Balancing Work and Care: How Workplace Factors Can Mitigate the Gendered Impacts of Caregiving

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Abstract:

An unanticipated increase in parental caring responsibilities due to a child health shock can require a change in the quantity and type of paid work completed by parents. This study examines the gendered consequences of such a shock, focusing on how workplace characteristics influence these effects. Using Australian population- wide administrative data and a dynamic difference-in-differences approach, we assess changes in parental employment and earnings following a child's cancer diagnosis. Our results reveal that mothers experience substantial and sustained declines in earnings and small declines in employment, while fathers' labour market outcomes remain largely unaffected, exacerbating existing gender disparities. We further examine how workplace factors moderate these impacts, finding that occupations with lower gender wage gaps and firms with less intense work hours mitigate some negative effects on maternal earnings. Greater female representation in mothers' firms, particularly in senior roles, also reduces these declines. These findings underscore the persistent gendered economic penalties of caregiving shocks and highlight the critical role of workplace environments, suggesting a need for supportive policies to promote economic equity amid family adversity.

Keywords: family labor supply dynamics, health shocks, children
JEL codes: J22, I10, J13

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1. Introduction

Balancing caregiving responsibilities with work commitments is a persistent challenge for many parents, particularly mothers, whose careers are often disrupted by increased caregiving demands. These disruptions contribute to broader gender disparities in the labour market, where women face greater challenges in career progression, pay equity, and job stability compared to men (Goldin, 2014; Bertrand, 2020). While research has extensively documented the labour market penalties following childbirth (e.g., Lundborg et al., 2017; Kleven et al., 2019), the effects of caregiving shocks that occur later in childhood are less understood. These shocks—often triggered by sudden and severe child health issues—can lead to substantial adjustments in labour supply and income (Eriksen et al., 2021; Breivik & Costa-Ramón, 2023; Vaalavuo et al., 2023).

Household labour supply models suggest that caregiving roles are assigned based on relative skills, preferences, and opportunity costs (Becker, 1981). However, social norms frequently dictate that mothers take on a greater share of caregiving duties, irrespective of these economic factors (Price and Wasserman, 2023). This imbalance can result in reduced work hours or labour market exit for mothers, negatively affecting their long-term earnings and career progression. Workplace conditions can either enable or constrain labour supply by shaping how well mothers can balance work and caregiving demands. Supportive workplaces may offer flexible work arrangements, paid caregiving leave, or culturally normalise caregiving responsibilities, allowing mothers to maintain labour force participation during caregiving shocks (Cortes & Pan, 2018). In contrast, workplaces with rigid schedules, limited leave options, or punitive responses to absences can further restrict mothers' ability to remain employed.

This paper investigates how workplace factors shape the magnitude of maternal employment and earnings effects following a child's cancer diagnosis, a sudden and significant increase in caregiving responsibilities. Specifically, we focus on three factors: the gender wage gap, long working hours, and female representation at different seniority levels. These factors have been identified in the literature as important for women's career advancement, either enabling or constraining their ability to balance work and caregiving (Goldin, 2014; Goldin and Katz, 2016; Kleven et al., 2019). Our analysis examines these factors at the firm, occupation, and industry levels to capture both immediate workplace dynamics and broader professional norms and constraints. This multi-level approach allows us to identify whether localised workplace

conditions or wider systemic factors have a greater impact on maternal labour market outcomes following caregiving shocks.

We use linked administrative data from tax, welfare, and health records, covering nearly the entire population of parents in Australia. An advantage of this dataset is the inclusion of matched employer-employee identifiers, enabling the measures of workplace characteristics at the firm, occupation, and industry levels, and allowing us to explore the impact of workplace factors on labour outcomes following caregiving shocks. Our analysis employs a dynamic difference-in-differences model with individual fixed effects, comparing labour market outcomes of mothers and fathers whose children are diagnosed with cancer to those whose children will experience a similar diagnosis at a later time. This approach isolates the causal impact of caregiving shocks on labour outcomes, while event study estimates trace their dynamics over time.

Our analysis finds a significant drop in maternal earnings following a child's cancer diagnosis, with no comparable effect observed for fathers. Mothers' earnings are reduced by X% two years after the onset of treatment, and the decline persists over time, with earnings still X% lower after X years. This persistence is clear even as caregiving intensity, measured by healthcare service use, decreases over time. This indicates that caregiving responsibilities exert long-term pressure on mothers' economic outcomes, consistent with prior findings on the labour market penalties of caregiving shocks (Breivik & Costa-Ramón, 2023; Eriksen et al., 2021).

Workplace characteristics appear to shape the magnitude of these effects. Among the three factors considered, a smaller gender wage gap at the occupation level significantly buffers against earnings declines, reducing the negative effect by X%. Similarly, less intense work hours at the firm level alleviate some earnings losses, suggesting that flexible work arrangements or reduced work intensity help mothers manage caregiving and work. Finally, female representation in the workplace has a mitigating effect when concentrated at senior levels, as indicated by a higher percentage of women in the top quintile of earners.

In addition to the earnings effects, we find smaller impacts on employment. Mothers are more likely to leave employment following caregiving shocks, but the primary driver of reduced earnings is a reduction in work hours rather than outright job exit. This aligns with theories of labour market adaptation, where mothers adjust work hours to accommodate caregiving demands (Goldin, 2014). Notably, the observed effects are not attributable to mental health

declines, as measured by therapy services and mental health medication usage, suggesting that earnings reductions stem directly from increased caregiving demands.

Our findings contribute to the understanding of the economic impacts of caregiving shocks, particularly those involving children's health, which have received less attention compared to adult health shocks. Prior studies have documented significant reductions in maternal earnings and employment resulting from increased caregiving responsibilities, which reinforce gender disparities in labour market outcomes (Eriksen et al., 2021; Breivik & Costa-Ramón, 2023; Vaalavuo et al., 2023). This existing literature has mainly focused on the overall impacts of caregiving shocks and the heterogeneity of impacts by individual and family characteristics, such as age, education, and relative income. However, less attention has been given to how specific workplace conditions shape these outcomes or how broader occupational or industry-level factors may play a role. By exploring workplace factors, this study provides new insights into how workplace environments, beyond individual or family characteristics, influence maternal labour market outcomes.

In addition to advancing the literature on the economic impacts of caregiving shocks, this study contributes to several broader fields. First, it adds to research on gender inequality in the labour market by showing how unexpected caregiving demands exacerbate existing gender gaps, building on prior work documenting the persistent child penalty in women's earnings and career trajectories (see review by Cortes & Pan, 2018). Second, it connects to research on the spillover effects of health shocks, which generally focuses on adult health events and household economics (e.g., García-Gómez et al., 2013; Anand et al., 2022; Wen & Huang, 2024). Lastly, it offers insights into the adequacy of insurance and welfare provisions during health crises and adverse events (e.g., Dobkin et al., 2018; Fadlon & Nielsen, 2021), suggesting that existing support mechanisms may not fully compensate for the long-term economic burden of health shocks.

2. Data

2.1. Overview of Main Data Sources

Our study uses data from the Australian Bureau of Statistics' (ABS) Person Level Integrated Data Asset (PLIDA), a longitudinal database that links administrative records from various government departments and national agencies. PLIDA covers the entire Australian resident population, allowing us to track individuals' employment, income, healthcare usage, and

demographic characteristics over time. Importantly, the dataset includes employer identifiers, enabling the construction of workplace characteristics at the firm level.

To identify caregiving shocks, we focus on parents whose children received a new cancer diagnosis, marked by the initiation of chemotherapy treatment recorded in Medicare Pharmaceutical Benefits Scheme (PBS) data.[4] Chemotherapy is commonly administered immediately following a cancer diagnosis, making it a reliable, time-consistent marker for the onset of treatment. This is especially relevant for typical childhood cancers, such as acute lymphoid leukaemia, astrocytoma, and neuroblastoma. In addition to identifying child cancer cases, Medicare data allow us to track changes in caregiving intensity over time through healthcare service use. Variations in general practitioner visits, specialist consultations, and prescription medications provide a proxy for the fluctuating demands of caregiving throughout the child's treatment and recovery. We also use data on parental mental health-related service use, including psychological therapy sessions and prescriptions for antidepressants and anxiolytic medications, to examine potential associations between child cancer occurrence and mental health outcomes.

Economic and employment data primarily come from Australian Taxation Office (ATO) records, which provide information on employment, business, investment, and other income sources from 2005 to 2022, for each Australian financial year (July 1 to June 30). Employment-related income, including salary, wages, commissions, and bonuses, is reported directly by employers to the ATO, minimizing errors related to self-reporting. Employment status is inferred annually based on the presence of earnings, with individuals classified as employed if they have positive earnings in a given year. Additional occupation, industry, and work hour data from the 2011 Census supplement the ATO data, enabling construction of workplace characteristics at the occupation and industry levels.

Our final estimation sample includes 5854 families with children who began chemotherapy treatment between 2012 and 2023, where parents were employed two years prior to their child's treatment initiation. This employment restriction reflects our focus on assessing the labour market impact of caregiving shocks among working parents. Additionally, we limit our

[4] Medicare is Australia's publicly funded universal healthcare system. Through the Medicare Benefits Schedule (MBS), the government subsidises various medical services, with patients covering any charges above the schedule fee. Medicare also supports access to prescription medicines under the Pharmaceutical Benefits Scheme (PBS), with patients paying a capped co-payment (currently up to $30 for general patients and $6.80 for concession cardholders). Out-of-pocket costs for those with high annual medical or prescription expenses are further reduced through the Medicare safety net scheme.

analysis to children residing with their parents between 3 and 18 years of age and exclude families with more than one child diagnosed with cancer during the observation period. The distribution of ages at chemotherapy initiation (see Appendix Figure AX) shows an average child age of 13 years. Additional descriptive statistics are provided in Appendix Table A1, showing that 46% of children are female, the average ages of mothers and fathers are 46 and 47 years, and pre-diagnosis average earnings are $39298 for mothers and $78601 for fathers[5].

2.2. Gender-related workplace variables

To examine the influence of workplace conditions on parental labour outcomes following a caregiving shock, we focus on three key moderating variables: the gender wage gap, work hour intensity, and female representation across earnings tiers. The first two variables are constructed at the firm, occupation, and industry levels, while the third variable is constructed at only the firm level.

For the gender wage gap, we use ATO earnings data to calculate the difference between average male and weighted average female earnings at each individual's firm, occupation, and industry in their 'baseline' year, defined as two years prior to the child's chemotherapy treatment. Firms are identified by unique employer identifiers from the ATO, while occupations and industries are classified according to 3-digit codes in the Australian and New Zealand Standard Classification of Occupations (ANZSCO) and Australian and New Zealand Industry Classifications (ANZSIC), respectively, as recorded in the 2011 Census. Each firm, occupation, and industry are then categorised as having an above- or below-median gender wage gap.

Using average weekly hours data from the 2011 Census, we assess whether environments with lower work hour intensity offer greater flexibility and help mitigate workplace penalties associated with increased caregiving demands. For each level, we calculate median weekly hours worked by all employees and categorise parents based on whether their firm, occupation and industry have above- or below-median average work hours.

At the firm level, we examine female representation across three distinct income groups to capture how the distribution of women across different earning tiers might influence workplace support for caregiving. Specifically, we calculate the percentage of women within three earnings brackets: the bottom 50% of earners, the middle 50–80% range, and the top 20%

[5] The incomes reported throughout the paper are CPI adjusted to 2012 income year based on adjustment rates available from https://www.ato.gov.au/tax-rates-and-codes/consumer-price-index

of earners, based on total annual earnings reported to the ATO. This approach is motivated by the idea that women's representation at different earnings levels may shape workplace policies and culture in distinct ways. A high percentage of women in senior roles (i.e., top 20% of earners) could facilitate female-friendly policies and flexibility due to the influence of women in decision-making positions. Alternatively, workplaces with a strong female presence in the core workforce (i.e., bottom 50% of earners) may adopt policies that reflect the needs of this majority demographic, regardless of the gender composition of leadership. To ensure stable estimates of representation across income tiers, only firms with at least 10 employees are included in this measure.

3. Methods

Our empirical approach leverages a later treated dynamic difference-in-differences (DiD) framework to estimate the causal impact of a child cancer shock on parental labour market outcomes. The approach follows those used in Fadlon & Nielsen (2019, 2021), and compares changes in outcomes for parents whose children experience a cancer diagnosis (the treatment group) with those for parents of children who will experience a similar diagnosis in a future period (the control group).

Childhood cancer is generally considered a rare event, with many cases arising from random genetic mutations or cellular changes that occur early in life, often without clear environmental or behavioural causes. However, there are risk factors that may vary across families, such as inherited genetic mutations or certain rare medical conditions that increase cancer risk. By comparing pre- and post-shock outcomes for treated parents relative to control parents, we are able to control for confounding factors that could potentially influence the likelihood of childhood cancer and associated parental outcomes.

The treatment group is composed of those parents with children starting cancer Chemoterapy treatment in 2012 to 2017 (inclusive). The control group comprised of those families with children Chemotherapy treatments starting in 2018 to 2023 (inclusive)[6]. For the control group we assign a placebo treatment time, 6 years prior to their actual treatment start time.

Formally, we estimate the following equation separately by parental gender:

[6] Since the financial year in Australia begins on 1 July and ends on 30 June each calendar year, and our main outcomes of interested were income. We have adjusted the treatment years to reflect this calendar as well.

$$Y_{it} = \sum_{r=-2}^{5} \delta_r I_r + \sum_{r=-2}^{5} \theta_r I_{ir} C_i + X_{it}\beta + \gamma_t + \pi_i + \varepsilon_{it} \quad (1)$$

where Y_{it} represents the outcome of interest for parent *i* at time *t*. Outcomes include annual income, employment status, and use of mental health services. The indicators variables I_r capture years relative to the child's diagnosis, with r = 0 indicating the year of treatment initiation. These time indicators interact with the treatment group variable C_i, which is equal to one for individuals in the treatment group and zero for those in the control group. The coefficients on the interaction terms θ_r then estimate the differential effect of the caregiving shock for each year relative to diagnosis, illustrating how the impacts evolve over time.

The model also includes a set of time varying individual control variables, denoted by X_{it}, representing age dummies, and dummies for years since birth of last child. Year fixed effects γ_t control for common economic conditions and policy changes that might affect all individuals in a given year. Individual fixed effects π_i are also included to account for time-invariant, unobserved characteristics specific to each parent, such as innate work preferences or fixed family characteristics.

The key identifying assumption underlying our DiD framework is that, in the absence of the caregiving shock, the outcomes for the treatment and control groups would have followed parallel trends. By focusing on a narrowly defined and relatively random health event, we aimed to minimise endogenous variation in the timing and occurrence of caregiving demands across families. To validate this assumption, Figure 1 presents estimates from regressions of pre-cancer characteristics on the treatment indicator, as defined above. These estimates reveal no significant differences between the treatment and control groups in terms of A, B, C, D, and E. Additionally, in Section X, we further validate the common trends assumption by examining pre-treatment period estimates. These indicate no significant differences in earnings and employment outcomes between the treatment and control groups prior to the childhood cancer shock.

To examine the heterogeneity in relation to workplace characteristics, we employed an interaction-based estimation approach to test for the statistical significance of such differences. To simplify the interpretation of results, we redefined the relative time variable into a binary "post" variable that captures the effects for the period covering years 0 to 2 (3 years) relative to years -4 to -2 (3 years).

Our heterogeneity analysis model is structured as follows:

$$Y_{it} = Post_{it} + Post_{it} * C_i + Post_{it} * C_i * W_{i,t=-2} + X_{it}\beta + \gamma_t + \pi_i + \varepsilon_{it} \quad (2)$$

where $Post_{it}$ is a binary variable that equals 0 for periods prior to the child diagnosis and 1 for years after. $W_{i,t=-2}$ stands for the workplace characteristics measured at the base year (-2). Rest are as indicated in equation 1 earlier.

To show the dynamic effect of workplace characterises over time, we also illustrate these impacts using the equation below:

$$Y_{it} = \sum_{r=-2}^{5} \delta_r I_r + \sum_{r=-2}^{5} \theta_r I_{ir} C_i + \sum_{r=-2}^{5} \theta_r I_{ir} C_i * W_{i,t=-2} + X_{it}\beta + \gamma_t + \pi_i + \varepsilon_{it} \quad (3)$$

That is akin to re-estimating equation 1 with an additional full interaction of workplace characteristics of interest and the relative times and treatment effect.

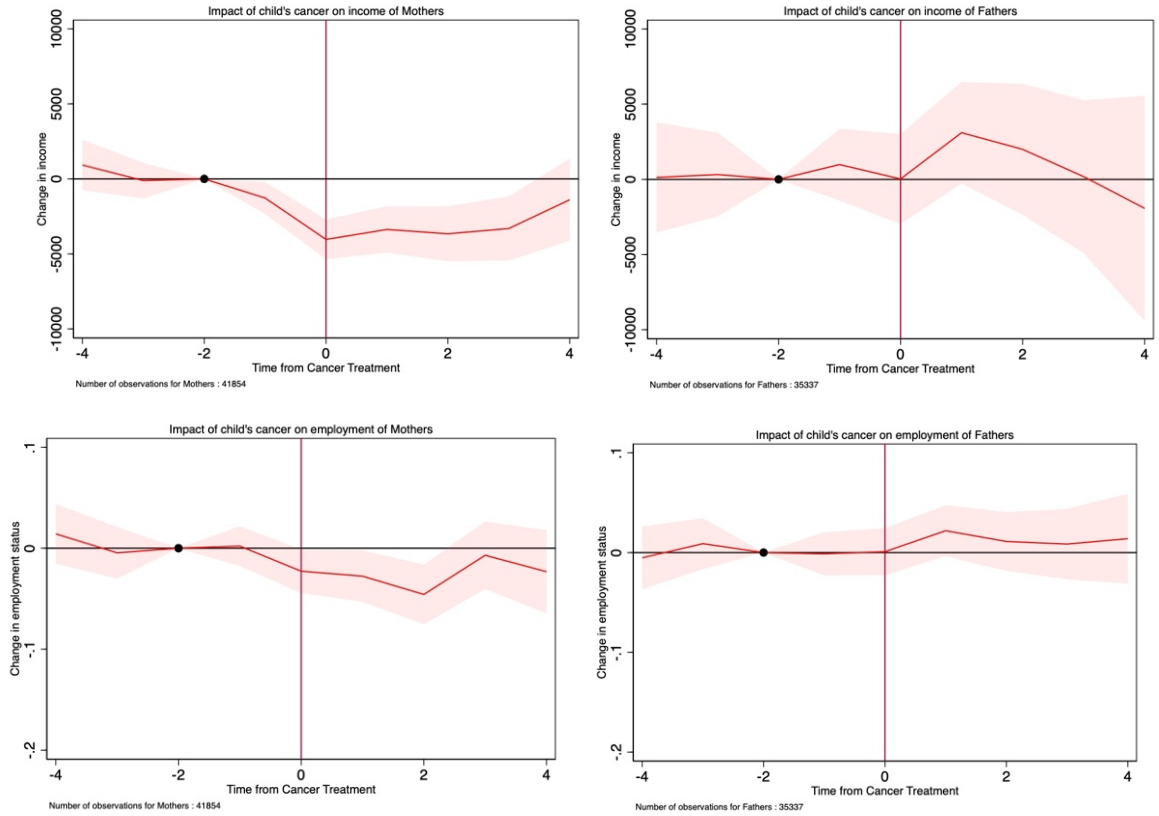
4. Results

4.1. Main effects on parental earnings, employment and job changes

Estimates of equation (1) are presented in Figure 1, which contains six event study graphs depicting the impact of the caregiving shock on annual earnings, employment, and job changes. Each graph covers nine time points, from four years before to five years after the shock. Results are disaggregated by parent gender, with mothers' outcomes displayed in the left column (graphs a, c, and e) and fathers' outcomes in the right column (graphs b, d, and f). The baseline year for comparison is year -2, when workplace characteristics are measured, and all parents in the sample are employed.

The caregiving shock has a pronounced effect on mothers' labour market outcomes, with substantial reductions in earnings evident in graph (a) of Figure 1. Maternal earnings decline by approximately 8% in year 0, reflecting the initial onset of caregiving responsibilities. These losses peak in years 1 and 2, with earnings decreasing by approximately 10% relative to baseline levels. Although earnings begin to recover from year 3 onward, they remain 3% below baseline in year 5 and are not statistically significant, suggesting only a partial recovery even five years post-shock.

Figure 1: Impact of child cancer treatment on maternal annual earnings



Notably, the sustained earnings reductions occur even as caregiving intensity diminishes. Appendix Figure A1 illustrates that health-related caregiving, measured by Medicare service use, peaks in year 1 and declines significantly by year 3. The continued earnings losses could reflect permanent scarring effects on career trajectories, such as stalled promotions or foregone skill development. Alternatively, ongoing caregiving needs, even if less intense, may continue to limit mothers' ability to fully reengage in the labour market.

Employment effects, shown in graph (c), follow a similar trajectory as earnings but are relatively smaller in magnitude. Employment declines by 5 percentage points in year 1, reflecting some mothers' exit from the labour force. However, the overall reduction in employment levels is modest compared to the earnings losses, which suggests that the majority of mothers remained in the workforce but reduced their hours worked or shifted to less demanding roles, rather than exiting the workforce entirely.

The results in Graph (e) for job changes, measured by the likelihood of staying with the pre-shock employer, supports this interpretation. The effects are small and not statistically significant in most years, suggesting that mothers with caregiving shocks were only marginally more likely to change jobs than their control counterparts. This lack of job mobility may reflect

limited availability of flexible or accommodating roles in the labour market or constraints on mothers' ability to search for new jobs due to caregiving demands.

In stark contrast to mothers, fathers experience negligible changes in earnings, employment, and job transitions. Graphs (b), (d) and (f) reveal flat trajectories, with no statistically significant differences between pre- and post-shock outcomes. These results align with theories of intra-household specialisation, where fathers tend to maintain their primary earner role during family shocks while caregiving responsibilities disproportionately fall to mothers.

The consistency of pre-shock coefficients across all graphs provides strong support for the parallel trends assumption. Estimates for years -4 and -3 are small, close to zero, and not statistically significant, indicating that treatment and control groups followed similar trajectories prior to the cancer diagnosis. Additionally, the absence of pre-trends suggests minimal anticipatory effects, aligning with the unpredictable and sudden nature of childhood cancer.

Appendix Figure A2 presents event study estimates for mothers' and fathers' use of psychological therapy services and prescription medications for mental health conditions, such as antidepressants, anxiolytics, and sedatives. Across all four graphs, the estimates are small, statistically insignificant, and stable over time, indicating that the cancer shock did not lead to increased use of mental health services by either parent. These findings strengthen the interpretation that the observed reductions in mothers' earnings and employment are primarily driven by caregiving responsibilities, rather than by maternal mental health declines.

4.2. Variation in effects by workplace factors

The previous section established that childhood cancer shocks significantly affect maternal earnings, with no comparable impacts observed for fathers. We now examine how workplace characteristics influence the magnitude of these effects, focusing on three key factors: gender pay gaps, work hour intensity, and female representation across income tiers. These factors are motivated by their potential to shape caregiving-related labour market adjustments. Narrow gender pay gaps may signal more equitable and flexible workplace environments, low work hour intensity may facilitate caregiving alongside employment, and greater female representation in senior roles may foster policies that support caregiving responsibilities.

4.2.1 Gender pay gap

Table 1 presents estimated effects of interactions between the cancer shock indicator variable and indicators of an above- or below-mean gender pay gap at the firm, occupation, and industry levels (separately in columns 1–3 and jointly in column 4). These interactions test whether work environments with varying levels of gender equity mitigate or exacerbate the labour market impacts of caregiving shocks. Column (3) shows that the interaction between caregiving shocks and the gender pay gap at the occupation level is statistically significant, with a point estimate of -3268.996 ($p < 0.05$). This result implies that mothers working in occupations with above-mean gender pay gaps (equalling on average $9000) experience additional earnings losses following a caregiving shock (-2965 -3268.996). In contrast, there are no significant interactions observed at the firm or industry levels. These conclusions hold true in Column 4, where only the gender pay gap measure at the occupation level remains statistically significant.

	Income							
Treatment effect	-3406.982	***	-4345.480	***	-2965.839	***	-3585.205	***
	(806.841)		(837.203)		(690.635)		(994.123)	
Gender pay gap at firm	-535.211						69.151	
	(1219.047)						(1134.547)	
Gender pay gap at industry			1047.711				1445.507	
			(1154.395)				(1146.910)	
Gender pay gap at occupation					-3268.996	*	-3566.507	**
					(1743.787)		(1697.276)	
R-squared	0.03		0.03		0.03		0.03	
Number of observations	24243		24868		24868		24182	

Table 1- Interaction of gender pay gap at mothers workplace at the base year (t=-2) with the treatment effect.
*** p<.01, ** p<.05, * p<.1

One explanation for the prominence of occupational-level effects is that occupations define the day-to-day nature of work—such as job tasks, required skills, and work arrangements—that influence how feasible it is for caregiving responsibilities to be balanced with employment. Occupations that can practically incorporate part-time roles and flexible schedules are more likely to attract female employees and foster norms that accommodate caregiving, resulting in narrower gender pay gaps. At the firm level, however, such flexibility may be less consistent across roles, as firms often house a range of occupations with differing norms and arrangements. Industry-level measures, on the other hand, may be too broad to capture specific dynamics that directly impact caregiving responses.

Another, complementary explanation is that occupational-level gender pay gaps may reflect the relative power of women to shape workplace norms and policies. In female-dominated

occupations, such as nursing, women often hold significant representation and influence, supported by unions and collective bargaining efforts. This representation can translate into workplace conditions that actively support caregiving, such as paid leave or flexible schedules. In contrast, at the firm or industry level, gender pay gaps may be shaped by broader structural inequities. For example, a hospital may have a pro-male pay gap at the firm level due to the dominance of male doctors and executives, despite caregiving-friendly conditions for nurses. Similarly, the healthcare industry may exhibit a pro-male pay gap because of its leadership composition, masking the more equitable dynamics within specific female-dominated occupations.

The findings for fathers, presented in the bottom panel of Table 1, show no significant interactions at any level of workplace gender pay gap. This result aligns with earlier findings that caregiving shocks have little to no impact on fathers' earnings, employment, or job changes. These results also suggest that for fathers, even those working in caregiving-friendly occupations (e.g., nursing), labour supply and earnings remain unaffected. This underscores that for men, workplace conditions are unlikely to be a primary barrier to caregiving adjustments. Instead, other factors, such as social norms or intra-household bargaining dynamics, may play a stronger role in limiting fathers' caregiving responses.

4.2.2 Work hour intensity

Table 2 presents estimates of interactions between the cancer shock indicator variable and indicators of above- or below-mean work hour intensity at the firm, occupation, and industry levels. These interactions test whether caregiving-related earnings penalties vary across workplace environments with differing average work hour demands. Column (4) highlights that mothers in environments with below-average work hour intensity experience significantly smaller earnings penalties following caregiving shocks compared to those in high-intensity workplaces. For example, the main treatment effect in Column (4) suggests that in below-average work hour environments, caregiving shocks result in a modest earnings loss of $-2137.586, while mothers in high-intensity environments experience much larger losses, as indicated by significant interaction terms for firm-level (-2607) and occupation-level (-2464) work hour intensity. Consistent with earlier findings, the bottom panel of Table 2 shows no significant interaction effects for fathers at any level of work hour intensity.

These results can be explained by the fact that occupations with lower work hour intensity are more likely to include part-time or task-based roles, which enable mothers to adjust their

schedules without exiting the labour market entirely. This flexibility minimizes earnings losses compared to 'greedy' occupations, which reward long or specific hours worked and penalize deviations from these norms. Similarly, firms with lower work hour intensity may foster a culture that accommodates caregiving needs by de-emphasizing long hours or rigid time commitments. However, the lack of significant results at the industry level suggests that broad industry-wide measures fail to capture these nuanced dynamics, as industries encompass a wide range of roles with varying expectations of work intensity.

	Income							
Treatment effect	-2137.586	***	-2261.166	***	-3740.178	***	-1400.176	
	(771.565)		(806.607)		(779.350)		(893.416)	
Hours at firm	-3024.456	***					-2607.445	**
	(1141.882)						(1162.407)	
Hours at occupation			-2816.069	**			-2464.728	**
			(1155.596)				(1179.233)	
Hours at industry					-43.418		1389.325	
					(1411.219)		(1552.336)	
R-squared	0.02		0.03		0.03		0.03	
Number of observations	23938		24468		24493		23688	

Table 2- Interaction of average hours at mothers workplace at the base year (t=-2) with the treatment effect. *** p<.01, ** p<.05, * p<.1

These findings also contribute to the broader understanding of "greedy jobs" and their implications for gendered labour market outcomes. Greedy jobs are characterized by disproportionate returns to additional work hours and rigid scheduling demands. These roles often impose significant barriers for mothers facing caregiving shocks, as they lack the flexibility required to manage competing responsibilities. Conversely, flexible jobs—those that allow workers to adjust their hours without severe penalties—provide a crucial pathway for mothers to remain employed, albeit often at reduced earnings levels.

4.2.3 Female representation

Table 3 presents estimates of interactions between the cancer shock indicator variable and measures of female representation across different income tiers within the workplace. These measures capture the proportion of women in the top 20% of earners, the middle 50–80% tier, and the bottom 0–50% tier. By examining representation across these levels, we can differentiate the effects of female leadership from broader workplace dynamics shaped by women in the core workforce. This approach addresses a potential limitation of prior studies, which focus solely on representation in management and may overlook the importance of gender composition at lower levels of the organisational hierarchy.

Column (4) of Table 3 shows that higher representation of women in the top 20% of earners is associated with a significantly smaller earnings penalty for mothers following caregiving shocks, with an interaction term of $X ($p < 0.01$). This suggests that female leadership at the highest levels plays a critical role in mitigating caregiving-related earnings losses, potentially by fostering policies and workplace norms that accommodate caregiving needs. Interestingly, there is no significant effect observed for representation in the middle or bottom tiers, indicating that the mitigating effect of female representation is concentrated at the upper levels of the organisational hierarchy.

	Income			
Treatment effect	-8609.275 ***	-5468.210 ***	-5512.467 ***	-8261.156 ***
	(1062.991)	(1767.002)	(1324.073)	(1496.756)
Female at top 20%	7146.615 ***			7469.085 ***
	(1196.641)			(1199.425)
Female at 50-80%		1894.773		-610.287
		(1828.601)		(2989.450)
Female at below 50%			1834.794	254.815
			(1411.448)	(2773.825)
R-squared	0.03	0.02	0.02	0.03
Number of observations	25917	25715	25715	25715

Table 3- Interaction of female composition (percentage of female being above 50% at levels indicated) at mothers workplace at the base year (t=-2) with the treatment effect. *** p<.01, ** p<.05, * p<.1

The likely explanation for this result is that women in leadership positions are better positioned to advocate for and implement caregiving-supportive policies. By contrast, representation in lower tiers, while potentially indicative of a caregiving-friendly workforce, may lack the influence necessary to shape organisational policies. Additionally, workplaces with high representation of women in leadership roles may signal a culture of equity and inclusion that benefits mothers navigating caregiving shocks.

The bottom panel of Table 3 shows no significant interaction effects for fathers across any level of female representation. This reinforces the earlier findings that caregiving shocks have minimal impacts on fathers' labour market outcomes, irrespective of workplace characteristics.

5. Conclusion

This study examines how workplace characteristics influence the labour market outcomes of mothers facing caregiving shocks triggered by a child's cancer diagnosis. Our findings reveal

significant, persistent declines in maternal earnings, with reductions driven primarily by adjustments in work hours rather than employment exits. These effects are largely absent for fathers, underscoring the gendered nature of caregiving responsibilities. Among the workplace factors considered, a smaller gender wage gap, less intense work hours, and greater female representation in senior roles mitigate the negative earnings effects, suggesting that workplace flexibility and representation can play critical roles in supporting maternal labour supply during caregiving crises.

These results contribute to several strands of literature. First, they deepen our understanding of gender disparities in the labour market by demonstrating how workplace environments shape the economic consequences of caregiving shocks. Second, they highlight the economic spillovers of health shocks within households, extending existing research that has primarily focused on adult health events. Finally, our findings have implications for policy, suggesting that workplace-level interventions, such as promoting wage equality, reducing work intensity, and fostering female leadership, can help buffer the long-term economic impacts of caregiving shocks.

Future research should explore the interplay between workplace conditions and public policy supports, such as caregiving leave or subsidised childcare, to identify complementary strategies for reducing the economic burden of caregiving. Moreover, as caregiving responsibilities extend beyond maternal experiences, examining the broader implications for household dynamics and long-term career trajectories remains an important avenue for study. By addressing these questions, researchers and policymakers can better understand and mitigate the labour market penalties associated with caregiving shocks, fostering greater gender equity and economic resilience.

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Appendix:

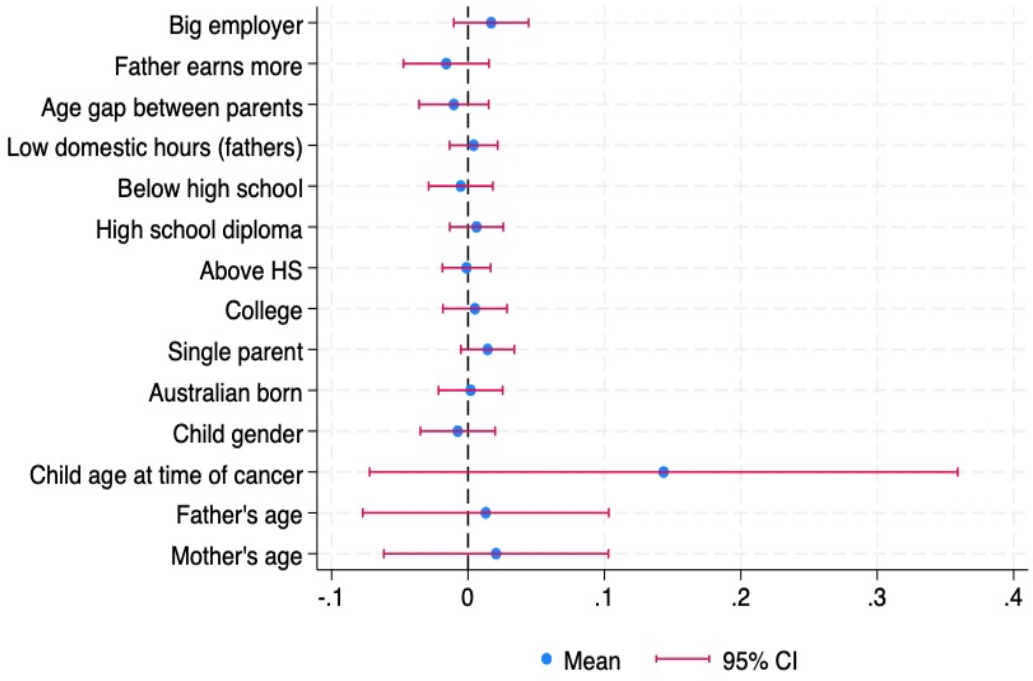


Figure 1A- Regressing treatment on the key variables used in the estimations at the base year.

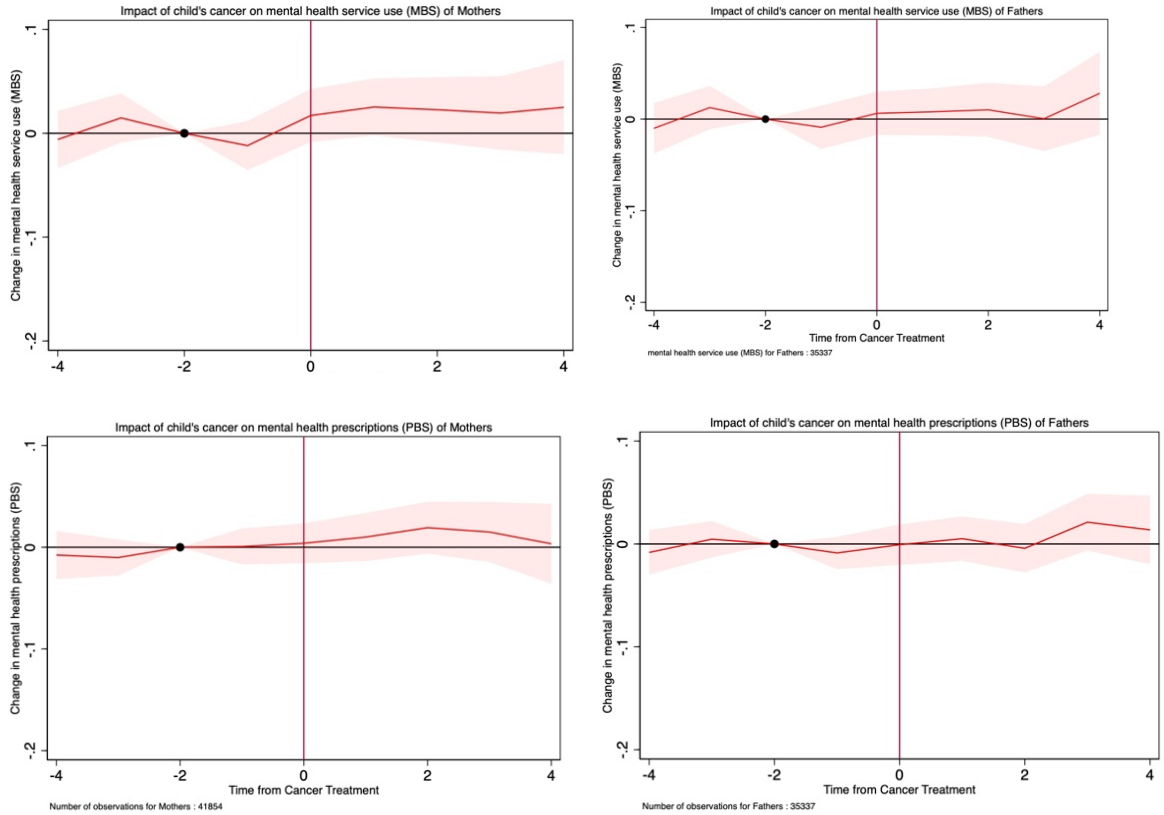


Figure 2A: Mental health care use of mothers and fathers following child's cancer diagnosi

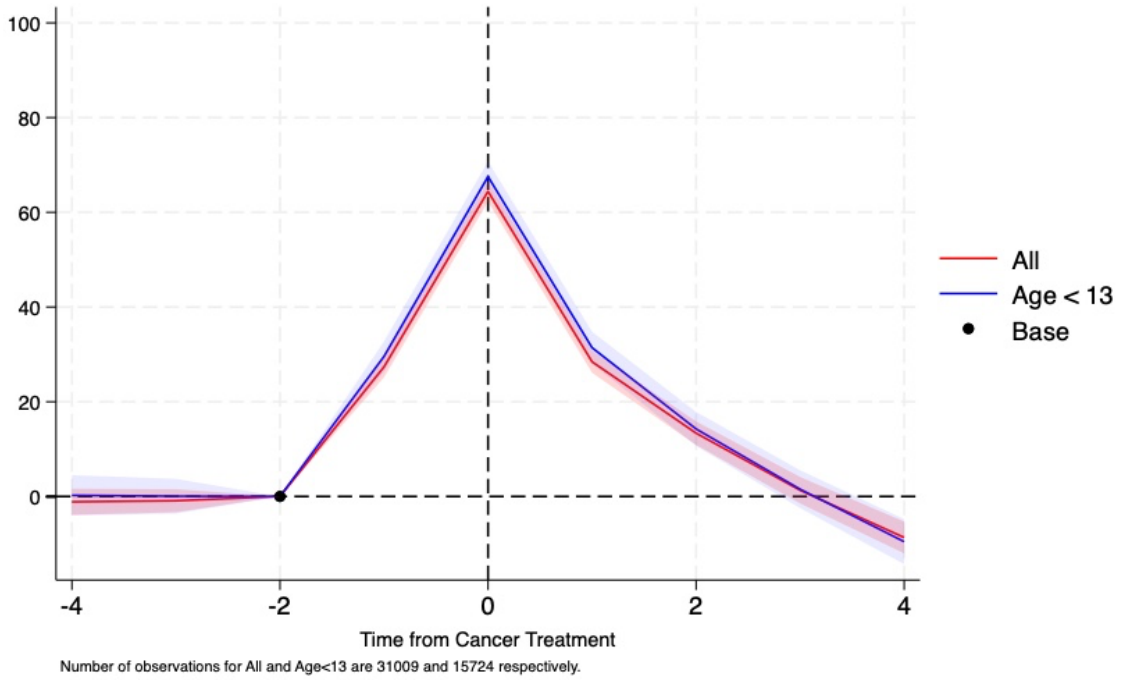


Figure 1A: Impact of childhood cancer on number of our of hospital health care visits