis, we analyze whether the relationship between relative education and time allocations remains stable over weekends, age groups, sector of residence (rural or urban), and the woman's education level.

The estimates show that, controlling for own education and other characteristics, a higher education than the husband's increases women's odds of labor force participation and time spent on paid work, while reducing their time spent on household production and childcare. This reduction is partially compensated for by their husbands. Overall, higher relative education of the wife thus leads to a fall in intrahousehold inequality in time allocated to paid work, household production and childcare. If women prefer paid work to household production or childcare, these results are in line with the notion that higher relative education raises their bargaining power. On the other hand, however, higher relative education also has a strong negative effect on women's leisure time and a small positive effect on men's leisure, which seems incompatible with the bargaining power explanation. The associations between relative education and the husbands' time allocation and between women's own

education and their time allocation confirm that the role of relative education cannot just be explained by intrahousehold bargaining. The strong associations with the regional index of patriarchy (constructed following Singh et al. (2021) and Gruber and Szołtysek (2016)) suggest that gender norms (of families or employers) or the availability of suitable jobs play an important role.

Our paper adds to the literature in the following ways. First, we examine how couples' relative education shapes their time allocation across paid and unpaid activities in India, which has not been done before. Previous studies on India have considered the role of women's absolute education for their labor market participation (Klasen & Pieters, 2015), or studied the role of relative education for other outcomes such as witnessing intimate partner violence (Weitzman, 2014), sharing of housework between female in-laws (Srivastava, 2020) and autonomy (Ranganathan & Mendonca, 2023). Studies on the US and Denmark (Datta Gupta et al., 2018), Spain (Garcia Roman, 2021) and France (Sofer & Thibout, 2019) have examined how couples' relative education affects women's housework; Moeeni (2021) and Moeeni and Moeeni (2021) studied the effects on labor-market outcomes as well as other indicators such as fertility decisions in Iran. Zhang (2015) analyzed the effect on willingness to co-reside with in-laws.

Second, existing studies have focused on the time use of women, whereas our paper considers the effects of relative education on both men and women. Moreover, few studies have disaggregated unpaid work into household production and childcare for both genders (Altuzarra et al., 2020). We estimate separate models for these different activities. Our finding that a higher relative education of the wife is positively related to the time husbands spend on household production and childcare, but does not relate to domestic violence, suggests that relative education shifts the attitude towards paid work of women in the household.

The findings of this paper have significant implications for policy. Our results suggest that reducing gender disparity in education has direct implications for women's time allocation, reducing the gender gap. Thus, improving females' education should be a priority. We also

find that in states governed by stronger patriarchal norms, women’s labor force participation lags behind, while women’s time spent on household production remains high. It implies that policies that enhance more equal gender attitudes (Dhar et al., 2022) may help to reduce intrahousehold inequalities in time allocation.

The remainder of this paper is structured as follows. Section 2 describes the data and descriptive statistics relevant to the study. Section 3 presents the methodology. The results are presented in Section 4. The results primarily engage with the woman’s time allocation, but we also provide evidence about the husband’s time allocation. Section 5 presents the heterogeneity across sub-groups, and Section 6 concludes the paper.

2 Data and Descriptive Statistics

2.1 Data

The data used in this study are taken from the two most recent waves of the Time Use Survey (TUS) 2019 and 2024, conducted by the National Statistical Office (NSO), Government of India. The two waves are independent cross-sections. The surveys are nationally representative and cover the entire Indian Union. Detailed information on time use was collected using a recall method for 24 hours preceding the survey for each member of the household aged six and above, a unique feature compared to other time-use surveys. TUS covered 447,250 individuals in 2019 and 454,192 in 2024, making it one of the largest time use surveys done globally (Hirway, 2023).

Data on time use were collected through personal interviews, covering the period from 4 am the day before the interview to 4 am the day of the interview. Respondent could report up to three activities in each time slot, provided they had spent at least 10 minutes in that activity. The activities were noted in chronological order following the major criteria format. Respondents reported the major activity as the activity which they considered to be the most

important in the particular time slot. For each activity, respondents also reported whether the activity was performed within or outside the premises of the dwelling unit and whether it was paid or unpaid. In the main analysis, we consider all activities in the time slot instead of the major activity only, and distribute the time equally across all activities in a block.³ This method is preferred in the literature, especially for calculating time spent on activities such as childcare, which are often reported as secondary activities (Folbre & Yoon, 2007).

In addition to time use, the survey records demographic details such as age, education, marital status, household characteristics such as religion and caste, as well as the day of the week on which the survey was taken. The respondent also declares whether that day was a normal day or not.⁴

2.2 Sample Selection

We restrict our analysis to co-resident heterosexual couples in nuclear families with both partners aged 20-59 years (the economically active age group) and both providing complete time use information for a normal weekday.⁵ This excludes households where one spouse reports a normal weekday, but the other does not. This could occur, for example, if the day was a routine day for the wife but a day off for the husband, or if the husband was sick. We exclude these households because the intra-household time allocation of the two spouses in such cases may be quite different.

We also restrict our analysis to single-partnered households (one husband and one wife). This allows identifying between-gender bargaining, whereas women in households with multiple

³That is, in a particular time slot, if an individual has reported three activities such as cooking, watching television, and passively minding a child, then each of the three is allocated 10 minutes. If there are two activities, then each activity is allocated 15 minutes, and if there is only one activity, this gets all 30 minutes.

⁴A normal day was one where the individuals pursued most of their routine activities, whereas other days were days when the routine activities were altered for any reason, e.g., holidays, days of leave, ceremonies, or disruption due to illness.

⁵73 percent were interviewed on a weekday, and 95 percent of them reported having a normal day. The distribution of time allocations across weekdays and weekends is presented in Appendix Table A1; during weekends, both men and women spend significantly less time on market work and more time on leisure, sleep and childcare. On average, men spend around five minutes more on household production on weekend days than on weekdays; this difference is significant for men; the difference is not significant for women.

wives are likely to mainly undertake within-gender bargaining. We do not include households where either partner reported pursuing education as the major activity in the past year, since we need completed education levels to construct relative education, our main explanatory variable of interest. These restrictions lead to a sample of 87,110 couples (2019 and 2024 combined) with complete information on both wives and husbands. Appendix Table [A2](#) shows the different stages of sample selection.

2.3 Classification of activities and control variables

We classify the detailed time use categories into broader groups. The first group comprises minutes spent on all paid activities (“work”). The second comprises activities that are work-related but unpaid, such as time spent on own production. The third is classified as housework or care work, except activities related to childcare. Another group consists of all activities related to leisure, including watching television, multimedia use, socializing, and cultural activities. For families with one or more children, we consider the time allocated to childcare as a separate category, different from housework and leisure activities, since there is evidence in the literature that activities related to childcare should neither be classified as housework nor as leisure (Kimmel & Connelly, [2006](#); Vernon, [2010](#)). All categories outlined above include the travel time involved in each. Sleep forms a final distinct category.

We want to analyze whether having a higher education relative to the husbands enables women to substitute time away from household production and childcare to market work, controlling for a host of individual and household characteristics. The individual characteristics we control for are the age of the individual, the age difference with the spouse, and the individual’s own education level. The latter is important since relative education is obviously correlated with the education levels of both partners. We follow some existing studies (Datta Gupta et al., [2018](#); Weitzman, [2014](#)) and estimate the effect of relative education controlling for own education level, to account for the fact that own education could itself be a determinant of allocation to time spent on, e.g., paid work or unpaid activities.

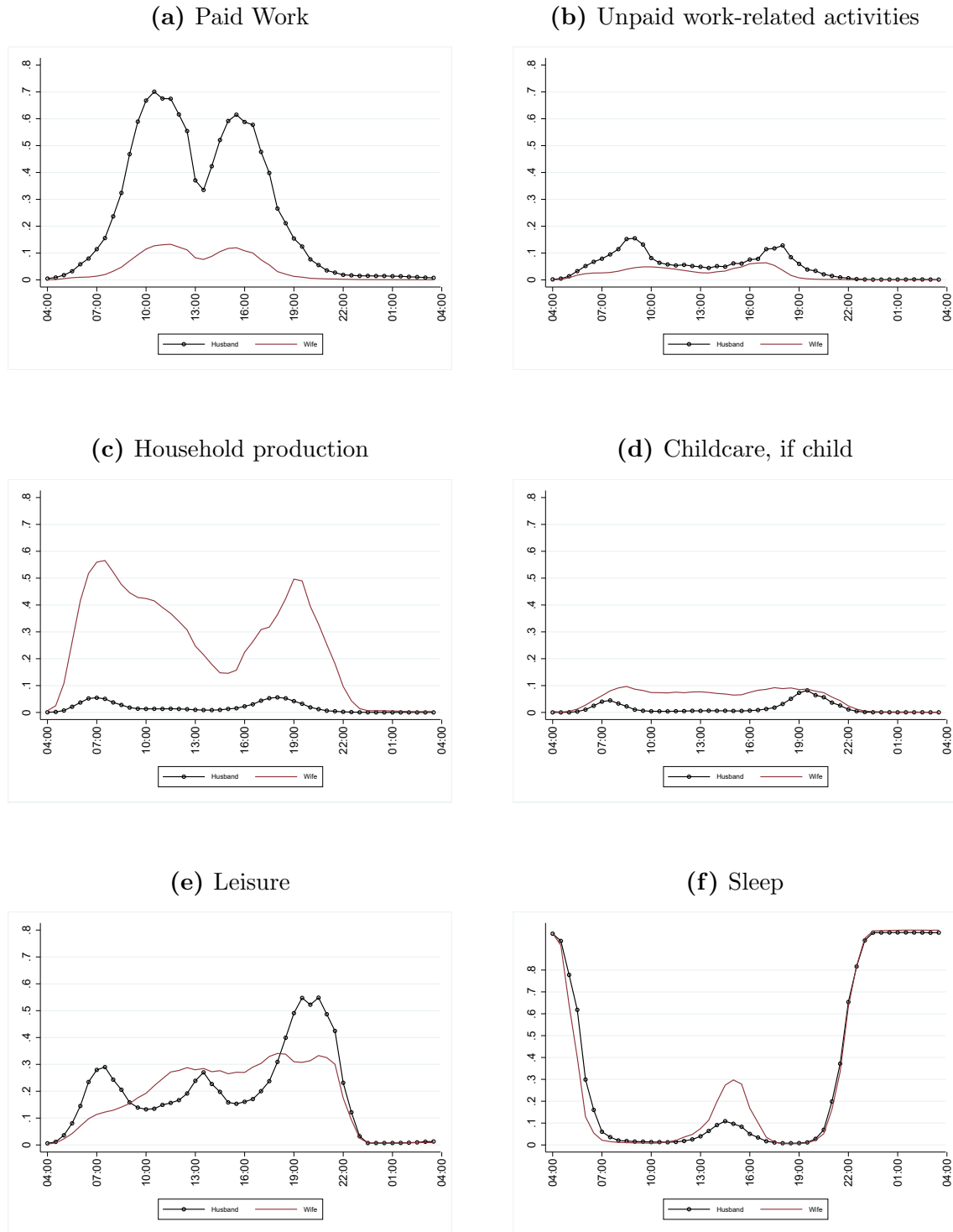
This is confirmed by our findings. Still, other studies have made different choices: Sofer and Thibout (2019) used completed education of men as a control explaining women’s time use, whereas Garcia Roman (2021) did not control for the education level of either partner.

Among household characteristics, we control for the caste and religious group of the family, as well as for the number of children by age group and gender. There is evidence that reported time allocation may depend on whether respondents report the time allocation themselves, or whether someone else reports on their behalf in the absence of the member at the time of the survey (Sharma et al., 2025). We therefore include a dummy variable for whether time use was reported by someone other than the respondent (which applies to 30 percent of all observations). In a sensitivity test, we show that the results for those who self-reported their time use only, are very similar (Appendix Table A3). We also control for whether the person resided in a rural or urban region. We add a year dummy to capture the differences between both years. Finally, in the benchmark specification, we control for state dummies to capture unobserved state characteristics.

2.4 Descriptive Statistics

This section presents descriptive statistics for the selected sample. Figure 1 shows the proportion of husbands and wives participating in different activities at a particular time slot. We observe stark gender differences in participation in paid work and household production. At any given time slot, a higher proportion of women engage in household production and childcare, whereas a much higher proportion of husbands work for pay. For activities related to childcare, the husband’s engagement with children increases in the mornings and evenings, whereas women more often spend time on childcare throughout the day. In the evenings, a much higher proportion of husbands than of wives engage in leisure activities.

Figure 1: Proportion of individuals participating in the activity at each time of the day



Source: Calculated for the selected sample using TUS 2019 and TUS 2024. Horizontal axis: time of the day; vertical axis: proportion of individuals participating in the activity.

Appendix Figure [A1](#) shows the proportion of individuals participating in household production and market work at each time of the day, but now by relative education. It shows that women who are less educated than their husbands more often spend time on household production at each time slot. On the other hand, the husband's engagement in household production or market work seems unrelated to relative education.

We present summary statistics based on the pooled sample in Table [1](#). The top part shows minutes per day spent on each activity, not conditional on participation. On average, women spend only somewhat more than an hour per day on market work, due to the low participation rate. The time spent on household production is much higher, almost 6 hours per day. On average, women spend around 4 hours per day on leisure activities, and 8.7 hours on sleep. On the other hand, men spend around 6.6 hours on market work, around half an hour on home production, 4 hours on leisure, and 8.5 hours on sleep. In households with children, women on average spend 71 minutes on childcare, compared to 21 minutes for men. The participation in childcare activities and the time spent on them, not surprisingly, change with the age composition of children in the family. For households where the average age of children is below 7 years, 92 percent of the mothers and 59 percent of the fathers engage in childcare. In these households, the parents together spend around 200 minutes on childcare (mothers 2.5 hours, fathers 45 minutes). This falls to 2 minutes when the average age of children is above 16 years.

Table 1: Summary statistics

	Women Mean	SD	Men Mean	SD
Panel A: Individual Characteristics				
<i>Minutes/day</i>				
Working for pay	72.57	146.79	398.30	177.50
Unpaid work-related activities	35.22	71.76	76.29	96.44
Household production	353.72	119.97	23.96	49.65
Childcare, if children	71.55	93.84	21.43	41.47
Leisure	233.62	123.76	230.04	123.41
Sleep	525.51	87.47	512.29	79.57
<i>Education level</i>				
Illiterate	0.24		0.15	
Below primary or primary	0.23		0.22	
Upper Primary	0.17		0.19	
Secondary	0.14		0.17	
Higher Secondary	0.11		0.12	
Tertiary	0.11		0.16	
Age	35.98	8.48	40.56	9.00
Age difference	4.58	3.00	4.58	3.00
<i>Relative education</i>				
Less than spouse	0.43		0.19	
More than spouse	0.19		0.43	
Same as spouse	0.38		0.38	
Proxy reporting	0.19	0.39	0.41	0.49
Panel B: Household Characteristics				
<i>Number of children</i>				
Boys aged 0-5 years	0.34	0.61	0.34	0.61
Girls aged 0-5 years	0.20	0.46	0.20	0.46
Boys aged 6-12 years	0.25	0.55	0.25	0.55
Girls aged 6-12 years	0.25	0.50	0.25	0.50
Boys aged 13-17 years	0.30	0.59	0.30	0.59
Girls aged 13-17 years	0.18	0.44	0.18	0.44
Boys aged 18 years and above	0.14	0.41	0.14	0.41
Girls aged 18 years and above	0.21	0.48	0.21	0.48
<i>Religion</i> : Hindu	0.77		0.77	
Muslim	0.13		0.13	
Christian and Others	0.10		0.10	
<i>Caste</i> : Scheduled Tribe (ST)	0.15		0.15	
Scheduled Case (SC)	0.18		0.18	
Other Backward Classes (OBC)	0.41		0.41	
Others	0.26		0.26	
<i>Sector</i> : Urban	0.39		0.39	
Patriarchy Index	27.58	3.59	27.58	3.59
Year 2019	0.52	0.50	0.52	0.50
N	87,110		87,110	

Source: Authors' calculations from TUS 2019 and TUS 2024 (pooled)

To construct relative education, our main variable of interest, for every couple, we examine whether the woman has completed the same level of education, a higher level of education, or a lower level of education than her husband.⁶ In our sample, 19 percent of the women have completed a higher level of education than their husbands, 38 percent have the same education level, and 43 percent have a lower level than their husbands. A cross-tabulation of completed education levels of husbands and wives is presented in Appendix Table A4. It shows that the education levels of wives and husbands are positively correlated, with higher-educated women often married to higher-educated men and lower-educated women often married to lower-educated men. Overall, 24 percent of the women and 15 percent of men are illiterate, 23 percent of women and 22 percent of men completed up to primary education, 17 percent of women and 19 percent of men completed upper primary education, 14 percent of women and 17 percent of men completed secondary education, 11 percent of women and 17 percent of men completed higher secondary education, and 11 percent of women and 16 percent of men completed tertiary education (college or above). This reveals that, in spite of increasing education levels of women over the past few decades, there is still a considerable education gap between males and females, suggesting room for further improvement in female education.

The average age of women is 36 years, and that of men is 40.6 years. That is, on average, women in our sample are around 4.6 years younger than their husbands. The age of the woman and the age difference with her husband could affect the the woman's bargaining power. Younger women, or women with older husbands, might find it more difficult to bargain for an equitable share of work.

We include the numbers of children in the family by age group and gender (boys and girls for ages 0-5 years, 6-12 years, 13-17 years, and 18 years or above), hypothesizing that infants are likely to reduce women's engagement in paid work, leisure and sleep, and increase the time spent on childcare. Older children might free up the mother's time taking over some tasks.

⁶Since the exact years of completed education are not available in the survey, we focus on education levels.

Given the gender norms, older girls are more likely to contribute to household production while older boys often perform market work.

Bargaining power can be altered by norms governing marriage formation by religion (Rao, 2014). Cross-cousin marriages are common among Muslim families, and familiarity with the husband could give the wife greater bargaining power compared to Hindu women, who are more likely to marry into unknown families (Caldwell, 1978; Rao, 2014; Srivastava, 2020). In our sample, 77 percent are Hindu families, 13 percent are Muslim families, and the other religious groups, including Christians, comprise 10 percent of the sample.

The families' status concerns rise with an increase in their position in the caste hierarchy. Caste-determined norms influence women's mobility and expected behavior. Women belonging to higher castes are expected to refrain from leaving the house. Instead, especially upper caste women residing in rural India safeguard family status by spending more time on household production and childcare (Eswaran et al., 2013; Srinivas, 1956). Individuals belonging to the Scheduled Caste (SC) and Scheduled Tribe (ST) groups are at the lower end of the traditional caste hierarchy. The members of the general social group (which we refer to as "Others"), are at the upper end of the hierarchy and are governed by stricter norms (Eswaran et al., 2013). Thus, status concerns vary by caste composition groups, and caste composition could affect women's time allocation. In our sample, 15 and 18 percent of the families belong to the ST and SC groups, 41 percent of the sample belong to the Other Backward Caste (OBC) category, and 26 percent belong to the general social group.

We distinguish between urban and rural areas because of potential differences in norms and opportunities for market work. In the main specification, we also control for state dummies. The extent of patriarchal norms in the region might influence whether women do paid work. To account for this explicitly, we also estimate the models controlling for the patriarchy norms at the state level instead of state dummies. We construct the Patriarchy Index following Singh et al. (2021), using the National Family Health Survey (NFHS) Round 5 (2019-21). NFHS, the Demographic and Health Survey (DHS) of India, is representative at the state

level. There are no available waves after 2019-21. Since the norms have been shown to be persistent over time (Singh et al., 2021), we use the 2019-21 values for both TUS waves.

We hypothesize that individuals residing in states with higher patriarchy are more likely to adhere to gender-specific norms and roles. Women in highly patriarchal states might have lower odds of working for pay or work less, engaging more in household production, relative to those in less patriarchal states. Low participation in paid work could be driven by the woman’s reduced bargaining power, or by a change in the preference to stay at home, in fear of potential backlash for deviating from the prevalent gender norms. The lack of appropriate jobs for women in these regions could also play a role – we cannot identify the most relevant mechanism.

Table 2 shows participation rates of husbands and wives in paid and unpaid activities (on a normal weekday) by relative education and overall. The wives’ participation in paid work is positively related to their relative education, but even for wives with higher education than their husbands, it is limited to 27 percent. More than 90 percent of husbands did some paid work, irrespective of their relative education. Almost all women did some housework, compared to only 32 percent of the husbands. This is only slightly correlated with relative education. Participation in childcare (in households with at least one child) is higher for men with lower education than their wives. Perhaps surprisingly, the wives of these men also spend time on childcare, and here the difference is even more substantial. This could be capturing the higher childcare inputs by both parents at higher levels of education, or a change in preferences towards childcare input when the woman has a higher relative education. Almost everyone engaged in some form of leisure activity during the day, and all individuals reported sleeping (not shown in the table).

Table 2: Participation (in %) in various activities by relative education level

	Higher relative education			
	Husband	Wife	Same	Total
Wife				
Market work	21	27	26	24
Unpaid work-related	34	35	36	35
Household production	100	100	99	100
Childcare, if child	48	58	49	50
Husband				
Market work	91	93	91	91
Unpaid work-related	69	69	69	69
Household production	31	33	32	32
Childcare, if child	29	32	28	29

Source: Authors' calculation from TUS 2019 and TUS 2024 (pooled). N = 87,110; Childcare calculated for 76,466 individuals with at least 1 child

Spouses' time spent on various activities by their own education and spouses' relative education is presented in Table 3. Education levels can change the earnings potential of individuals, and can influence their preferences towards certain activities, such as childcare (Guryan et al., 2008). The societal norms, however, also shape the time allocations. We observe this when we consider the time allocations for both men and women. Men increase their time spent on market work with a rise in education in line with the literature on an increase in earnings potential, whereas women's time spent on work follows a U-shaped pattern, driven by the norms against women's work in low-skilled jobs (Klasen & Pieters, 2015). Both men and women reduce their time spent on unpaid work-related activities and increase their time on childcare, with a rise in own education. Women at different levels of education, from illiterate to higher secondary, spend between 5 and 6 hours on household production. This about 5.4 hours for tertiary-educated women. In contrast, the time spent on leisure increases with an increase in education level, particularly for women. Their time spent on household production falls at higher education levels. Sleep too, falls for both genders if education level increases.

Table 3: Minutes per day spent on several activities, by education and relative education level

	Wife			Husband			Child care	Work Unpaid	HP	Leisure	Child care	Sleep
	Work	Work Unpaid	HP	Leisure	Sleep	Work						
<i>Own Education</i>												
Illiterate	91	52	349	218	49	530	377	88	25	228	15	528
Primary	73	40	360	225	66	525	390	81	26	228	18	518
Upper Primary	62	33	365	234	73	523	399	79	26	225	21	513
Secondary	54	24	365	247	80	528	408	72	23	229	21	509
Higher Sec.	50	21	356	248	95	517	408	71	23	231	26	506
Tertiary	92	18	321	253	96	523	412	64	21	241	29	496
<i>Higher relative education</i>												
Husband	61	36	362	237	68	512	394	77	23	233	21	519
Wife	83	29	348	233	81	508	415	69	25	226	22	514
Same	80	37	348	230	70	515	395	78	25	228	21	522
Total	73	35	354	234	71	526	398	76	24	230	21	512
Observations	87,110											87,110

Notes: Unweighted means calculated from TUS 2019 and 2024 (pooled). Childcare is for families with children only.

3 Methodology: Participation and Time Allocation

We examine the extent to which couples' relative education levels affect the probability of participation in various activities, such as market work, unpaid work-related activities, household production, and childcare activities. Education levels are available for the full sample, and in line with the literature, we argue that individuals complete their desired education level before entering a relationship (Datta Gupta & Stratton, 2010). Thus, we treat the completed education levels as exogenous to the time allocation, and investigate whether our results are in line with the notion that relative education level is an indicator of bargaining power. Relative education level is measured through two dummy variables corresponding to the groups – both spouses have the same level of education, or the wife is more educated than the husband; the benchmark category is that the wife is less educated than the husband.

We define participation in an activity as a positive time spent on that activity during the 24 hours covered by the survey. Thus, for example, a woman participates in paid work if she spends a positive time on paid work-related activities.⁷ For women and men, we estimate Logit models to separately explain participation in paid work, unpaid work-related activities, household production, and childcare. We examine whether relative education is associated with participation in each of these activities, controlling for individual and household characteristics. We do not consider participation in leisure and sleep for either men or women, or household production for women, since almost everyone engages in these activities (see Section 2).

The main explanatory variables are the two dummies on relative education (a row vector RE_i for household i ; wife has the same or higher education level than the husband, as discussed

⁷Alternatively, women's participation in paid work is often measured through their Usual Principal Activity (UPA) status, defined as the activity on which the individual has spent most of their time in the year preceding the survey. Although commonly used due to the lack of alternative data, scholars have criticized this measure for not accurately capturing the employment status, and they have suggested that time allocations serve as a better measure, especially for women (Deshpande & Kabeer, 2024; Hirway, 2023; Hirway & Jose, 2011; Li, 2023; Srija & Vijay, 2021).

above). Other control variables (a row vector X_i) included are described in Section 2. For the wife: her age, the age difference with the husband, dummies for the wife’s completed level of education, variables for caste, religion, family composition and proxy interviewing; for the husband: his age and education level instead of hers.

In addition to the logit models for participation, we estimate Tobit models to examine the time allocation in minutes per day for market work, household production, leisure, sleep, and, for families with children, childcare. The Tobit model (Eq. 1) is specified as follows:

$$Time_i^* = RE_i \gamma + X_i \beta + \epsilon_i \quad (1)$$

$$\epsilon_i \sim N(0, \sigma^2) \text{ independent of } X_i, RE_i$$

$$Time_i = \begin{cases} 0 & \text{if } Time_i^* \leq 0 \\ Time_i^* & \text{if } Time_i^* > 0 \end{cases}$$

For all models, robust standard errors are clustered at the state level, allowing for within-state correlation among the error terms ϵ_i .

The literature has also included the household monthly per capita consumption expenditure (MPCE) as a control variable to determine women’s work (Dhanaraj & Mahambare, 2019; Sheikh et al., 2023). This may be driven by the woman’s engagement in paid work, it could be endogenous to time allocation. This is why the variable is not included in the main specification. A sensitivity analysis shows that controlling for MPCE as an additional variable hardly changes the estimates of the other coefficients (Appendix Table A12).

We control for state dummies in the main specification and consider dummy variables for the (state-level) patriarchy index and continuous values of the index in alternative specifications. In the main models, we consider the time allocation across activities on a normal weekday only. We consider weekend days in Section 5.

4 Results

4.1 Women’s participation across activities

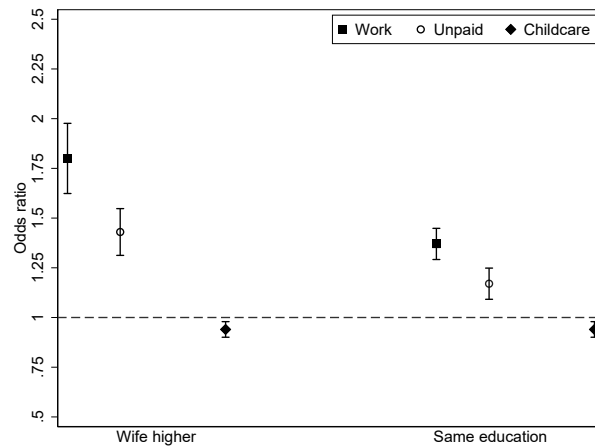
Female labor force participation has been low in India, and in our sample, only 24 percent of the women spent positive time on paid work on a normal weekday. We begin our discussion by examining whether relative education levels enhanced women’s work participation and altered participation in other (unpaid) activities, that is, unpaid work-related activities and childcare. We do not show the results for household production activities since women’s participation in housework was near-universal.

Detailed estimation results of logit models are presented in Appendix Table A5. Figure 2 shows the women’s odds of participation in work and other activities by relative education level implied by the logit model, with the base category that the husband has higher education than his wife. We find that the wife’s odds of participation in market work increase with her relative education level, keeping her own (absolute) education level and the other covariates constant. Moreover, not only participation in paid work, but also participation in unpaid work-related activities (performed for own use or consumption), increases with the wife’s relative education level. The odds of engaging in childcare are lower if the wife’s education level is at least as high as that of the husband, compared to the benchmark case of a wife with lower education than the husband.

Considering the control variables in Table A5, we observe that women belonging to the General caste are the least likely to engage in paid work, in line with the literature that has emphasized the role of caste-based norms (Eswaran et al., 2013). Lower caste women are more likely to engage in paid work and particularly also in unpaid work-related activities. The odds of working as a function of women’s own education follow a U-shaped pattern, in line with the literature (Klasen & Pieters, 2015). Compared to Hindus and women of other religions, Muslim women engage less in work, both paid and unpaid, and more often spend time on childcare. The year dummy shows some significant differences between the two waves,

with more engagement in paid and unpaid work as well as childcare in 2024 than in 2019 (in line with Appendix Table A6). The participation in paid or unpaid work is negatively related to the number of children below 6 years, but positively related to the number of older children, particularly girls. Only when the family has adult sons, the mother’s chances of doing paid work are again reduced. The reverse pattern is found for childcare.

Figure 2: Women’s odds of participation in market work, unpaid work-related activities and childcare, by spouses’ relative education level



Note: Odds ratios with 95% confidence intervals, based on logit model estimates in Appendix Table A5. The base category are women who have a lower education level than their husband.
Source: Authors’ calculations using TUS 2019 and TUS 2024

4.2 Women’s time allocation

The results for women’s time allocated to work and household production by their relative education levels are presented in Table 4. Average marginal effects (in minutes per day) from Tobit models are presented for each of the activities. The first two columns account for state dummies, the others control for the patriarchal norms at the state level instead of the state dummies. The base category includes women who have a lower education level than their husbands.

Table 4: Woman’s time allocated to work and household production by relative education level on a normal weekday

	Work	HP	Work	HP	Work	HP
	(1)	(2)	(3)	(4)	(5)	(6)
Higher rel educ: Husband						
Wife	32.48*** (3.10)	-12.71*** (1.83)	34.14*** (4.78)	-12.88*** (2.96)	34.44*** (4.49)	-13.07*** (2.87)
Same	16.55*** (1.52)	-9.82*** (1.39)	16.14*** (2.61)	-8.40*** (1.39)	16.26*** (2.66)	-8.47*** (1.50)
Wife’s education						
Illiterate						
Primary	-19.92*** (3.53)	15.77*** (2.73)	-17.86** (7.71)	17.48*** (5.25)	-17.74** (6.92)	18.14*** (4.39)
Upper Primary	-34.35*** (4.45)	25.00*** (3.49)	-30.44*** (10.08)	25.37*** (6.92)	-30.53*** (8.74)	26.59*** (5.68)
Secondary	-47.30*** (3.93)	30.81*** (3.56)	-39.66*** (9.70)	27.62*** (6.22)	-40.07*** (8.39)	29.59*** (5.23)
Higher Sec	-50.40*** (5.25)	23.81*** (3.74)	-44.03*** (10.61)	20.31*** (6.56)	-44.57*** (9.00)	22.62*** (5.06)
Tertiary	-16.85** (8.57)	-7.29 (4.58)	-11.40 (10.03)	-13.03** (6.09)	-11.95 (9.04)	-10.78** (5.17)
Patriarchy			-3.00* (1.61)	3.83* (1.99)		
Patriarchy: High					-36.75** (16.37)	51.40*** (12.65)
State dummy	✓	✓	x	x	x	x
Controls	✓	✓	✓	✓	✓	✓
Sample mean	72.57	354.04	72.57	354.04	72.57	354.04
Observations	87,110	87,110	87,110	87,110	87,110	87,110

Source: Authors’ calculation from TUS 2019 and TUS 2024.

Note: Average marginal effects from Tobit models with robust standard errors clustered at the state level in parentheses. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Patriarchy refers to the Patriarchy Index in the state. Control variables not shown in the table include age, age difference between husband and wife, religious groups, social groups, sector of residence, whether time allocation was reported by the person or through proxy, children by age group and gender (boys aged 0-5 years, girls aged 0-5 years, boys aged 6-12 years, girls aged 6-12 years, boys aged 13-17 years, girls aged 13-17 years, boys aged 18+ years, girls aged 18+ years) and a dummy for TUS 2024. The table with the full set of controls corresponding to columns 1-4 is in Appendix Table A7.

Relative to women who are less educated than their husbands, women with the same level of education spend 17 minutes more on work, whereas women with relatively higher education spend 33 minutes more per day, keeping the wife’s education level and other covariates

constant. The effects are statistically significant and large. The average time spent by women on market work is 73 minutes. Thus, compared to the average, women with higher relative education observe a 45 percent increase in time allocated to work, on average. Even those with the same level of education witness a 23 percent increase in allocated time compared to the sample mean. This is in line with the argument that relative education increases (relative) earnings potential, as well as intra-household bargaining power, thereby increasing the time spent on paid work.

The reverse is observed for household production. Women with a higher (the same) education level than their husband's spend 13 minutes (10 minutes) less on household production than women with lower relative education. Compared to the (very high) average value of 354 minutes or almost 6 hours, this is a difference of 4 percent (3 percent). An interpretation of this result is that women engage in intra-household bargaining to substitute time away from household production for market work. This follows the time availability theory, drawing from human capital theory, which suggests a negative association between women's time spent on market work and that on time spent on household production (Becker, 1992).

Patriarchal norms affect women's bargaining power (Kandiyoti, 1988, 2005). When faced with a stronger patriarchy, gender roles are reinforced, and women often choose lower-paying and less demanding jobs (Mukherjee & Sarkhel, 2025). Patriarchal norms can also lead to scarce availability of jobs that are suitable for women (Cain et al., 1979; Chowdhury & Gupta, 2025). Indeed, we find that patriarchy alters time allocations (columns 5 and 6) – the results are significant at the 10% level if we consider the continuous value of the index (columns 3 and 4). As the patriarchal norms become stronger, as emphasized by a higher value of the patriarchy index, the time spent on work falls and that on household production increases. The effects are stronger and significant at the 5% level when we classify the states in two groups: States with an index value less than the median (of 27 states) are classified as low, and the others as high.⁸

⁸In an alternative specification, we classify the index into three groups instead of two. The results are qualitatively similar (available upon request).

The completed education levels are predictors of earnings potential and preferences towards the various activities. We find a similar U-shaped relation between women's education and the time spent on work as for participation, in line with the literature (Klasen & Pieters, 2015). The increase in the time spent on paid work for women who have completed tertiary education can either be driven by gender attitudes and bargaining power, or by the presence of suitable jobs for women at higher levels of education (Li, 2023). The time allocated to household production follows the reverse (inverse-U-shaped) pattern in the women's own education.

The results for women's time allocated to childcare, leisure and sleep by relative education are presented in Table 5.⁹ Women who are more educated than their husbands spend around 2 minutes (or 3 percent) less on childcare. The time spent on leisure has been interpreted as a measure of bargaining power in the literature (Datta Gupta & Stratton, 2010). Surprisingly, however, it is the lowest for women with higher education than their husbands. This could represent that higher relative education increases women's relative earnings potential and access to suitable jobs, thereby causing them to substitute time away from leisure. Women with less educated husbands spend 15 minutes (6 percent of the average) less on leisure, and those with the same level of education spend 8 minutes less on leisure (3 percent of the average time spent on leisure) than women with higher educated husbands.

Time spent on sleep significantly declines with relative education, too, but the effect is small. The average reported sleep duration is 8.75 hours, which is in the recommended sleep duration of 7-9 hours, according to the medical literature (Hirshkowitz et al., 2015). The loss of sleep by 5 minutes by itself is unlikely to be harmful for long-term health and well-being. However, together with the significant fall in leisure, it could be of concern. Note that an increase in bargaining power due to higher relative education would lead to the opposite effect, so apparently, this is not the only mechanism that plays a role here.

⁹Time spent on childcare only applies to families with at least one child (of any age).

Table 5: Women’s time allocated to leisure, sleep and childcare in minutes per day on a normal weekday by relative education level

	Unpaid Work	Childcare, if children	Leisure	Sleep
	(1)	(2)	(3)	(4)
Higher rel edu: Husband				
Wife	7.98*** (0.85)	-2.40*** (0.90)	-15.32*** (1.58)	-5.22** (2.18)
Same	3.70*** (0.82)	-1.88*** (0.60)	-7.87*** (1.32)	-0.02 (1.09)
Illiterate				
Primary	-8.18*** (1.05)	1.59 (1.27)	13.54*** (2.54)	-3.83** (1.74)
Upper Primary	-13.01*** (1.35)	5.60*** (1.54)	22.69*** (3.12)	-5.84** (2.44)
Secondary	-20.01*** (1.47)	10.58*** (2.22)	32.21*** (3.62)	-3.98 (2.48)
Higher Sec	-22.05*** (1.38)	16.46*** (2.63)	33.81*** (4.68)	-1.70 (3.21)
Tertiary	-16.58*** (1.42)	28.02*** (3.52)	28.09*** (4.08)	-14.97*** (3.11)
State dummy	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Sample mean	35.22	71.18	233.62	525.51
Observations	87,110	76,466	87,110	87,110

Source: Author’s calculations using TUS 2019 and TUS 2024.

Note: Average marginal effects from Tobit models with robust standard errors clustered at the state level in parentheses. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Control variables not shown in the table include age, age difference between husband and wife, religious groups, social groups, sector of residence, whether the time allocation was reported by the person or through proxy, children by age group and gender (boys aged 0-5 years, girls aged 0-5 years, boys aged 6-12 years, girls aged 6-12 years, boys aged 13-17 years, girls aged 13-17 years, boys aged 18+ years, girls aged 18+ years) and a dummy for TUS 2024. Full details of the estimates are in Appendix Table A7.

Women’s own education levels affect their time allocation on these activities. Keeping relative education (and other covariates) constant, women initially increase their time allocated to leisure with an increase in their own education, followed by a fall once they are college-educated. The time allocated to childcare monotonically increases with an increase in education, with tertiary-education women spending almost half an hour more on average, relative to those who are illiterate. This pattern is in line with the finding in the literature

that mothers increase their allocated time to childcare with an increase in their education (Guryan et al., 2008).

The models in the table include the state dummies, similar to the results reported in Columns 1-2 in Table 4. Instead, models with the patriarchy index groups and continuous values of the state patriarchy index are presented in the Appendix Table A8. We do not find a significant relation between patriarchal norms and the time allocated to leisure or sleep. The time spent on childcare, which is argued to be a pleasurable use of time (Connelly & Kimmel, 2015), falls with an increase in patriarchal norms.

The results taken together show that women with a higher relative education than their husbands spend the highest time on market work and the lowest on household production, compared to their counterparts with the same or lower education levels as their husbands. The effect on childcare is negative. Unpaid work-related activities, too, follow a similar pattern to paid work, but the effect is small compared to that on paid work. We interpret the results in the sense that relative education acts as a resource through which women relocate time away from household production to paid activities in a day. This, however, comes at a cost of lower leisure and sleep. There is evidence that married women who are out of the labor force would like to work (Field et al., 2016; Fletcher et al., 2017), and relatively higher-educated women have higher agency (Ranganathan & Mendonca, 2023). However, whether this shift — even if chosen by women themselves — is desirable for women’s long-term health outcomes, remains open for future research.

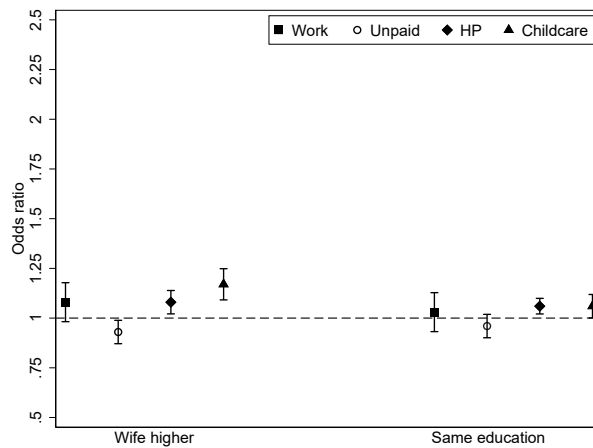
4.3 Husband’s participation and time allocations

We examine whether relative education level also alters the husband’s time allocation, estimating similar logit and tobit models for men. The control variables remain the same across models, except that we now control for the husband’s age and completed education level instead of the wife’s.

4.3.1 Husband's participation

In our sample, 91 percent of all husbands reported paid work on a normal weekday. Participation in household production or childcare was significantly lower than for their wives, at 32 percent and 29 percent, respectively. Figure 3, corresponding to the logit estimates in Appendix Table A9, presents the changes in participation rate by relative education levels. We do not observe any significant effect of relative education level on the odds of working (keeping the husband's own education and other controls constant). We do find, however, that men are more likely to engage in both household production and childcare if their wives have at least the same education level as they do, and these differences are stronger, both in terms of effect size and statistical significance, if their wives have a higher relative education than they have instead of the same education level. This indicates that higher relative education enhances time-sharing in unpaid activities among spouses, reducing intra-household inequality in engagement in these activities. The results do not support the notion that relatively less-educated men would reclaim their status in the family by reducing their participation in unpaid household work, but whether this happens at the intensive margin through changes in time allocation is seen next.

Figure 3: Men's odds of participation in several activities by relative education level



Odds ratios with 95% confidence intervals, based on logit model estimates in Appendix Table A9. Base category: men with higher education level than their wives. Childcare is computed for those with children only. Source: Authors' calculations from TUS 2019 and TUS 2024.

4.3.2 Husband's time allocation

The variation in husbands' time allocation by spouses' relative education levels is presented in Table 6. We find that men with more educated wives spend significantly more time on market work: they spend 8 more minutes (2 percent of the average of 6.6 hours) more on work than men with higher education than their wives. Thus, while women with a higher relative education spend more time on market work, men with wives who have higher relative education also spend more time on paid work. If relative education were to only change the relative earnings potential, we would have expected a substitution between spouses in time spent on paid work, opposite to what we find. In contrast, a greater amount of time devoted to paid work by both partners may stem from the husband's gender ideology regarding his role as the primary breadwinner (Brines, 1994; Goffman, 1977; Greenstein, 2000).

The effects on time spent on household production and childcare are unclear a priori. If the total time required to complete an activity remains the same, then the spouses' time allocations should be substitutes. However, if women with higher relative education are more efficient, they could complete the same work in less time, reducing the overall time spent at the household level without increasing the spouse's time.¹⁰

The average time men spent on household production on a normal weekday is 24 minutes, compared to almost 6 hours for women. The estimates show that men with lower or the same education level as their wives spend significantly more time on household production than those with higher relative education than their wives. The difference is small in absolute terms (less than two minutes per day), but it is still 8 percent of the average. A similar pattern is observed for the time husbands spend on childcare activities. Compared to the average of 21 minutes, their time spent on childcare increases by 14 percent if their wives have higher, rather than lower, education levels than they have. Brines (1994) found a curvilinear relation between men's time spent on housework and their economic dependence

¹⁰It is also possible that the activities are outsourced to someone else. Other survey questions, however, show that less than two percent of the sample outsourced washing and sweeping, and formal childcare is not popular either. Thus, outsourcing is unlikely to be an important driver of time allocation.

on the wife, with men on either side of dependency spending the least time on household production. Husbands whose earnings are similar to those of their wives do more equal housework. We do not have data on income, but we show that both spouses spent more time on paid work when the woman had a higher relative education, and men spend more time on household production when their wives have a higher relative education.

Keeping relative education and other controls constant, relative to an illiterate man, a man with a tertiary education spends 13 minutes more on childcare. This is similar to the global trend of increasing parental inputs to children with an increase in education (Guryan et al., 2008). The increase in the time spent on household production by the husbands' own education levels is almost negligible, 2 minutes across different education levels from primary to college-level. On average, men spend 3.8 hours on leisure. Time spent on leisure is not affected by relative education level, but increases substantially with the men's own education, particularly at the higher education levels. This seems to go at the cost of spending time on sleep, for which their education pattern is similar to that of women.

Instead of the state dummies, in Appendix Table A11 we control for the state-level patriarchy index groups and continuous value of the state-level patriarchy index in the models. Unlike for women, for men, we find no significant relation with the patriarchal norms for the time allocated to any of the activities.

Table 6: Tobit estimates explaining husband's time in minutes spent on work, household production, childcare, leisure and sleep on a normal weekday

	Work	Unpaid work-rel	HP	Leisure	Childcare, if children	Sleep
	(1)	(2)	(3)	(4)	(5)	(6)
Higher rel ed: Husband						
Wife	8.49*** (2.39)	-4.56*** (1.30)	1.92*** (0.63)	-0.35 (1.87)	2.55*** (0.46)	-6.20*** (1.17)
Same	2.76 (2.47)	-1.27 (1.32)	1.13*** (0.37)	-2.38 (0.29)	1.02*** (1.65)	-1.25 (0.74)
Husband ed: Illiterate						
Primary	7.64 (4.78)	-5.77** (2.27)	2.27*** (0.63)	3.46 (2.41)	0.13 (0.43)	-8.23*** (1.25)
Upper Primary	12.01** (5.52)	-7.08*** (2.29)	2.87*** (0.69)	2.03 (2.85)	2.56*** (0.48)	-11.88*** (1.77)
Secondary	9.70 (6.50)	-8.77*** (2.90)	2.34*** (0.72)	6.79** (2.85)	3.96*** (0.61)	-14.07*** (2.04)
Higher Secondary	8.12 (7.93)	-10.22*** (3.45)	1.78* (0.98)	10.08*** (3.02)	6.16*** (0.92)	-16.88*** (2.73)
Tertiary	-1.80 (6.91)	-7.95** (3.95)	2.72*** (0.92)	22.02*** (3.18)	13.13*** (1.15)	-24.40*** (2.10)
Controls	✓	✓	✓	✓	✓	✓
State dummy	✓	✓	✓	✓	✓	✓
Sample mean	398.30	76.29	23.96	21.43	230.04	512.29
N	87,110	87,110	87,110	87,110	76,466	87,110

Source: Authors' calculation from TUS 2019 and 2024.

Note: Average marginal effects from Tobit models with robust standard errors clustered at the state level in parentheses. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Control variables not shown are age, age difference between husband and wife, religious groups, social groups, sector of residence, whether the time allocation was reported by the person or through proxy, children by age group and gender (boys aged 0-5 years, girls aged 0-5 years, boys aged 6-12 years, girls aged 6-12 years, boys aged 13-17 years, girls aged 13-17 years, boys aged 18+ years, girls aged 18+ years) and a dummies for TUS 2024. Details and complete estimates are in Appendix Table A10.

5 Heterogeneity Analysis and Sensitivity Checks

We conduct several heterogeneity analyses to examine the differential effect of relative education on work, household production and childcare activities for different population sub-groups. We also conduct some other sensitivity checks. Figure 4 shows the heterogeneous effects by population sub-groups. Panels (a)-(c) are for women, and Panels (d)-(f) are for

men. Results from the baseline specification are presented for comparison (“base”).

We begin by comparing the estimates between couples residing in the rural and urban regions of India, where time allocations can differ based on, e.g., the availability of jobs or prevailing norms. The female labor force participation rate has seen a significant decline between 2004-05 and 2017-18, primarily in rural areas (Deshpande & Singh, 2024; Deshpande et al., 2024), from around 50 percent in 2004-05 to 25 percent in 2017-18 in rural India, whereas it remained approximately 20 percent in urban India. There has been an increase over 2018-23, partially driven by better measurement of women’s work and an increase in women’s self-employment (Deshpande & Singh, 2024). Note that, other than the official estimates from employment and unemployment surveys that only consider formal employment, our employment measure also accounts for informal employment, including subsistence production, improving the suitability of the analysis for capturing women’s total paid work activities. (Donahoe, 1999; Hirway & Jose, 2011).

Our results show that women with higher relative education spent more time on market work in both rural and urban areas, with significantly larger effects for those in the urban areas. In both urban and rural areas, compared to the benchmark women with lower education than their husbands, women with higher relative education spend less time on household production, whereas only those in urban areas spend significantly less time on childcare activities. Among men, the increase in time spent on work that was observed for those with less education than their wives comes primarily from the urban areas. In both urban and rural areas, men spend a higher time on household production and childcare when their wife has a higher education than they do, but not so when both have the same education level. It therefore seems that higher education relative to the husband increases women’s intra-household bargaining power much more than having the same level of education.

Next, we examine the relation by age group. In the last three decades, several education policies were implemented – such as Education for All (in 2000) and the Right to Education Act (in 2010) – to make education accessible to all. These policies specifically emphasized

enhancing girls' education, who were lagging behind, leading to an increase in their years of formal education (Chatterjee et al., 2018; Datta Gupta et al., 2018). The younger women in our sample have benefited most from these policies, and more young women have higher relative education. For several reasons, the relation between relative education and time use could differ between age cohorts, e.g. differences in returns to education, bargaining power, or gender norms. We classify women younger than 40 ("Young") and those aged 40 years and above as "Old". The effect of educational policies is evident in the difference in mean education level across the two groups: 21 percent of the women in the younger age group had more education than their husbands, compared to 15 percent in the older age group, and this difference is statistically significant.

In spite of this difference, Figure 4 shows that the relation between relative education and time allocation is very similar for the two groups. The estimates show that women with higher relative education in both age groups substituted household production and childcare activities for market work, with even stronger results for women in the older age group. For both age groups, we also find that the husbands with more educated wives spend significantly more time on household production and childcare.

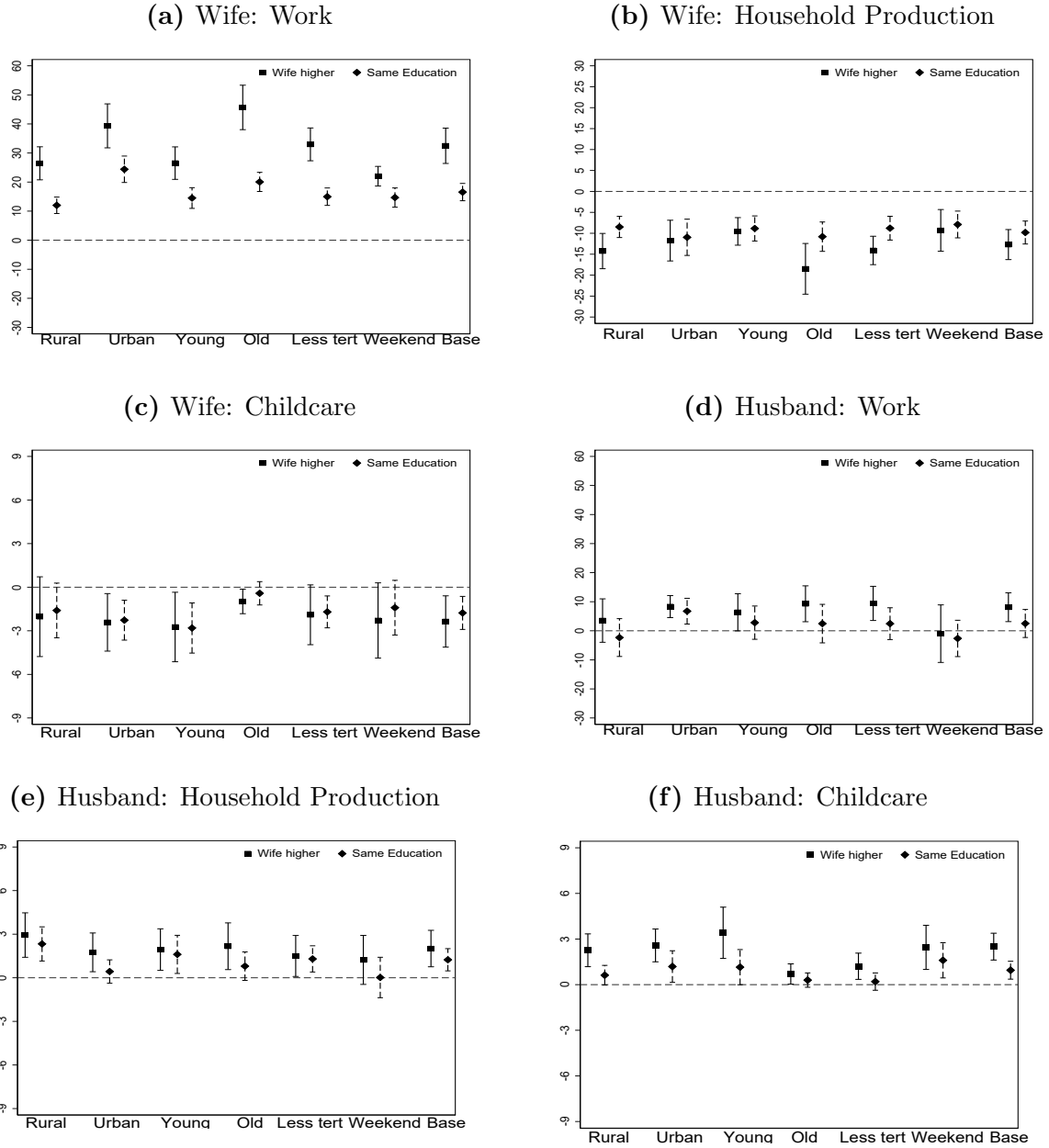
Srivastava (2020) examined how differences in relative education between co-resident mothers-in-law and daughters-in-law in India influenced the distribution of unpaid domestic labor between them, using data from TUS 1998-99. The author found that daughters-in-law with a relatively higher education than their mothers-in-law performed a higher share of domestic work. In fact, that effect size was larger when the daughters-in-law had completed college. Thus, women were penalized for completing higher levels of education relative to their mothers-in-law, and even more so when they had completed college and had a higher relative education. To see whether our estimates of relative education and time allocations are sensitive to women's completed education levels, we estimate the model for women who have not gone to college ("Less tertiary") with the results for the whole sample including college graduates. Even in this sample of women who have not gone to college ("Less tertiary"), women with a higher relative education spend significantly more time on market work and

less time on household production. The time allocated to childcare, however, is not significantly different for women with higher relative education and those with lower relative education. The results for men show that they spend more time on childcare only when their wives have a higher relative education. Unlike the baseline results, men’s contribution to household production are only weakly significant at 10% level. Thus, in our setting, a higher relative education of women enhances time-sharing in household production and childcare between couples, and especially so when we consider the full sample of women, including those who have completed a college education.

We examine the differences between weekdays and weekends¹¹ to estimate the consistency in the relation over the week (Datta Gupta & Stratton, 2010). The results on time allocations over weekends can be compared to the time allocations on weekdays, which are indicated as the base results on the graphs. We find (Figure 4) that time spent on paid work and relative education are insignificant for men (but not for women) over the weekend. Women with a higher relative education reduce time spent on household production and childcare on weekdays, but the reduction in time spent on childcare is not observed on weekends. Conversely, we see that on weekends, men with more educated wives spend more time on childcare but not on household production.

¹¹We consider both normal weekends and non-normal weekends in this classification, since weekly-offs or holidays are classified as non-normal days in the survey, and weekends could be weekly-offs for individuals. However, our results hold when we consider only normal weekends and are available upon request.

Figure 4: Heterogeneity analysis: Average marginal effects of relative education on time allocation, tobit models



Source: Authors' calculation from TUS 2019 and 2024.

Note: Average marginal effects (in minutes, on weekdays) from tobit models with 95% confidence intervals. Childcare is for households with at least one child only. Base category: husband's education level is higher than the wife's. All models control for individual controls, household controls and state dummies in the same way as in the benchmark model (Table A5).

Instead of using the pooled sample, we also estimated the model separately for the years 2019 and 2024. We find that the relation between relative education and time allocations

was consistent across the years. For all activities, the confidence intervals for 2019 and 2024 for the effects of relative education overlap (Appendix Figure A2).

We conducted some sensitivity tests for the time allocated to household production and childcare. The results for women are reported in Appendix Table A12. We additionally controlled for household consumption expenditure at the monthly level (a proxy for income) and estimated the models for both men and women. The results remain similar and the effect sizes are similar for men and women.

6 Conclusion

We examined the factors that drive couples' time allocation across various paid and unpaid activities, focusing on whether having a higher than their husband's enhances women's time spent on paid work instead of household production or childcare. In all models, we control for own education and other household characteristics. In parallel, we check whether the husbands' time use also varies with relative education, possibly compensating for the wives' responses. We pool data from two large cross-sectional surveys representative of India, the Time Use Surveys 2019 and 2024.

We find that, controlling for their own education and other characteristics, women with a higher education than their husbands spend more time on both paid and unpaid work-related activities than the benchmark women with lower education than their husbands. They spend less time on household production and childcare. This reduction is partially compensated for by their husbands. Overall, higher relative education of the wife thus leads to a fall in intrahousehold inequality in time allocated to paid work, household production and childcare. These results are highly policy relevant in the context of the United Nations Sustainable Development Goal of reducing gender inequalities in time allocation.

Assuming that women prefer paid work to household production or childcare, these results

suggest that higher education can affect women’s time allocations by altering their power in the household. Still, this seems to go against studies based on surveys in the USA and UK that say that work is associated with low satisfaction levels, whereas leisure activities are associated with high satisfaction levels (Gershuny, 2013). However, this argument does not necessarily apply in the context of India. Female labor force participation is very low in India, but not because women do not want to work and there is evidence that married women who are out of the labor force want to work, but often only in jobs that are compatible with their house and care work (Deshpande & Kabeer, 2019; Field et al., 2016; Fletcher et al., 2017).¹² On the other hand, however, higher relative education also has a strong negative effect on women’s leisure time and a small positive effect on men’s leisure, which seems incompatible with the bargaining power explanation.

In the regressions, we always control for own education level. Its effect does not relate to the influence of bargaining power (keeping relative education constant) but does give insight in other mechanisms that may play a role. For women, we find a U-shaped education pattern of time spent on paid work. This could be because of the social stigma associated with women working in low-skilled jobs (Klasen & Pieters, 2015). It may also pick up the effect of education on earnings potential: at low education levels, an increase in education makes it easier to reach a minimum standard of living, while at higher levels, a further increase leads to a negative income effect and backward-bending labor supply. The opposite pattern is found for household production. For men, hours spent on paid work are not sensitive to their own education level, but, somewhat surprisingly, there is a small positive effect on household production. For childcare, we find positive effects of own education for both men and women, in line with the literature (Guryan et al., 2008), and probably reflecting differences in preferences for child investment associated with education. We also find strong positive effects on leisure for both spouses, partially at the cost of the time spent on sleeping.

¹²Data from a different data source, the National Family and Health Survey (NFHS) 2019-21, show that more educated women are not more likely to face intimate partner violence, and their likelihood of witnessing sexual violence is smaller (Appendix Table A13). This differs from the earlier finding by Weitzman (2014) based upon NFHS 2005-2006.

Our final explanatory variable of major interest is a regional index of patriarchy. We find a strong negative association between women's time spent on work and a similarly strong positive association with the time women spend on household production. This may be because patriarchy changes preferences or bargaining power, but it may also reflect differences in attractive job opportunities for women, or differences in gender attitudes of employers, affecting the disutility of females' paid work hours.

All these results taken together, our results do not imply that relative education enhances women's well-being. Women with higher relative education are able to better share some part of the unpaid activities, such as household production and childcare, with their husbands, but the extra time up time spent on work also reduces their own leisure and sleep time.

If relative earnings potential changes, men could substitute their time from paid work to time spent on childcare and household production. We observe indeed that men with relatively higher educated wives spend more time on household production and childcare activities, but not by reducing the time spent on paid work. On the contrary, their time spent on paid work also increases. Instead, they spend less time on unpaid work-related activities, while keeping their leisure time unchanged. This could happen for two reasons. The social norm is that women are less educated and earn less than their husbands. When men face the opposite in their families, they may reclaim their status in the family by increasing the time spent on paid work. The second reason could be that women who increase their time on paid work also increase their time on unpaid work-related activities, to maintain the balance in the family, enabling men to spend longer hours on paid work.

This work is not without limitations. One could argue that men who agree to marry a woman with a higher education are already a selected category who do not reinforce gender norms in the household. While we cannot rule out the possibility entirely, the very high share of arranged marriages in India (Allendorf & Pandian, 2016) would make it unlikely that this would be the sole driver of our results.

Second, scholars have debated the accuracy and scalability of different methodologies of data

collection on time use (Engle & Lumpkin, 1992; Harvey, 1993; Juster et al., 2003). While the recall method is scalable, it can induce certain replication bias in the data, especially if the recall lapse is considerably long. In TUS, the recall period is less than 24 hours, and the interviewers cross-checked the reported time against certain indicators like the actual timing of the TV show (Hirway, 2023). Thus, although there could be a recall lapse even during this time, we do not have reasons to believe that it will be systematically misreported. In a large country like India with a large population with a low literacy level, collecting time use data through time diaries is extremely difficult, and a large effort has already been made to collect recall data through the interview method (Hirway, 2023). It also remains an open question whether time diaries would change the results significantly. Third, we use the education levels as a measure of human capital. We acknowledge that different stages of life can change intrahousehold bargaining power. We argue that our measure of bargaining power is fixed over time in the absence of a dynamic measure of bargaining power, as argued by others in the literature, for instance Moeeni (2021).

That being said, there are advantages of TUS since it has information on time use for all members of the household in both surveys. We only observe cross-sectional data, which captures the time allocation at a point in time but does not allow us to observe the households over time. Panel data could be meaningful considering evidence that couples bargain differently at different stages of life, for instance, after the birth of a child. In future, if a large effort is made to collect panel data on time use, along with satisfaction levels and information regarding outsourcing tasks, it would enhance further research. It could indicate the nuances of bargaining power and time allocations of couples at different stages of their lives and shed light on intra-household inequalities in time allocation.

References

- Allendorf, K., & Pandian, R. K. (2016). The decline of arranged marriage? Marital change and continuity in India. *Population and Development Review*, 42(3), 435.
- Altuzarra, A., Gálvez-Gálvez, C., & González-Flores, A. (2020). Do Spanish dual-earner couples share unpaid work equally? *Social Indicators Research*, 150(3), 731–763.
- Becker, G. S. (1965). A theory of the allocation of time. *The Economic Journal*, 75(299), 493–517.
- Becker, G. S. (1992). A treatise on the family. *Population and Development Review*, 18(3), 563.
- Bird, C. E., & Fremont, A. M. (1991). Gender, time use, and health. *Journal of Health and Social Behavior*, 114–129.
- Bittman, M., England, P., Sayer, L., Folbre, N., & Matheson, G. (2003). When does gender trump money? Bargaining and time in household work. *American Journal of Sociology*, 109(1), 186–214.
- Brines, J. (1994). Economic dependency, gender, and the division of labor at home. *American Journal of Sociology*, 100(3), 652–688.
- Cain, M., Khanam, S. R., & Nahar, S. (1979). Class, patriarchy, and women's work in Bangladesh. *Population and Development Review*, 405–438.
- Caldwell, J. C. (1978). A theory of fertility: From high plateau to destabilization. *Population and Development Review*, 4(4), 553–577. <https://doi.org/10.2307/1971727>
- Chatterjee, I., Li, I., & Robitaille, M.-C. (2018). An overview of india's primary school education policies and outcomes 2005–2011. *World Development*, 106, 99–110.
- Chiappori, P.-A. (1992). Collective labor supply and welfare. *Journal of Political Economy*, 100(3), 437–467.
- Chowdhury, H., & Gupta, K. (2025). Crafting work and workspaces: A qualitative study of the meaning of work for women in the weaving sector in Kashmir. *World Development*, 188, 106877.

- Connelly, R., & Kimmel, J. (2015). If you're happy and you know it: How do mothers and fathers in the US really feel about caring for their children? *Feminist Economics*, 21(1), 1–34.
- Datta Gupta, N., Dubey, A., & Simonsen, M. (2018). Rising school attendance in rural India: An evaluation of the effects of major educational reforms. *Education Economics*, 26(2), 109–128.
- Datta Gupta, N., & Stratton, L. S. (2010). Examining the impact of alternative power measures on individual time use in American and Danish couple households. *Review of Economics of the Household*, 8, 325–343.
- Deshpande, A., & Kabeer, N. (2019). (in) visibility, care and cultural barriers: The size and shape of women's work in india. *Ashoka University, Department of Economics*.
- Deshpande, A., & Kabeer, N. (2024). Norms that matter: Exploring the distribution of women's work between income generation, expenditure-saving, and unpaid domestic responsibilities in India. *World Development*, 174.
- Deshpande, A., Khanna, S., & Walia, D. (2024). An Indian enigma? labour market impacts of the world's largest livelihoods program. *Journal of Population Economics*, 37(3), 64.
- Deshpande, A., & Singh, J. (2024). The demand-side story: Structural change and the decline in female labour force participation in India. *IZA DP No. 17368*.
- Dhanaraj, S., & Mahambare, V. (2019). Family structure, education and women's employment in rural India. *World Development*, 115, 17–29.
- Dhar, D., Jain, T., & Jayachandran, S. (2022). Reshaping adolescents' gender attitudes: Evidence from a school-based experiment in India. *American Economic Review*, 112(3), 899–927.
- Donahoe, D. A. (1999). Measuring women's work in developing countries. *Population and Development Review*, 25(3), 543–576.
- Engle, P. L., & Lumpkin, J. B. (1992). How accurate are time-use reports? Effects of cognitive enhancement and cultural differences on recall accuracy. *Applied Cognitive Psychology*, 6(2), 141–159.

- Eswaran, M., Ramaswami, B., & Wadhwa, W. (2013). Status, caste, and the time allocation of women in rural India. *Economic Development and Cultural Change*, 61(2), 311–333.
- Field, E., Pande, R., Rigol, N., Schaner, S., & Moore, C. T. (2016). On her account: Can strengthening women’s financial control boost female labor supply? *Growth and labour marks in low income countries programme: Working Paper*, 32.
- Fletcher, E., Pande, R., & Moore, C. M. T. (2017). Women and work in India: Descriptive evidence and a review of potential policies. *HKS Working Paper No. RWP18-004*.
- Folbre, N., & Yoon, J. (2007). What is child care? Lessons from time-use surveys of major English-speaking countries. *Review of Economics of the Household*, 5(3), 223–248.
- Garcia Roman, J. (2021). Couples’ relative education and the division of domestic work in France, Spain, and the United States. *Journal of Comparative Family Studies*, 52(2), 245–270.
- Geist, C. (2005). The welfare state and the home: Regime differences in the domestic division of labour. *European Sociological Review*, 21(1), 23–41.
- Gershuny, J. (2013). National utility: Measuring the enjoyment of activities. *European Sociological Review*, 29(5), 996–1009.
- Goffman, E. (1977). The arrangement between the sexes. *Theory and society*, 4(3), 301–331.
- Greenstein, T. N. (2000). Economic dependence, gender, and the division of labor in the home: A replication and extension. *Journal of Marriage and Family*, 62(2), 322–335.
- Gruber, S., & Szoltysek, M. (2016). The patriarchy index: A comparative study of power relations across historical Europe. *The History of the Family*, 21(2), 133–174.
- Guryan, J., Hurst, E., & Kearney, M. (2008). Parental education and parental time with children. *Journal of Economic Perspectives*, 22(3), 23–46.
- Harvey, A. S. (1993). Guidelines for time use data collection. *Social Indicators Research*, 30, 197–228.
- Hirshkowitz, M., Whiton, K., Albert, S. M., Alessi, C., Bruni, O., DonCarlos, L., Hazen, N., Herman, J., Katz, E. S., Kheirandish-Gozal, L., et al. (2015). National sleep foun-

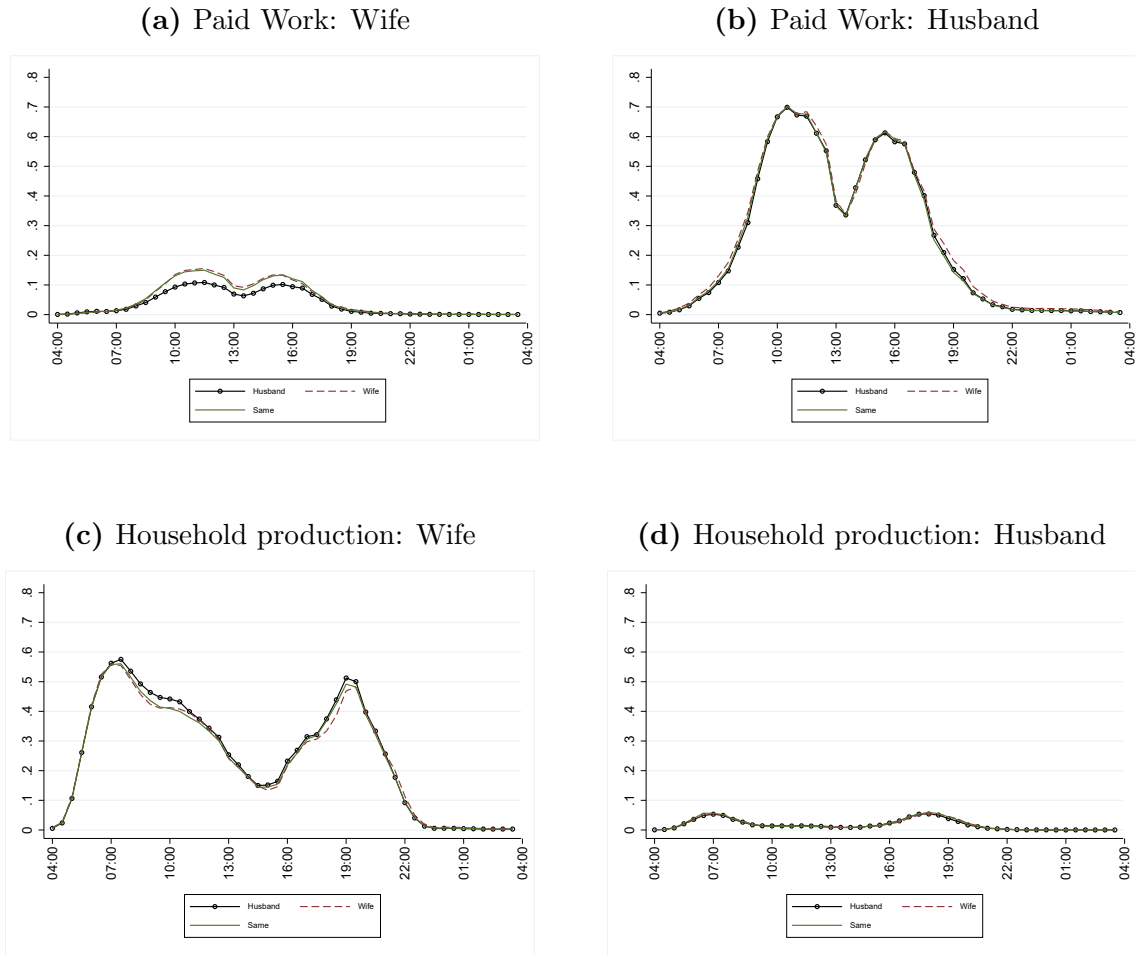
- ation's sleep time duration recommendations: Methodology and results summary. *Sleep Health*, 1(1), 40–43.
- Hirway, I. (2023). Work and workers in India: Moving towards inclusive and sustainable development. *The Indian Journal of Labour Economics*, 66, 1–23.
- Hirway, I., & Jose, S. (2011). Understanding women's work using time-use statistics: The case of India. *Feminist Economics*, 17(4), 67–92.
- Juster, F. T., Ono, H., & Stafford, F. P. (2003). An assessment of alternative measures of time use. *Sociological Methodology*, 33(1), 19–54.
- Juster, F. T., & Stafford, F. P. (1991). The allocation of time: Empirical findings, behavioral models, and problems of measurement. *Journal of Economic Literature*, 29(2), 471–522.
- Kandiyoti, D. (1988). Bargaining with patriarchy. *Gender & Society*, 2(3), 274–290.
- Kandiyoti, D. (2005). Rethinking bargaining with patriarchy. *Feminist Vision of Development: Gender, Analysis and Policy*, 135–154.
- Kimmel, J., & Connelly, R. (2006). Is mothers' time with their children home production or leisure? *IZA Discussion Paper Number 2058*.
- Kimmel, J., & Connelly, R. (2007). Mothers' time choices: Caregiving, leisure, home production, and paid work. *Journal of Human Resources*, 42(3), 643–681.
- Klasen, S., & Pieters, J. (2015). What explains the stagnation of female labor force participation in urban India? *The World Bank Economic Review*, 29(3), 449–478.
- Li, N. (2023). Women's work in India: Evidence from changes in time use between 1998 and 2019. *World Development*, 161, 106107.
- Lin, Z., Desai, S., & Chen, F. (2020). The emergence of educational hypogamy in India. *Demography*, 57(4), 1215–1240.
- Lundberg, S., & Pollak, R. A. (1994). Noncooperative bargaining models of marriage. *The American Economic Review*, 84(2), 132–137.
- Lundberg, S., & Pollak, R. A. (1996). Bargaining and distribution in marriage. *Journal of Economic Perspectives*, 10(4), 139–158.

- Maitra, P. (2004). Parental bargaining, health inputs and child mortality in India. *Journal of Health Economics*, 23(2), 259–291.
- Moeeni, S. (2021). Married women’s labor force participation and intra-household bargaining power. *Empirical Economics*, 60(3), 1411–1448.
- Moeeni, S., & Moeeni, M. (2021). The impact of intra-household bargaining game on progression to third birth in Iran. *Journal of Family and Economic Issues*, 42(1), 61–72.
- Mukherjee, A., & Sarkhel, S. (2025). Patriarchal norms and women’s labor market outcomes. *Review of Development Economics*, 29(2), 747–774.
- OECD. (2014). OECD time use database. *OECD*. <https://www.oecd.org/en/data/datasets/time-use-database.html>
- Phipps, S., Burton, P., & Osberg, L. (2001). Time as a source of inequality within marriage: Are husbands more satisfied with time for themselves than wives? *Feminist Economics*, 7(2), 1–21.
- Ranganathan, T., & Mendonca, A. (2023). Does being educated more than the spouse gives women higher autonomy? Findings from India. *The Indian Journal of Labour Economics*, 66, 833–853.
- Rao, N. (2014). Caste, kinship, and life course: Rethinking women’s work and agency in rural south India. *Feminist Economics*, 20(3), 78–102.
- Sharma, D., Swaminathan, H., & Lahoti, R. (2025). Does it matter who you ask for time use data? *The World Bank Economic Review*, lhaf004.
- Sheikh, R. A., Gaurav, S., & Mishra, T. (2023). Caught in a time warp: Evidence from time use of Indian women. *International Journal of Social Economics*, 50(7), 969–991.
- Singh, A., Chokhandre, P., Singh, A. K., Barker, K. M., Kumar, K., McDougal, L., James, K., & Raj, A. (2021). Development of the India patriarchy index: Validation and testing of temporal and spatial patterning. *Social Indicators Research*, 159, 351–377.
- Sofer, C., & Thibout, C. (2019). Women’s investment in career and the household division of labour. *Applied Economics*, 51(60), 6535–6557.

- Srija, A., & Vijay, S. S. (2021). Female labour force participation in India: Insights through time use survey. *Review of Market Integration*, 12(3), 159–199.
- Srinivas, M. N. (1956). A note on sanskritization and westernization. *The Far Eastern Quarterly*, 15(4), 481–496.
- Srivastava, A. (2020). Time use and household division of labor in India – within-gender dynamics. *Population and Development Review*, 46(2), 249–285.
- Vernon, V. (2010). Marriage: For love, for money... and for time? *Review of Economics of the Household*, 8, 433–457.
- Weitzman, A. (2014). Women’s and men’s relative status and intimate partner violence in India. *Population and Development Review*, 40(1), 55–75.
- Zhang, Y. (2015). “Take my mother-in-law... please!” A study of the impact of women’s bargaining power on the co-residence decision in China. *Journal of Family and Economic Issues*, 36, 633–645.

Appendix

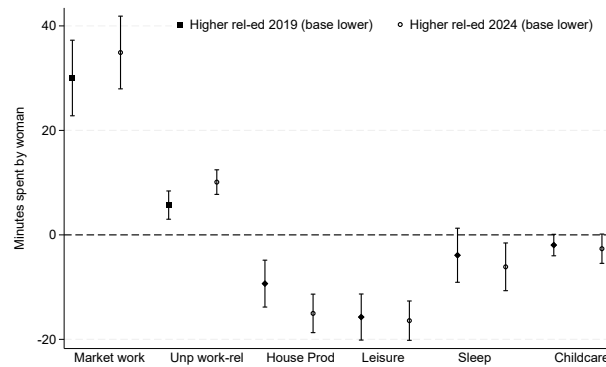
Figure A1: Proportion of women participating in the activity at each time in the day by relative education



Source: Authors' calculation from TUS 2019 and 2024.

Note: The legend shows who has higher relative education: Wife when the woman has higher relative education, Husband when the husband has a higher education level, and Same when they have the same level of education. Horizontal axis: time of the day; vertical axis: proportion of individuals participating in the activity.

Figure A2: Tobit estimates representing the effect of couples' education on minutes spent by women on various activities in 2019 and 2024



Source: Authors' calculation from TUS 2019 and 2024.

Note: The base category (not shown in the Figure) comprises women who have a lower education relative to their husbands. Childcare is computed for those with at least 1 child in the family. The x-axis represents the type of activity, and the y-axis shows the average marginal effects from the Tobit model, showing the minutes per day spent by women in 2019 and 2024. The control variables are the same as the baseline specification.

Table A1: Difference in time allocation by weekday and weekend

	Weekday	Weekend	Difference	p-value	Significance
Wife					
Work	70.80	61.15	9.65	0.00	***
Work unpaid	35.06	33.40	1.66	0.00	***
Household production	351.99	351.70	0.29	0.70	
Leisure	238.15	244.96	-6.81	0.00	***
Sleep	525.35	529.97	-4.62	0.00	***
Childcare, if child	70.31	71.49	-1.19	0.056	*
Husband					
Work	380.83	344.19	36.64	0.00	***
Work unpaid	74.88	70.50	4.38	0.00	***
Household production	26.50	31.24	-4.74	0.00	***
Leisure	242.72	266.87	-24.15	0.00	***
Sleep	515.00	524.87	-9.87	0.00	***
Childcare, if child	21.71	24.42	-2.71	0.000	***

Source: Authors' calculation from TUS 2019 and 2024.

Note: Column 1 represents time spent (in minutes per day) on normal weekdays. N = 87,110 for work (paid and unpaid), household production, leisure and sleep. N for Childcare is calculated for 76,466 individuals with at least one child. Column 2 represents time spent (in minutes per day) on weekends. We do not impose restrictions on the type of day reported by the individuals for weekends, since weekends are also reported as non-normal or weekly holidays. For the weekend sample, N = 35,783 for work (paid and unpaid), household production, leisure and sleep, and N for Childcare is calculated for 30,568 individuals with at least one child. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A2: Selection of sample

	2019	2024
Individuals with time-use information	447,250	454,192
Individuals in non-nuclear families	159,468	184,887
Individuals in nuclear families	287,782	269,305
Head or spouse of head in nuclear families	88,764 men, 94,265 women	98,176 men and 74,379 women
Households with co-resident heterosexual partners	80,479 men and 80,634 women	74,248 men and 74,364 women
Both partners are aged between 20-60 years	67,984 men and 68,088 women	63,344 men and 63,421 women
Of which		
A. Complete time-use information: Both	67,863 men and 68,012 women	63,082 men and 63,227 women
B. Neither in education	67,962 men and 67,780 women	63,335 men and 63,325 women
C. Normal weekdays: Both	46,716 men and 47,509 women	42,912 men and 43,822 women
Total (A and B and C)	45,537 men and 45,537 women	41,573 men and 41,573 women

Source: Author's calculation from TUS 2019 and TUS 2024

Table A3: Effect of couples' relative education on women's time use considering self-reports only

	Work	Unpaid	Household	Leisure	Childcare	Sleep
Wife	30.79*** (3.17)	8.07*** (0.87)	-11.68*** (1.77)	-14.25*** (1.67)	-2.27*** (1.07)	-6.37*** (2.27)
Same	14.54*** (1.55)	3.42*** (0.87)	-8.89*** (1.43)	-6.94*** (1.15)	-2.05*** (0.71)	0.09 (1.24)
Controls	✓	✓	✓	✓	✓	✓
State dummies	✓	✓	✓	✓	✓	✓
N	70,262	70,262	70,262	70,262	61,666	70,262

Source: Author's calculation from the pooled sample of TUS 2019 and 2024.

Note: The average marginal effects from respective Tobit models are presented with robust standard errors clustered at the state level in parentheses. The coefficients represent minutes per day spent on the activity. The control variables are the same as before and include individual, household controls and state dummies. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A4: Cross tabulation of education of wife and education of husband

	Illiterate	Primary	Upper primary	Secondary	Higher secondary	Tertiary
<i>Education of wife</i>						
Illiterate	48.32	26.76	13.30	7.22	2.95	1.46
Primary	9.68	45.33	25.33	12.50	4.83	2.33
Upper primary	4.80	18.53	34.89	25.42	11.21	5.15
Secondary	2.60	8.04	17.20	33.00	25.40	13.76
Higher secondary	1.31	3.72	9.24	19.66	29.94	36.13
Tertiary	0.43	1.05	3.35	8.38	13.03	73.77

Source: Calculated from pooled sample TUS 2019 and 2024.

Note: The completed education levels of wives are in rows, and the completed education levels of husbands are in columns. The row totals add up to 100. The sample is based on 87,110 couples.

Table A5: Effect of couples' relative education on women's participation across activities

	Work	Unpaid work-rel	Childcare
	(1)	(2)	(3)
Higher Rel ed: Husband			
Wife	1.802*** (0.090)	1.435*** (0.062)	0.946* (0.029)
Same	1.373*** (0.041)	1.167*** (0.044)	0.945** (0.022)
Age	1.013*** (0.003)	1.009*** (0.003)	0.901*** (0.003)
Age difference	0.988** (0.006)	0.990** (0.004)	0.979*** (0.005)
Education			
Primary	0.741*** (0.041)	0.777*** (0.027)	1.057 (0.061)
Upper primary	0.575*** (0.042)	0.652*** (0.038)	1.291*** (0.094)
Secondary	0.427*** (0.030)	0.469*** (0.027)	1.465*** (0.130)
Higher secondary	0.382*** (0.041)	0.414*** (0.029)	1.818*** (0.192)
Tertiary	0.712** (0.104)	0.554*** (0.042)	2.747*** (0.327)
Hindu			
Muslim	0.535*** (0.066)	0.723*** (0.081)	1.251*** (0.061)
Others	0.868 (0.084)	1.070 (0.096)	1.073 (0.078)
ST			
SC	0.902 (0.077)	0.689*** (0.064)	0.915 (0.051)
OBC	0.858 (0.087)	0.595*** (0.050)	0.893*** (0.036)
Others	0.695*** (0.070)	0.584*** (0.059)	0.966 (0.048)
Urban	0.621*** (0.068)	0.358*** (0.032)	1.305*** (0.054)
Tot girls 0-5 years	0.702*** (0.038)	0.793*** (0.027)	4.400*** (0.434)
Tot boys 0-5 years	0.656*** (0.032)	0.792*** (0.029)	4.387*** (0.399)
Tot girls 6-12 years	1.214*** (0.028)	1.106*** (0.022)	1.637*** (0.080)
Tot boys 6-12 years	1.103*** (0.020)	1.040* (0.022)	1.473*** (0.088)

Table A5: Effect of couples' relative education on women's participation across activities

	Work	Unpaid	Childcare
	(1)	(2)	(3)
Tot girls 13-17 years	1.277*** (0.030)	1.127*** (0.032)	0.839*** (0.019)
Tot boys 13-17 years	1.125*** (0.022)	1.062*** (0.022)	0.676*** (0.025)
Tot girls 18+ years	1.099*** (0.026)	1.020 (0.030)	0.511*** (0.033)
Tot boys 18+ years	0.891*** (0.016)	0.907*** (0.013)	0.408*** (0.027)
Proxy	1.529*** (0.100)	1.220*** (0.077)	0.786*** (0.041)
Year 2024	1.488*** (0.069)	1.649*** (0.136)	2.574*** (0.265)
Constant	0.132*** (0.023)	1.415** (0.194)	12.121*** (1.784)
State dummy	✓	✓	✓
Observations	87,110	87,110	76,466

Source: Author's calculation from pooled sample of TUS 2019 and 2024.

Note: The odds ratios from respective Logit models are presented with robust standard errors clustered at the state level in parentheses. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A6: Difference in time allocation by women by year

	2024	2019	Difference	p-value	Significance
Work	77.95	67.67	10.28	0.000	***
Work-rel unpaid	37.27	33.35	3.92	0.000	***
Household production	350.90	356.90	-6.00	0.000	***
Childcare, if child	80.00	62.97	17.03	0.000	***
Leisure	233.32	233.88	-0.56	0.506	
Sleep	521.87	528.83	-6.95	0.000	***

Source: Author's calculation using the pooled sample using TUS 2024 and 2019.

Note: The sample is based on 87,110 women, of whom 76,466 have at least 1 child. The time is reported in minutes per day. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A7: Minutes spent by wife on normal weekdays: Full table

	Work	Unpaid	HP	Childcare	Leisure	Sleep
Higher rel educ: Husband						
Wife	32.48*** (3.10)	7.98*** (0.85)	-12.74*** (1.84)	-2.40*** (0.90)	-15.32*** (1.58)	-5.22** (2.18)
Same	16.55*** (1.52)	3.70*** (0.82)	-9.80*** (1.39)	-1.88*** (0.60)	-7.87*** (1.32)	-0.02 (1.09)
Age	0.64*** (0.16)	0.31*** (0.10)	0.22** (0.09)	-3.04*** (0.10)	0.84*** (0.12)	-0.13* (0.07)
Age difference	-0.71** (0.31)	-0.27*** (0.11)	0.98*** (0.19)	-0.53*** (0.14)	0.83*** (0.19)	-0.41** (0.17)
Illiterate						
Primary	-19.92*** (3.53)	-8.18*** (1.05)	15.79*** (2.73)	1.59 (1.27)	13.54*** (2.54)	-3.83** (1.74)
Upper Primary	-34.35*** (4.45)	-13.01*** (1.35)	25.05*** (3.49)	5.60*** (1.54)	22.69*** (3.12)	-5.84** (2.44)
Secondary	-47.30*** (3.93)	-20.01 (1.47)	30.75*** (3.56)	10.58*** (2.22)	32.21*** (3.62)	-3.98 (2.48)
Higher Sec	-50.40*** (5.25)	-22.05*** (1.34)	23.87*** (3.74)	16.46*** (2.63)	33.81*** (4.68)	-1.70 (3.21)
Tertiary	-16.85** (8.57)	-16.58*** (1.42)	-7.42 (4.58)	28.02*** (3.52)	28.09*** (4.08)	-14.97*** (3.11)
Hindu						
Muslim	-28.89*** (4.58)	-8.67*** (2.79)	5.65** (2.48)	4.53*** (1.26)	24.92*** (2.98)	1.62 (2.49)
Others	-6.17 (4.87)	2.40 (3.12)	-0.46 (3.82)	0.43 (1.51)	-2.60 (4.71)	3.62 (2.24)
ST						
SC	-6.50 (4.62)	-13.71*** (3.82)	13.47*** (2.18)	0.15 (1.61)	16.06*** (4.00)	0.54 (3.02)
OBC	-11.00** (5.42)	-16.02***	20.57*** (2.57)	-0.85 (1.06)	18.30*** (3.81)	-1.69 (2.51)
General	-22.26*** (5.13)	-16.96*** (4.07)	21.84*** (3.10)	1.29 (1.21)	25.81*** (4.71)	-2.96 (2.83)
Rural						
Urban	-19.74*** (5.17)	-27.13*** (2.97)	6.17* (3.37)	8.52*** (0.84)	29.89*** (3.40)	-1.03 (2.72)
Tot girls 0-5 years	-18.92*** (2.88)	-5.83*** (0.74)	-4.81*** (1.37)	31.76*** (1.62)	-23.28*** (1.03)	0.94 (0.82)
Tot boys 0-5 years	-22.88*** (2.60)	-6.00*** (0.80)	-2.50* (1.30)	31.14*** (1.48)	-23.47*** (1.04)	0.47 (1.17)
Tot girls 6-12 years	9.85*** (1.30)	2.80*** (0.53)	8.11*** (1.28)	6.64*** (0.97)	-8.20*** (1.24)	-10.30*** (1.40)
Tot boys 6-12 years	4.92*** (1.04)	1.71*** (0.54)	11.21*** (1.15)	3.85*** (1.26)	-6.62*** (1.46)	-9.24*** (1.16)

Table A7: Full table: Continued

	Work	Unpaid	HP	Childcare	Leisure	Sleep
Tot girls 13-17 years	13.50*** (1.22)	3.57*** (0.76)	-5.99*** (1.78)	-7.81*** (0.65)	-1.38 (1.22)	-6.60*** (1.32)
Tot boys 13-17 years	6.65*** (1.05)	2.13*** (0.57)	10.80*** (1.03)	-15.52*** (1.02)	-4.17*** (1.26)	-7.82*** (1.05)
Tot girls 18+ years	6.10*** (1.41)	1.60* (0.88)	-25.69*** (3.74)	-22.66*** (1.70)	16.14*** (2.62)	-0.77 (0.83)
Tot boys 18+ years	-6.69*** (0.88)	-2.31*** (0.47)	14.44*** (1.47)	-29.79*** (1.60)	4.25*** (1.10)	-4.56*** (0.91)
Proxy	27.32*** (3.93)	5.26*** (1.58)	-16.69*** (2.90)	-6.57*** (1.28)	-14.50*** 3.57	-1.36 2.58
Year 2024	18.65*** (2.65)	9.27*** (2.13)	-6.88 (6.89)	14.59*** (2.38)	-3.38 7.59	-6.24** 2.50
State dummy	✓	✓	✓	✓	✓	✓
N	87,110	87,110	87,110	76,466	87,110	87,110

Source: Author's calculation from TUS 2019 and 2024.

Note: The average marginal effects from the Tobit model are presented with robust standard errors clustered at the state level in parentheses. The coefficients represent minutes per day spent on the activity. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A8: Tobit estimates showing minutes spent by wife controlling for state patriarchy index

	Work	Work unp	HP	Childcare	Leisure	Sleep
A. Continuous Index						
Higher Rel ed: Husband						
Wife	34.14*** (4.78)	7.19*** (1.33)	-12.88*** (2.96)	-2.67** (1.09)	-14.69*** (1.62)	-4.84** (2.23)
Same	16.14*** (2.61)	2.69*** (0.82)	-8.40*** (1.39)	-1.37** (0.56)	-8.31*** (1.33)	-0.06 (1.14)
Patriarchy Index	-3.00* (1.61)	0.43 (0.68)	3.83* (1.99)	-1.20** (0.61)	-0.83 (1.03)	0.23 (0.79)
Controls	✓	✓	✓	✓	✓	✓
N	87,110	87,110	87,110	76,466	87,110	87,110
B. Index dummy						
Higher Rel ed: Husband						
Wife	34.44*** (4.48)	6.63*** (1.81)	-13.10*** (2.87)	-2.32** (1.21)	-14.58*** (1.57)	-4.91** (2.25)
Same	16.25*** (2.65)	2.26*** (0.96)	-8.46*** (1.50)	-1.21*** (0.66)	-8.23*** (1.31)	-0.12 (1.13)
Patriarchy Index: High	-36.75*** (16.37)	-8.82** (4.08)	51.70*** (12.64)	-7.69** (3.04)	-8.76 (7.64)	1.31 (6.11)
Controls	✓	✓	✓	✓	✓	✓
N	87,110	87,110	87,110	76,466	87,110	87,110

Source: Author's calculation using pooled sample of TUS 2019 and 2024. The Patriarchy Index is created using National Family and Health Survey 2019-21.

Note: The average marginal effects from the Tobit model are presented with robust standard errors clustered at the state level in parentheses. The coefficients represent minutes per day spent on the particular activity on a normal weekday. The continuous value of the Patriarchy Index is controlled in panel A of the table and panel B controls for a dummy indicating high or low state-level patriarchy, where high-patriarchal states are those where the index value is greater than the median. The individual and household controls are the same as the before and the models do not include state dummies. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A9: Effect of couples' relative education on husband's participation across activities

	Work	Unpaid	HP	Childcare
	(1)	(2)	(3)	(4)
Higher Rel ed: Husband				
Wife	1.081 (0.053)	0.930** (0.033)	1.081** (0.033)	1.169*** (0.042)
Same	1.032 (0.052)	0.963 (0.027)	1.059*** (0.021)	1.055* (0.029)
Age	0.956*** (0.005)	0.994** (0.003)	1.007*** (0.002)	0.937*** (0.004)
Age difference	1.020*** (0.008)	0.994 (0.003)	0.998 (0.005)	1.047*** (0.005)
Education				
Primary	1.087 (0.082)	0.868*** (0.038)	1.136*** (0.026)	1.005 (0.038)
Upper primary	1.078 (0.089)	0.844*** (0.043)	1.159*** (0.040)	1.216*** (0.061)
Secondary	1.068 (0.106)	0.823*** (0.053)	1.123*** (0.038)	1.346*** (0.072)
Higher secondary	1.119 (0.135)	0.842** (0.065)	1.102** (0.050)	1.482*** (0.098)
Tertiary	1.512*** (0.238)	1.044 (0.086)	1.206*** (0.056)	2.265*** (0.168)
Hindu				
Muslim	1.237** (0.133)	0.835* (0.079)	0.855*** (0.026)	0.967 (0.031)
Others	0.714** (0.096)	0.974 (0.092)	0.946 (0.076)	0.900* (0.053)
ST				
SC	1.408*** (0.187)	0.857** (0.056)	0.924 (0.048)	0.875** (0.053)
OBC	1.290** (0.167)	0.788*** (0.051)	0.895** (0.039)	0.788*** (0.042)
Others	1.176 (0.147)	0.785*** (0.063)	0.852*** (0.046)	0.789*** (0.041)
Urban	2.205*** (0.283)	0.705*** (0.050)	0.789*** (0.045)	1.070 (0.068)
Tot girls 0-5 years	0.976 (0.040)	1.021 (0.020)	0.932*** (0.013)	1.910*** (0.101)
Tot boys 0-5 years	0.948 (0.050)	1.051** (0.023)	0.948*** (0.019)	1.885*** (0.097)
Tot girls 6-12 years	1.115*** (0.037)	1.016 (0.018)	1.032* (0.019)	1.095*** (0.025)
Tot boys 6-12 years	1.098*** (0.035)	0.964** (0.016)	0.985 (0.018)	1.079** (0.040)

Table A9: Continued.

	Work	Unpaid	HP	Childcare
	(1)	(2)	(3)	(4)
Tot girls 13-17 years	1.121*** (0.033)	1.067*** (0.019)	1.006 (0.015)	0.760*** (0.031)
Tot boys 13-17 years	1.057 (0.043)	1.030** (0.014)	0.960** (0.017)	0.646*** (0.031)
Tot girls 18+ years	1.079** (0.042)	1.003 (0.022)	0.902*** (0.020)	0.505*** (0.043)
Tot boys 18+ years	1.013 (0.043)	0.970* (0.018)	0.891*** (0.018)	0.355*** (0.041)
Proxy	1.907*** (0.131)	1.285*** (0.076)	0.833*** (0.043)	0.916* (0.048)
Year 2024	2.869*** (0.335)	4.013*** (0.371)	1.106 (0.099)	1.696*** (0.181)
Constant	12.904*** (3.235)	2.921*** (0.340)	0.316*** (0.035)	1.835*** (0.301)
Observations	87,110	87,110	87,110	76,466

Source: Author's calculation from pooled sample of TUS 2019 and 2024.

Note: The odds ratios from respective Logit models are presented with robust standard errors clustered at the state level in parentheses. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A10: Tobit estimates showing minutes spent by husband on normal weekdays: Full table

	Work	Work unp	HP	Leisure	Childcare	Sleep
Higher rel ed: Husband						
Wife	8.49*** (2.39)	-4.56*** (1.30)	1.92*** (0.63)	-0.35 (1.87)	2.55*** (0.46)	-6.20*** (1.17)
Same	2.76 (2.47)	-1.27 (1.32)	1.13*** (0.37)	-2.38 (1.65)	1.02*** (0.29)	-1.25 (0.74)
Age	-2.68*** (0.25)	0.22 (0.14)	0.22*** (0.03)	1.68*** (0.12)	-0.89*** (0.06)	0.32*** (0.08)
Age difference	1.82*** (0.39)	-0.42** (0.21)	-0.11 (0.10)	-0.88*** (0.28)	0.64*** (0.07)	-0.46*** (0.12)
Illiterate						
Primary	7.64 (4.78)	-5.77** (2.27)	2.27*** (0.63)	3.46 (2.41)	0.13 (0.43)	-8.23*** (1.25)
Upper Primary	12.01** (5.52)	-7.08*** (2.29)	2.87*** (0.69)	2.03 (2.85)	2.56*** (0.48)	-11.88*** (1.77)
Secondary	9.70 (6.50)	-8.77*** (2.90)	2.34*** (0.72)	6.79** (2.85)	3.96*** (0.61)	-14.07*** (2.04)
Higher Secondary	8.12 (7.93)	-10.22*** (3.45)	1.78* (0.98)	10.08*** (3.02)	6.16*** (0.92)	-16.88*** (2.73)
Tertiary	-1.80 (6.91)	-7.95** (3.95)	2.72*** (0.92)	22.02*** (3.18)	13.13*** (1.15)	-24.40*** (2.10)
Hindu						
Muslim	4.38 (8.41)	-11.35*** (3.99)	-3.31*** (0.66)	22.32*** (4.33)	-1.24*** (0.41)	-6.64*** (1.47)
Others	-14.99** (7.23)	0.19 (3.47)	-0.47 (1.63)	3.45 (3.37)	-1.62* (0.87)	3.86* (2.10)
ST						
SC	28.28*** (7.90)	-13.67*** (4.53)	-2.22* (1.14)	-0.11 (4.55)	-2.36*** (0.88)	-4.76* (2.45)
OBC	22.54*** (7.86)	-11.62*** (4.49)	-2.33** (0.95)	2.02 (3.91)	-3.57*** (0.79)	-5.94*** (2.17)
Others	22.37*** (7.67)	-10.18** (4.89)	-3.09*** (1.10)	5.16 (4.11)	-3.90*** (0.76)	-10.24*** (2.40)
Rural						
Urban	75.22*** (6.73)	-24.59*** (4.20)	-5.62*** (1.10)	-17.00*** (2.28)	0.57 (0.75)	-18.51*** (1.65)
Tot girls 0-5 years	0.83 (1.67)	0.80 (0.87)	-1.51*** (0.25)	-12.85*** (0.78)	9.28*** (0.61)	-0.49 (0.58)
Tot boys 0-5 years	-2.11 (1.88)	2.03** (1.01)	-0.99** (0.40)	-13.20*** (0.92)	9.15*** (0.55)	-0.18 (0.73)
Tot girls 6-12 years	7.41*** (1.81)	-0.09 (0.70)	0.25 (0.35)	-2.22** (1.02)	1.69*** (0.40)	-5.41*** (0.92)
Tot boys 6-12 years	7.92*** (1.69)	-0.25 (0.75)	-0.33 (0.34)	-4.04*** (1.46)	1.56*** (0.48)	-4.71*** (0.97)

Table A10: Continued

	Work	Work unp	HP	Childcare	Leisure	Sleep
Tot girls 13-17 years	9.24*** (1.39)	2.09*** (0.69)	0.02 (0.37)	-3.93*** (1.08)	-3.10*** (0.46)	-4.02*** (0.86)
Tot boys 13-17 years	8.29*** (1.81)	2.03*** (0.70)	-0.54 (0.35)	-4.15*** (1.39)	-5.06*** (0.50)	-4.81*** (0.83)
Tot girls 18+ years	8.72*** (2.30)	0.17 (0.93)	-2.05*** (0.40)	-1.07 (1.31)	-7.52*** (0.89)	-3.65*** (0.90)
Tot boys 18+ years	3.51 (2.17)	-1.35 (1.00)	-2.25*** (0.45)	3.52*** (1.04)	-11.59*** (1.07)	-2.45*** (0.70)
Proxy	41.70*** (5.52)	-0.02 (1.86)	-4.49*** (0.99)	-17.75*** (2.31)	-1.74*** (0.62)	-6.84*** (2.10)
Year 2024	15.63 (9.61)	22.54*** (3.61)	-0.21 (1.65)	1.65 (7.56)	5.71*** (1.39)	-3.48 (2.12)
Observations	87,110	87,110	87,110	87,110	76,466	87,110

Source: Author's calculation from TUS 2019 and 2024.

Note: The average marginal effects from the Tobit model are presented with robust standard errors clustered at the state level in parentheses. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A11: Estimates showing minutes spent by husband controlling for the state patriarchy index

	Work	Work unp	Household	Leisure	Childcare	Sleep
Continuous Patriarchy Index						
Higher Rel ed: Husband						
Wife	11.74*** (2.74)	-5.14*** (1.43)	1.57 (1.07)	0.60 (2.05)	2.06** (0.80)	-6.75*** (1.58)
Same	3.31 (2.64)	-1.66 (1.23)	1.62*** (0.62)	-2.32 (1.58)	1.09*** (0.40)	-1.70** (0.80)
Patriarchy Index	0.05 (1.61)	0.28 (0.55)	-0.49 (0.40)	-0.50 (0.62)	-0.50 (0.34)	0.50 (0.42)
N	87,110	87,110	87,110	87,110	76,466	87,110
Index dummy						
Higher Rel ed: Husband						
Wife	11.00*** (2.76)	-5.28*** (1.49)	2.19** (1.06)	0.68 (1.98)	2.55*** (1.98)	-7.26*** (1.73)
Same	2.87 (2.77)	-1.75 (1.27)	2.01*** (0.67)	-2.25 (1.56)	1.45*** (0.46)	-2.02** (0.84)
Patriarchy Index: High	-6.11 (11.02)	-1.81 (3.95)	0.09 (3.80)	-4.69 (4.72)	-1.94 (2.37)	0.78 (3.27)
N	87,110	87,110	87,110	87,110	76,466	87,110

Source: Author's calculation using pooled sample of TUS 2019 and 2024. The Patriarchy Index is created at the state level using National Family Health Survey 2019-21.

Note: The average marginal effects from the Tobit model are presented with robust standard errors clustered at the state level in parentheses. The coefficients represent minutes per day spent on the particular activity on a normal weekday. The continuous value of the Patriarchy Index is controlled in panel A of the table and panel B controls for a dummy indicating high or low state-level patriarchy, where high-patriarchal states are those where the index value is greater than the median. The individual and household controls are the same as the baseline model, but the models do not consider the state dummies. Level of significance: *** p<0.01, ** p<0.05, * p<0.1.

Table A12: Sensitivity: Tobit estimates showing time allocation of women and men on household production and childcare on normal weekdays

	Controlling for MPCE			
	Women		Men	
	HP	Childcare	HP	Childcare
	(1)	(2)	(3)	(4)
Higher rel ed: Husband				
Wife	-12.98*** (1.81)	-1.90** (0.84)	2.14*** (0.63)	2.35*** (0.43)
Same	-9.95*** (1.37)	-1.53*** (0.52)	1.30*** (0.38)	0.87*** (0.30)
Log MPCE	-1.86 (2.48)	3.36** (1.45)	-1.63* (0.87)	1.21** (0.57)
Controls	Yes	Yes	Yes	Yes
State dummy	Yes	Yes	Yes	Yes
Sample mean	0.94	0.78	0.06	0.22
Observations	87,109	76,465	87,109	76,465

Source: Author's calculation from the pooled sample of TUS 2019 and 2024.

Note: The average marginal effects from the Tobit model are presented with robust standard errors clustered at the state level in parentheses. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Columns 1-4 represent the share, and columns 5-8 represent the time in minutes. The control variables are the same as before. Women's column controls for women's education levels, and men's column controls for the education level of men.

Table A13: Odds ratio showing the effect of couples' relative education on domestic violence faced by women

	Physical or sexual Violence	Sexual Violence	Physical Violence	Any injury or violence	(5)	(6)	(7)	(8)
Higher relative education								
Same	1.07 (0.04)	1.08 (0.06)	1.08** (0.03)	1.07 (0.04)			1.08** (0.04)	1.08** (0.04)
Wife	1.06 (0.05)	0.86** (0.06)	0.91*** (0.03)	1.06 (0.05)			1.08 (0.06)	1.08 (0.06)
Working					1.05 (0.08)			
Wife earns more								
Husband earns more						1.15** (0.08)		
About the same						0.98 (0.10)		
Husband does not earn						1.14 (0.16)		
State Patriarchy Index							1.03* (0.02)	
District Patriarchy Index								1.02* (0.01)
Constant	0.12*** (0.01)	0.05*** (0.01)	0.22*** (0.01)	0.02*** (0.01)	0.21*** (0.03)	0.24*** (0.05)	0.16*** (0.08)	0.20*** (0.07)
Observations	27,951	27,840	27,951	27,778	11,163	8,995	27,918	27,980

Source: Author's calculation from National Family Health Survey 2019-21 for currently married women who live with their husbands in nuclear families. Note: The columns represent the results by the type of violence faced by women the year before the survey. The control variables not shown in the table include age and education of the woman, age difference with her husband, duration of marriage, dummy for urban, religion, dummy for husband's drinking, wealth quintile, number of children, dummy showing family history of violence, and state dummies. Column 1 is the combined indicator for violence, while columns 2-4 show the separate effects. Level of significance *** p<0.01, ** p<0.05, * p<0.1.