

Gender Differences in Academic Time Allocation: Evidence from Japan ^{*}

Sunhee Lee [†] Yalan Li [‡] Ayako Osawa [§] Emiko Usui [¶]

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Abstract

This paper examines how gender and parenthood relate to time allocation among university faculty using survey data from a large research university in Japan. The data provide detailed information on time spent on research, teaching, administrative work, and household activities. We document substantial gender differences in time allocation. In particular, women spend less time on research and more time on household responsibilities than men, with the gap being especially pronounced among those with children. Teaching time remains relatively similar across groups. These findings suggest that family-related constraints affect the allocation of time differently for men and women, which may contribute to gender disparities in research productivity and academic careers.

JEL Codes: J16, J22, J44

Keywords: Time Allocation, Academic labor market, Work–life balance, University researchers

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[†]Center for Diversity, Equity & Inclusion, Tohoku University. Email: sunhee.lee.d2@tohoku.ac.jp

[‡]Faculty of Economics, Kanto Gakuen University. Email: morethanlan@gmail.com

[§]Graduate School of International Cultural Studies, Tohoku University. Email: ayako.osawa.d7@tohoku.ac.jp

[¶]Institute of Economic Research, Hitotsubashi University. Email: emiko.usui@r.hit-u.ac.jp

1 Introduction

The representation of women in academia has increased in many countries over recent decades, yet substantial gender disparities remain in academic careers. A growing body of research documents persistent gender gaps in promotion, research productivity, and recognition within universities ([Ginther and Kahn, 2004](#); [Ceci et al., 2014](#); [Sarsons, 2017](#)). These disparities are often linked to differences in the allocation of time across core academic activities such as research, teaching, and administrative service ([Bellas and Toutkoushian, 1999](#); [Link et al., 2008](#)). Understanding the mechanisms behind these differences is therefore important for both higher education policy and the organization of academic work.

In Japan, the underrepresentation of women in academia remains particularly pronounced. According to the White Paper on Gender Equality ([Cabinet Office, Government of Japan, 2022](#)), women accounted for only 17.5 percent of researchers in Japan in 2021, one of the lowest shares among OECD countries. The gender gap is especially large in science and engineering fields, and the proportion of women declines further at higher academic ranks, reflecting a persistent “leaky pipeline” in academic career progression. These patterns have raised concerns about structural factors that may hinder women’s advancement in academic institutions.

One potential mechanism lies in how academics allocate their time across competing professional and family responsibilities. The economic literature has long emphasized time allocation as a key framework for understanding labor supply and productivity ([Juster and Stafford, 1991](#)). In the academic profession, faculty members must divide their time among research, teaching, administrative work, and personal life. Empirical studies show that changes in institutional incentives and career structures can substantially affect how faculty allocate their time across these activities ([Singell et al., 1996](#); [Thursby et al., 2007](#)). These differences in time allocation may, in turn, influence research productivity and career outcomes.

Several studies have examined how faculty members allocate their time across different tasks. Early work finds that faculty time allocation varies systematically across institutions, disciplines, and career stages ([Link et al., 2008](#)). In addition, faculty members face trade-offs between research, teaching, and service activities, and these trade-offs may have important implications for research output and career advancement ([Bellas and Toutkoushian, 1999](#)). Administrative and service responsibilities may also be unevenly distributed across faculty members, potentially affecting the time available for research

activities (Misra et al., 2012).

Gender and family responsibilities may further shape these patterns of time allocation. A number of studies suggest that women in academia often face greater household and caregiving responsibilities, which can influence research productivity and career progression (Fox, 2005; Mayer and Rathmann, 2018). For example, family characteristics such as marital status and the presence of children have been found to affect the allocation of faculty time and research output differently for men and women (Bellas and Toutkoushian, 1999). At the same time, institutional and structural factors may reinforce these differences by shaping expectations about teaching, service work, and caregiving roles (National Academy of Sciences, 2006).

Despite this growing literature, relatively little empirical evidence exists on how gender and parental status jointly influence the allocation of time among academic activities in Japanese universities. Most existing studies focus on research productivity or promotion outcomes, while fewer studies directly examine how faculty members distribute their time across research, teaching, administrative work, and household responsibilities. Understanding these patterns is particularly important in Japan, where women remain underrepresented in academia and where institutional and family structures may shape how academic work is organized.

This study examines how gender and parental status relate to the allocation of time across academic and household activities using detailed survey data from a large-scale Diversity, Equity, and Inclusion (DEI) survey conducted at Tohoku University in fiscal year 2024. The survey, administered between December 2024 and January 2025, collects rich information on faculty members' time allocation across research, teaching, administrative work, and household responsibilities, and covers approximately 13.7 percent of the university's academic staff.

Tohoku University is one of Japan's leading research universities, with strong programs across the sciences, engineering, social sciences, and humanities. As a major national research university with a diverse faculty body and high research performance, it provides a useful setting for examining patterns of academic time allocation within the Japanese context.

By comparing faculty members with and without children across genders, this paper provides new evidence on how family responsibilities shape time allocation patterns within academia. This paper contributes to the literature in two ways. First, it provides new micro-level evidence on how academic staff allocate their time across research, teaching,

administrative work, and household activities in Japan, where such evidence remains limited. Second, it highlights how gender and parenthood jointly shape time allocation patterns, showing that women with children reduce research time while maintaining teaching commitments, whereas men tend to preserve research time.

Our results reveal substantial gender differences in the allocation of time across professional and household activities. In particular, women with children spend significantly less time on research and substantially more time on housework compared with men without children, while teaching hours remain relatively similar. These findings suggest that family-related constraints may influence academic time allocation differently for men and women, potentially contributing to gender disparities in research productivity and academic careers.

2 Data and sample characteristics

This study uses data from a large-scale Diversity, Equity, and Inclusion (DEI) survey conducted at Tohoku University in fiscal year 2024. The survey was conducted through Google Forms from December 16, 2024 to January 30, 2025. The target population consisted of all faculty members and research staff at Tohoku University, including part-time employees, such as professors, associate professors, lecturers, assistant professors, research associates, specially appointed researchers, postdoctoral researchers, and academic researchers. A total of 645 responses were obtained from 4,707 eligible individuals, yielding a response rate of 13.7 percent.

The survey collected detailed information on faculty members' demographic characteristics, family circumstances, and daily time allocation across research, teaching, administrative work, and household activities. These data allow us to examine gender differences in academic work patterns and work–family balance among university researchers. The survey collected detailed information on faculty members' demographic characteristics, family circumstances, and daily time allocation across research, teaching, administrative work, and household activities. These data allow us to examine gender differences in academic work patterns and work–family balance among university researchers.

The original survey collected 645 responses. After excluding observations with missing demographic information, the baseline sample consists of 573 faculty members, including 394 men and 179 women. Men therefore account for a substantially larger share of the sample. Table 1 reports descriptive statistics for male and female faculty members. The

descriptive statistics show several differences between men and women. First, men are considerably more likely to work in science and engineering fields: 84 percent of male faculty are in these fields, compared with 66 percent of women.

Female faculty members also tend to be younger. Approximately 40 percent of women are in their thirties, whereas the corresponding share among men is 29 percent. Reflecting this age distribution, men are more likely to hold tenured positions: 58 percent of men are tenured compared with 37 percent of women. In addition, the proportion of international scholars is higher among women than among men, at 28 percent and 14 percent respectively.

Differences also appear in family characteristics. Men are more likely to be married, with 77 percent of male faculty reporting being married compared with 67 percent of women. Among married faculty members, 65 percent of men have spouses who are employed, whereas the corresponding figure for women is substantially higher at 94 percent. This pattern suggests that female faculty members are more likely to have partners who are also engaged in paid work, which may reduce the scope for specialization in household labor. Finally, men are also more likely to have children: 62 percent of male faculty have children compared with 50 percent of female faculty.

Overall, these descriptive statistics suggest that male and female researchers differ not only in disciplinary distribution and tenure status but also in marital status and partner employment. These differences provide important context for interpreting subsequent patterns in time allocation and work practices.

Table 2 reports differences in time use and work patterns by gender and parental status. Clear gender differences appear in several dimensions. First, research time is lower among faculty members with children for both men and women. Male researchers without children spend about 5.75 hours per day on research, compared with 5.11 hours among those with children. A similar pattern appears among women, whose research time declines from 4.90 hours to 4.03 hours per day after having children.

Teaching time shows little difference by parental status. Male faculty spend roughly 1.2 to 1.3 hours per day on teaching regardless of whether they have children, while women spend about 1.5 to 1.6 hours. Administrative work occupies a similar amount of time across groups, averaging roughly two to three hours per day, although men with children report slightly more administrative work than those without children.

The largest differences appear in housework. Among men, housework increases from about 1.5 hours per day for those without children to nearly 2 hours for those with children.

Table 1: Characteristics by gender

	Men	Women	
Science and engineering	0.838	0.665	***
Below 30 years old	0.043	0.028	
30–39	0.292	0.402	***
40–49	0.249	0.257	
50–59	0.226	0.240	
Aged 60 and over	0.183	0.039	***
Age not reported	0.008	0.034	**
PhD	0.934	0.938	
Tenured	0.579	0.374	***
Country of origin: Outside Japan	0.137	0.279	***
Married	0.770	0.667	***
Partner is employed	0.649	0.939	***
Has children	0.616	0.500	***
N	394	179	

Notes: Values are proportions. Significance stars indicate two-sample t-tests for differences in means. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

The increase is substantially larger among women: female faculty without children spend about 2 hours per day on housework, whereas those with children spend nearly 4 hours per day.

Weekend work also differs by parental status. Faculty members with children are less likely to work on weekends. For example, the share of male researchers who often work on Saturdays declines from 49 percent among those without children to 34 percent among those with children, while the corresponding figures for women fall from 53 percent to 31 percent. Similar patterns are observed for Sunday work.¹

Finally, reported work–life balance and rest show modest differences. Faculty members with children tend to report slightly higher satisfaction with work–life balance and are somewhat more likely to report getting sufficient rest, particularly among men.

¹Several variables are constructed as dummy indicators. *Often work on Saturdays* and *Often work on Sundays* equal one if respondents report working almost every week or about once every two weeks, and zero otherwise. *Satisfied with work-life balance* and *Getting enough rest* equal one if respondents report “strongly agree” or “agree,” and zero otherwise.

Table 2: Time use and work patterns by gender and parental status

	Men			Women		
	No children	With children		No children	With children	
Research hours	5.75	5.11	**	4.90	4.03	**
Teaching hours	1.24	1.26		1.48	1.63	
Administrative hours	2.20	2.70	**	2.41	2.39	
Housework hours	1.51	1.96	***	2.00	3.93	***
Sleep hours	6.39	6.31		6.57	6.34	
Workdays per week	4.79	4.77		4.66	4.56	
Often work on Saturdays	0.49	0.34	***	0.53	0.31	***
Often work on Sundays	0.32	0.20	***	0.42	0.19	***
Satisfied with work–life balance	0.76	0.81		0.74	0.80	
Getting enough rest	0.58	0.71	**	0.56	0.61	
N	118	195		73	70	

Notes: Values are means. Variables related to hours are reported as mean hours per day. Significance stars indicate differences between faculty members with and without children within each gender group. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

3 Results

To examine how gender and parental status relate to time allocation, we estimate the following OLS specification:

$$Y_i = \alpha + \beta_1 \text{FemaleNoChild}_i + \beta_2 \text{FemaleChild}_i + \beta_3 \text{MaleChild}_i + X_i' \gamma + \varepsilon_i, \quad (1)$$

where Y_i denotes time allocation outcomes, including research hours, teaching hours, administrative hours, housework hours and dummies of often work on Saturdays or Sundays. The key explanatory variables capture gender and parental status, with men without children serving as the reference group. The vector X_i includes controls for field of study, age group, educational attainment, tenure status, and international background.

Table 3 reports the OLS estimates of gender and parental status on time allocation and work patterns, using men without children as the reference group. All regressions control for field of study (science and engineering), age group, PhD attainment, tenure status, and international background. The inclusion of these controls helps account for observable differences in career stage and background characteristics across faculty members.

We begin by examining differences in research time. Women spend less time on research than men, particularly among those with children. Relative to men without children, women with children spend about 1.04 fewer hours per day on research, while women without children spend about 0.58 fewer hours.

Differences in teaching time are relatively small. Men with children spend about

0.28 fewer hours on teaching than men without children, although this difference is only marginally significant. For women with children, teaching hours are nearly unchanged, declining by only 0.02 hours. These results suggest that women with children tend to maintain their teaching commitments while reducing research time.

Differences in administrative work are small and not statistically significant, suggesting that administrative responsibilities are relatively evenly distributed across groups.

The largest gender differences appear in housework. Women with children spend about 2.54 more hours per day on housework than men without children, while men with children increase their housework time by about 0.94 hours. The substantially larger increase among women indicates that the burden of household production remains disproportionately borne by mothers.

Weekend work also differs by parental status. Women with children are 18.6 percentage points less likely to work on Saturdays and 12.4 percentage points less likely to work on Sundays than men without children. Similar patterns are observed for men with children, who are 18.2 percentage points less likely to work on Saturdays and 15.2 percentage points less likely to work on Sundays. These results suggest that researchers with family responsibilities are less likely to work during weekends.

Taken together, these results suggest that parenthood primarily constrains research time through increased household responsibilities, particularly for women.

Table 3: OLS estimates of gender, parenthood, and time allocation

	(1)	(2)	(3)	(4)	(5)	(6)
	Research	Teaching	Administrative	Housework	Work on Saturdays	Work on Sundays
Female, no children	-0.583*	0.022	0.172	0.514**	0.023	0.095
	(0.350)	(0.182)	(0.268)	(0.203)	(0.069)	(0.068)
Female, with children	-1.039***	-0.018	0.064	2.538***	-0.186***	-0.124**
	(0.327)	(0.178)	(0.253)	(0.218)	(0.068)	(0.060)
Male, with children	0.152	-0.275*	0.128	0.944***	-0.182***	-0.152***
	(0.294)	(0.153)	(0.223)	(0.165)	(0.058)	(0.052)
Science and engineering	2.202***	-1.251***	-0.515**	-0.339**	-0.034	0.038
	(0.245)	(0.160)	(0.230)	(0.165)	(0.052)	(0.046)
Tenured	-0.988***	0.835***	0.750***	-0.463**	0.139***	0.103**
	(0.276)	(0.135)	(0.231)	(0.194)	(0.051)	(0.044)
R-squared	0.196	0.266	0.102	0.282	0.055	0.043
N	556	554	556	560	560	560
Dep. mean (men, no children)	5.730	1.236	2.197	1.514	0.493	0.324

Notes: OLS estimates. The reference group is men without children. Standard errors are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

4 Conclusion

This study examines how university researchers allocate their time across research, teaching, administrative work, and household responsibilities using data from a large-scale Diversity, Equity, and Inclusion (DEI) survey conducted at Tohoku University. The results reveal clear gender differences in time allocation. Women spend less time on research and more time on household responsibilities than men, with these differences being particularly pronounced among those with children. In contrast, teaching time remains relatively stable across groups.

The findings suggest that family-related constraints affect the allocation of time differently for men and women. In particular, women with children appear to reduce research time while maintaining teaching commitments, whereas men are more likely to preserve research time. Given the central role of research output in academic evaluation and promotion, these differences may contribute to persistent gender disparities in academic careers.

These results highlight the importance of considering both family constraints and the organization of academic work when addressing gender inequality in academia. Policies aimed at improving gender equality may benefit from facilitating a more balanced distribution of teaching and service responsibilities and providing greater support for researchers with family responsibilities.

This study has several limitations. The analysis is based on data from a single university and relies on self-reported time allocation. Future research could extend this work using multi-institutional or longitudinal data. Despite these limitations, the paper provides new micro-level evidence on academic time allocation in Japan and offers insights into the mechanisms underlying gender disparities in academia.

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