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The Double Gap: Disability and Intra-Household Dynamics in Parental Employment

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Abstract

The intensity of caregiving demands can significantly influence household labor allocation decisions. We use administrative data from Chile to exploit quasi-experimental variation between having a child with a disability versus having one without a disability, in order to explore how increased caregiving needs, often associated with disability, may affect parental labor market outcomes. While prior research has documented child penalties, our approach aims to identify the potential role of caregiving intensity by comparing families with similar childbearing experiences but differing levels of caregiving needs. We find a significant gender gap associated with childbirth, which becomes substantially larger in the presence of childhood disability: four years after childbirth, having a child with a disability increases the gender gap in employment from 10% to 30%, and the wage gap from 41% to 61%. Childhood disability leads to increased parental specialization, creating intra-gender disparities: mothers of children with disabilities are 9% less likely to be employed than mothers of children without disabilities, while fathers of children with disabilities work 10% more than other fathers. These effects are strongest for mothers who are economically vulnerable or have weak prior labor market attachment. However, they are also substantial among mothers who were the main earners before childbirth, suggesting that even those with stronger labor market positions are not protected from the consequences of intensive care. As a result, despite the increase in paternal labor supply, total household income decreases. These findings highlight the urgent need for comprehensive caregiving policies, particularly targeted support for families raising children with disabilities.

Keywords child disability · gender gap · caregiving · labor supply · Latin America

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1 Introduction

Chile has a sizable gender wage gap, with men earning approximately 12% more than women in full-time employment, a figure comparable to the OECD average but larger than in several other Latin American countries, including Argentina, Brazil, and Colombia. The gender disparity is also evident in Chile's employment rates, as nearly 20% fewer women are employed, compared to men.[1]

One factor contributing to these gaps is the caregiving responsibilities for children with disabilities (CwD). According to the National Disability Service (SENADIS), 5.8% of children in Chile have a disability, corresponding to 230,000 children, although this figure may underestimate the true prevalence (Martínez and Vial 2023).[2] Caring for CwD can involve greater demands on parents' time and higher financial costs (Anderson at al. 2007; GAO 2024; McCann et al. 2012; Stabile and Allin 2012). Becker's theoretical model of household production (Becker 1965) predicts that parents in such situations may reduce their labor supply to provide more care (substitution effect) but may also increase it in response to financial pressures (income effect). If fathers are the main earners, this dynamic may lead to greater parental specialization, where fathers focus on paid work while mothers take on extra caregiving responsibilities.

In this paper, we study how intensive caregiving demands affect intra-household labor allocation and gender gaps in employment outcomes. Specifically, among first-time parents we examine whether having a child with a disability, compared to having a child without a disability, leads to increased household specialization, with mothers reducing their labor force participation while fathers increase theirs. We also investigate how these effects vary across different family characteristics and whether the resulting specialization offsets the income losses from reduced maternal employment.

To answer this question, we exploit quasi-experimental variation between having a child without a disability versus having a child with a disability, to explore how increased caregiving needs may affect parental labor market outcomes. While extensive research documents how childbirth affects gender gaps, our approach uniquely identifies the specific role of caregiving intensity by comparing families with similar childbearing experiences but different care demands, moving beyond traditional parent versus non-parent comparisons. Our identification strategy provides cleaner estimates of how care responsibilities shape gender gaps by focusing on variation in caregiving intensity within families with children. We analyze how

[1] The gap is even more pronounced when considering measures by the International Labor Organization (ILO), which considers educational levels, participation in public sector jobs versus private sector jobs, and both part-time and full-time workers.

[2] Martínez and Vial (2023) highlight a significant underestimation in disability prevalence by comparing data from the National Disability Registry (where registration is optional) to data collected through household surveys, suggesting that official figures may not fully capture the prevalence of disabilities.

having a child with a disability affects parental employment trajectories, wages, job formality, and household labor income, examining both gender differences and intra-gender comparisons.

Our findings reveal substantial gender gaps that become wider in families facing greater caregiving needs. Four years after childbirth, we find that among parents of children without disabilities, the gender gaps in employment and wages are 10.1% and 40.5%, respectively. These gaps are even larger for parents of CwD, reaching 29.9% in employment and 61.3% in wages. Notable gender disparities also emerge in job composition: mothers are less likely to hold a formal job after giving birth, with the gaps in formality and job stability being more pronounced among parents of CwD.

The results also point to stronger household specialization in families with children with disabilities. Relative to mothers of children without disabilities, mothers of CwD are 9% less likely to be employed four years after childbirth, while fathers of CwD work 10% more than fathers of children without disabilities. These patterns suggest that mothers take on greater caregiving responsibilities while fathers increase their labor supply, often in formal employment, potentially to secure benefits.

We further examine how outcomes differ by parents' pre-birth characteristics, considering both household context and labor-market position. While these factors matter for all parents, the penalties are systematically deeper and more persistent when a child has a disability. Socioeconomic vulnerability, such as registration in the social registry used to target social policies, not being the main earner, or lacking tertiary education consistently amplifies the caregiving penalty. In contrast, markers of labor-market strength—- tertiary education, primary-earner status, or strong pre-birth attachment—- provide some short-run protection but do not shield mothers from long-term employment losses when the child has a disability. Among parents of children without disabilities, however, these same characteristics frequently facilitate substantial recovery by year four. This contrast suggests that disability-related caregiving needs can override economic incentives, driving households toward more traditional intra-household specialization, even when mothers were initially the primary providers. Importantly, this specialization strategy does not fully offset income losses, as families with a CwD experience a marked decline in total earnings compared to those with children without disabilities.

Substantial research from developed countries has illustrated the labor market effects of having a child for women (Kleven et al. 2019a, b; Kuziemko et al. 2018). Specifically, Kleven et al. (2019) documents long-run penalties of 21−26% for Denmark and Sweden, 31−44% for the United Kingdom and United States, and 51−61% for Germany and Austria. The literature for developing countries is scarcer, but there are some recent studies for Latin America. Berniell, Berniell et al. (2021) find a long-term loss of 22% in employment, 4% in hours, and 28% in earnings for mothers in Chile. In a more recent study of Chile, Uruguay, Mexico, and Peru, Berniell et al. (2023) find that employment loss for mothers is between 17−20% in all four countries, and they also document shifts in women's employment towards self-employment and informal jobs.

Other studies specifically address how having CwD affects households. Most of the early empirical literature focused on maternal outcomes, finding that children's disabilities are strongly negatively correlated with their mothers' labor outcomes

(Frijters et al. 2009; Powers 2003; Salkever 1982; Wasi et al. 2012; Zhu 2016). More recent papers use longitudinal and administrative data, employing event analysis methodologies to estimate the causal effect of childhood disability on parental labor market trajectories and household well-being. For example, using Danish data, Gunnsteinsson and Steingrimsdottir (2019) find that the birth of a child with a disability has a strong, permanent, and increasing effect on the earnings of mothers, with an earnings penalty of 13% even 11-15 years after childbirth. The penalty on fathers' earnings is smaller (3%) but persistent over time. For Norway, Wondemu et al. (2022) also find that having a child with a disability adversely affects the labor outcomes of mothers, with more severe conditions triggering worse outcomes.[3]

This paper contributes to the existing literature by moving beyond traditional comparisons of parents versus non-parents to examine variation in caregiving needs among families with children. By exploiting quasi-experimental variation between having a child with versus without a disability, we provide cleaner identification of how intensive caregiving needs affect household labor allocation. Our findings highlight that households adapt to having CwD by adjusting their joint labor supply, but this specialization strategy does not fully offset income losses. The results emphasize the relevance of gender roles in determining parents' labor market outcomes and provide new evidence on how intensive caregiving demands reshape intra-household dynamics. Importantly, our study examines these dynamics in a developing country context, as most existing literature has focused on high-income countries with comprehensive welfare states. Using administrative data from Chile, a Latin American country with a modest welfare state, we capture both formal and informal employment patterns and provide evidence on how intensive caregiving demands affect families where policy support is limited, highlighting the urgent need for comprehensive caregiving policies in developing countries.

The rest of the article is organized as follows. Section 2 describes the data, then Section 3 outlines the empirical strategy and the event-study design. Section 4 presents the results, first documenting traditional gender gaps due to motherhood in subsection 4.1, and then examining in subsection 4.2 how child disabilities widen these gaps and create intra-gender disparities for women. The section concludes with heterogeneity analyses and robustness checks in subsections 4.3 and 4.4. Finally, Section 5 discusses limitations, summarizes the results, and offers concluding remarks.

2 Data

Sources. We use administrative data obtained from the *Registro de Información Social* (RIS, Social Information Registry), provided by the Chilean *Subsecretaría de Evaluación Social* (Undersecretary of Social Evaluation). The data spans the period from 2013 to 2018. Specific data sources are reported in Table A.1.

We construct a yearly worker-level panel using data from the Unemployment Insurance Administration (*Administradora de Fondos de Cesantía*, AFC) and from

[3] Children's disabilities can also disrupt family dynamics, influencing fertility decisions and sibling outcomes, particularly in education (Black et al. 2020; Breining 2014; Eriksen et al. 2023).

the Pension Administrators (*Administradoras de Fondos de Pensiones*, AFP). The AFC data covers employment in the private sector while the AFP data includes both private and public sector employment information. Additionally, we obtain information on informal employment from the Ministry of Social Development and Family (*Ministerio de Desarrollo Social y Familia*, MDSF), specifically from the two social registries in force during 2013-2018, the *Ficha de Protección Social* (FPS) and the *Registro Social de Hogares* (RSH)[4], which are used to target social policies. These datasets allow us to compute workers' yearly wages and determine whether their jobs are formal or informal.

Finally, we use data from the National Disability Registry (*Registro Nacional de Discapacidad*, RND) from the Civil Registry, which provides the registration date and type of disability (physical, mental, or sensory). The registry was established in 1994, and our data access agreement includes records up to 2022.[5] We classify a child as having a disability if he or she was registered within four years of birth.

Childbirth events. Using maternal data, we identified the birth events of 579,356 first-born children without disabilities and 5,445 children with disabilities between 2013 and 2018. This ensures observation of at least four years after birth, providing a consistent follow-up period across all cohorts[6]. The figures are 575,859 and 5,429, respectively, for data from fathers. Based on our criteria, this suggests that CwD account for around 0.9% of all births (see Table A.2)[7]. Considering that we use employment data up to 2018, for the last cohort born in 2018, we only have labor data for 1 year post-birth.

Outcomes. Outcome and demographic variables are presented in Table A.3 and the data sources for each variable are detailed in Table A.1. Employment status is determined using data from the Unemployment Insurance Fund (AFC), Pension Fund Administrators (AFP), and the Household Social Registry (RSH). Our primary sources are the AFC and AFP datasets; when data from these sources are unavailable, we rely on the RSH. 64% of mothers and 58% of fathers in the sample were registered in the RSH before childbirth. Employment is defined as a binary variable, taking the value of 1 if the individual was employed for at least one month in the corresponding year.

We also differentiate between individuals holding formal and informal jobs. Formal employment is identified using AFC and AFP data, while informal employment is inferred from FPS and RSH records for individuals who report labor income but are not present in the AFC or AFP datasets. It is important to note that informal employment may be underreported, as RSH data rely on self-reported

[4] The RSH replaced the Social Protection Form (Ficha de Protección Social or FPS) in 2016. Individuals with a valid FPS at the end of 2015 were automatically transferred to the new registry. For brevity, we refer to both systems as "RSH."

[5] Law Number 19.284 created the *Registro Nacional de la Discapacidad*. The initial registration standards were based on conditions or impairments (visual, auditory, speech, physical, mental, and psychological). In 2012, Decree 47 modified these standards to align with the ICF (International Classification of Functioning, Disability, and Health), shifting the focus toward individual capabilities, as promoted by the WHO.

[6] With RND records available until 2022, restricting births to 2018 ensures a full four-year disability identification window.

[7] Births show a notable decrease over time, reflecting a broader long-term trend of declining birth rates in Chile.

information, unlike the AFC and AFP records, which are more reliable due to their administrative nature.

We also compute total annual wages, as well as wages from formal employment, using information from the AFC, AFP, FPS, and RSH datasets. To isolate wage effects from employment effects, we present wage outcomes conditional on being employed. Finally, we compute combined parental outcomes. In this case, the unit of analysis is the mother-father pair, were we calculate their combined labor earnings.

Heterogeneities. We capture heterogeneity across several parental characteristics computed the year before childbirth[8].

First, we define partnered parents as those who are either formally married or report having a domestic partner in the year prior to childbirth. Formal marriage is relatively uncommon in Chile, and strategic reporting of partnership status may occur in the Social Household Registry (RSH), since benefits can be more generous for single parents.

Second, we consider the presence of other non-elder adults in the household (i.e., younger than 65 years old) besides the partner. This dimension captures household composition effects that can influence caregiving demands and labor market responses.

Third, the Social Household Registry (RSH) subgroup includes parents registered in the RSH in the year prior to childbirth. As we explain above, the RSH is the official social registry used for social benefits targeting in Chile. Individuals in this subgroup are more likely to belong to lower-income strata and to receive social benefits, which may lead to systematically different labor market outcomes compared to the general population.

Fourth, we split parents according by whether they hold a tertiary degree. Educational attainment is an important predictor of earning capacity and labor market resilience in the face of caregiving demands.

Fifth, we identify the main income earners as parents whose individual earnings exceed half of the couple's combined earnings in the year before childbirth. This measure captures the main economic contributor within the household.

Finally, we assess labor market attachment, defined as having worked in at least two of the three years preceding childbirth. This measure distinguishes parents with stable employment histories from those with more sporadic labor force participation.

Rectangularization. To construct a balanced parent-year panel, we fill in gaps in the periods where a worker's information is missing from either the formal or informal employment data. Specifically, for years without observed employment, we impute zeros for employment.

Table A.4 displays the share of imputed observations for both mothers and fathers, separating those with CwD and CwoD. The data span from 2013 to 2018, and we document the proportion of missing labor market information that was filled in for each year. [9]

[8] Note that some heterogeneities are computed only for the RSH subsample: (i) partner status, (ii) presence of other non-elder adults in the household, and (iii) main earner status. This restriction arises because detailed household composition information is available only in the RSH registry and not in other administrative datasets.

[9] For mothers of children with disabilities, the share of imputed observations starts at 25% in 2013 and has a similar figure in 2018. Mothers of children without disabilities have a share of 27% in 2013 but a share of 24% in 2018. For fathers, the shares are lower. Fathers of children with disabilities have an imputation share starting at 19% in 2013, which decreases to 11% by 2018. Fathers of children without disabilities start at 22% in 2013 and end at 13% by 2018.

2.1 Descriptive statistics

In Table 1, we present descriptive statistics for a baseline period defined as one year before childbirth. The table compares data for parents of children with and without disabilities, structured across four columns: (1) mothers of children with disabilities, (2) mothers of children without disabilities, (3) fathers of children with disabilities, and (4) fathers of children without disabilities.

In the demographics panel, mothers of children with disabilities (CwD) average 26.2 years at childbirth compared to 25.0 for mothers of children without disabilities (CwoD), while fathers average 28.1 and 27.2 years, respectively. Thus, fathers are generally older than mothers, and parents of CwD are systematically older than parents of CwoD.[10] The share of married or partnered parents is fairly similar across groups–34.2% vs. 31.6% among mothers and 35.9% vs. 33.3% among fathers. Tertiary education levels are nearly identical: 31.9% of CwD mothers and 21.5% of CwD fathers hold a tertiary degree, compared to 32.2% and 23.5% among mothers and fathers of CwoD, respectively.

Labor market characteristics show somewhat higher baseline employment among parents of CwD: 68.4% of mothers and 79.5% of fathers were employed before childbirth, compared to 62.3% and 76.2% for their CwoD counterparts. Baseline employment rates are higher for fathers than for mothers in both groups. Conditional on employment, the likelihood of holding a formal job is very similar across groups, ranging from 92.8 −94.3%. By contrast, average annual wages are higher for parents of CwoD than for parents of CwD, and for fathers relative to mothers. Fathers of CwoD and CwD earn USD 6.3 and 5.8 thousand, respectively, while mothers earn USD 5.5 and 5.0 thousand.

Table 2 reports baseline employment rates measured one year before childbirth for six binary characteristics: has partner, other adults in the household, registration in the Social Household Registry (RSH), tertiary education, main-earner status, and high pre-birth labor-market attachment. Columns 1-4 present, in order, mothers of children with disabilities, mothers of children without disabilities, fathers of children with disabilities, and fathers of children without disabilities. Each row gives the employment rate for the "Yes" and "No" categories.

Mothers who later have a CwD show higher employment rates across most categories, including those with tertiary education (83.3% vs. 79.1% for mothers of children without disabilities), high parental attachment (94.2% vs. 93.6%), and those in nuclear households (75.5% vs. 59.6%). However, mothers registered with the RSH work slightly less. Fathers of CwD also show higher employment, with smaller but notable gaps. For example, we see 85.8% vs. 82.6% for those with tertiary education and 90.5% vs. 81.5% for those in nuclear households. For fathers, RSH membership correlates with higher employment. The gender gap in employment is notable for parents of CwoD, with fathers consistently working more (e.g., 83.0% vs. 71.6% for partnered parents). This gap widens for parents of CwD, where fathers continue to

[10] Figure A.1 presents the full age distribution of parents at the time of birth. Two patterns stand out: mothers are consistently younger than fathers (Panels I vs. II), and parents of CwD are on average older than parents of CwoD (Subpanels A vs. B).

Table 1 Baseline characteristics

	Mothers		Fathers	
	Children with disabilities	Children without disabilities	Children with disabilities	Children without disabilities
	(1)	(2)	(3)	(4)
Demographics				
Age	26.2	25.0	28.1	27.2
Labor market				
Employment	68.4	62.3	79.5	76.2
Likelihood of formal job	92.8	94.2	93.9	94.3
Annual wage	5.0	5.5	5.8	6.3
Heterogeneities				
Has partner	34.2	31.6	35.9	33.3
Other adults in household	73.7	80.2	76.3	82.4
Social household registry	68.7	63.9	61.0	57.9
Has tertiary degree	31.9	32.2	21.5	23.5
Main earner	30.0	26.9	70.0	73.1
High labor attachment	48.0	41.0	61.9	56.1
Number of individuals	5,445	579,356	5,429	575,859

Descriptive statistics compiled one year before childbirth. Columns (1) and (2) show the outcomes of mothers, while Columns (3) and (4) show the outcomes of fathers. Columns (1) and (3) show the outcomes of parents of children with disabilities; Columns (2) and (4) show the outcomes of parents of children without disabilities. Employment and likelihood of formal employment are in percentages. Wages and formal job are conditional on being employed. Wages are in thousands of USD

outpace mothers across all characteristics, such as for partnered parents (85.3% for fathers vs. 76.1% for mothers) and those in nuclear households (90.5% vs. 75.5%).

3 Empirical strategy

Following the literature on child penalties, we use an event study approach that exploits the discontinuity that might arise in labor market outcomes for fathers and mothers around the birth of their first child. We define an event as the birth of a couple's first child and examine the differences in outcomes before and after the birth, using a window of 4 years before and 4 years following childbirth. This event study design, applied to both families with children with and without disabilities, allows us to isolate the specific contribution of intensive caregiving demands to gender gaps in labor outcomes.

We use a standard dynamic specification from the literature on child penalties (Kleven et al. 2019a):

$$Y_{ist}^{g,p} = \sum_{j \neq -1} \alpha_j^{g,p} \cdot \mathbb{I}[j = t] + \sum_k \beta_k^{g,p} \cdot \mathbb{I}[k = \text{age}_{is}] + \tau_s + \mu_i + \varepsilon_{ist}^{g,p} \quad (1)$$

The outcome variables are the labor outcomes for parent i, of gender g, in year s, and

Table 2 Employment by group

	Mothers		Fathers	
	Children with disabilities	Children without disabilities	Children with disabilities	Children without disabilities
	(1)	(2)	(3)	(4)
Has partner				
Yes	76.1	71.6	85.3	83.0
No	64.3	58.0	76.2	72.7
Other adults in household				
Yes	64.4	60.7	80.2	77.5
No	75.5	59.6	90.5	81.5
Social household registry				
Yes	67.6	60.7	82.7	78.4
No	70.1	65.2	74.4	73.1
Has tertiary degree				
Yes	83.3	79.1	85.8	82.6
No	61.4	54.3	77.7	74.2
Main earner				
Yes	71.5	64.0	83.3	79.2
No	65.0	60.4	70.5	67.9
High labor attachment				
Yes	94.2	93.6	96.2	95.8
No	44.6	40.6	52.3	51.1

Employment rates one year before childbirth, disaggregated by household and labor characteristics: has a partner, other adults in the household, registered in the Social Household Registry (RSH), tertiary education, main earner status, and high labor attachment. Columns (1) and (2) report outcomes for mothers; Columns (3) and (4) report outcomes for fathers. Columns (1) and (3) correspond to parents of children with disabilities, while Columns (2) and (4) correspond to parents of children without disabilities. Employment is expressed in percentages

the distance to the event t. τ_s and μ_i represent time and individual effects, respectively. $\mathbb{I}[j = t]$ are indicator variables controlling the distance to the event. Following Kleven et al. (2019a), we also include controls for age and year-fixed effects to control for life-cycle trends and economic cycle trends, respectively. All outcomes are measured in levels.

The superscript g indicates gender (mothers or fathers) while the subscript p denotes the type of event: the birth of children with disabilities (CwD) or that of children without disabilities (CwoD). Thus, g, p indexes our four estimation samples: mothers of CwoD, mothers of CwD, fathers of CwoD, and fathers of CwD.

This dynamic specification of a two-way fixed effects (TWFE) model would only allow us to obtain causal estimates for child penalties when the only source of heterogeneity is the time since treatment. However, as Sun and Abraham (2021) show, TWFE regressions can produce estimates with uninterpretable weights when the treatment effects are heterogeneous across cohorts. This could even lead to

apparent pre-trends, even when none exist. In recent years, several authors have proposed alternative estimators that provide robust estimates for causal effects in both static and dynamic settings with staggered treatment timing (Borusyak et al. 2021; Callaway and Sant'Anna 2021; de Chaisemartin and D'Haultfœuille 2022; Sun and Abraham 2021; Wooldridge 2021). In this paper we use the estimator proposed by Callaway and Sant'Anna (2021) and implement the doubly robust difference-in-differences based on Sant'Anna and Zhao (2020). As a robustness check, we replicate the analysis with the interaction-weighted aggregators of de Chaisemartin and D'Haultfœuille (2022) and with the original child-penalty approach of Kleven et al. (2019a). These results are reported in the Appendix.

In the spirit of Kleven et al. (2019a), we calculate normalized gender gaps (the percentage by which women fall behind men due to having children) and intra-gender gaps (the percentage by which parents of CwD fall behind parents of CwoD), as follows:

- Gender gaps: $GP_t^p = (\hat{\alpha}^{\text{Female},p} - \hat{\alpha}^{\text{Male},p})/\overline{Y}B^{\text{Female},p}$
- Intra-gender gaps: $IGPt^g = (\hat{\alpha}^{g,\text{CwD}} - \hat{\alpha}^{g,\text{CwoD}})/\overline{Y}B^{g,\text{CwD}}$
- The normalization is given by $\overline{Y}^G B$, where $\overline{Y}$ is the average outcome for group G at period B, with B set to $t = -1$

Note that the gender penalty captures whether women experienced a larger shock than men after childbirth: the evolution of their outcome (measured by $\hat{\alpha}^{\text{Female},p}$) is compared to that of men ($\hat{\alpha}^{\text{Male},p}$). We then normalize this gap by the average pre-childbirth outcome for women. The $\hat{\alpha}$ coefficients for parents (both women and men) are estimated using not-yet-treated parents as the control group. Thus, negative gender penalties indicate how much more women lose relative to men following childbirth. Normalizing by the average pre-childbirth outcome for women helps quantify the magnitude of the shock.

A similar logic applies to the intra-gender penalty: the evolution of outcomes for parents of CwD, measured by $\hat{\alpha}^{g,\text{CwD}}$, is compared to that of parents of CwoD, measured by $\hat{\alpha}^{g,\text{CwoD}}$. A negative intra-gender penalty indicates how much a mother or father of a CwD loses relative to their counterpart with a CwoD. Again, normalization by the average pre-childbirth outcome for parents of CwD enables us to assess the relative magnitude of the shock. Note also that both gender and intra-gender gaps—- particularly for women —-are expected to be negative.

Within this framework we also examine the six aforementioned sources of heterogeneity: whether the parents are partners (married or living together), whether there are other non-elder adults in the household, whether the household is registered in the RSH,[11] whether the parent holds a tertiary degree, whether the parent is the household's main earner, and whether mothers and fathers were strongly attached to the labor market before their first child's birth. For each subsample defined by these criteria, we present the estimated gender and intra-gender penalties.

Finally, to examine the impact of having a child with disabilities at the parental level, we apply Equation (1) to couples, where a couple is defined as two parents who

[11] Recall that registration and the family score in the RSH (formerly FPS) registry is the mechanism for allocation of social programs. Lower-SES families are almost entirely represented, while families at the top of the income distribution are primarily absent.

have a child together, regardless of their civil status. We then use the same framework as above to compute disability penalties at the parental level, that is, how the combined outcomes of parents of CwD differ from those of parents of CwoD.

4 Results

Our empirical analysis proceeds in two stages to isolate the causal effect of intensive caregiving demands on parental labor outcomes. First, we establish baseline child penalty estimates by examining how childbirth affects gender gaps in employment, job formality, and wages among families with children without disabilities. These results provide the foundation for understanding standard motherhood penalties in our Chilean context and allow comparison with the broader child penalty literature. Second, we exploit the quasi-experimental variation between families with children with and without disabilities to identify how intensive caregiving demands amplify these baseline effects. This two-step approach enables us to separate the general effects of parenthood from the specific impact of caregiving intensity, providing a cleaner identification of how care responsibilities shape household labor allocation and gender inequality.

4.1 Motherhood penalty

We now present the findings from our event study analysis, which examines the dynamic impacts of childbirth on various outcomes over time. This approach allows us to track the trajectories of labor outcomes, such as employment and wages, after childbirth. In this section, we report the results for families who have children without disabilities. As is traditional in the literature, we will first discuss the child penalty by examining the gender gap in labor market outcomes, comparing mothers to fathers.

In the year of childbirth, both mothers and fathers experience a decline in employment: mothers are 9 pp less likely to be employed, while fathers experience a smaller decrease of 1.5 pp. Four years after childbirth, the decline in employment persists for both groups, with mothers and fathers experiencing reductions of 28 pp and 22 pp, respectively, as seen in Columns (2) and (4) of Table A.5. Relative to their pre-event levels, these changes correspond to a 15% decrease for mothers and a 2% decrease for fathers in the year of childbirth. By the fourth year, these declines reach 45% for mothers and 35% for fathers, which is shown in Columns (2) and (4) of Table A.6.

Gender gaps. In Fig. 1 and Column (2) of Table A.7, we show the gender gap, measured as the difference between female and male outcomes and expressed as a percentage of the average female outcome in year t-1 (the year before childbirth).

Panel A of Fig. 1 shows that there is no trend in employment outcomes before childbirth, supporting a causal interpretation of the results. As previously mentioned, the childbirth impact is larger for women, since we observe a sharp increase in the gender employment gap: 12.7% in the year of childbirth, peaking at 16.1% in the second year, and slightly narrowing to 10.1% by the fourth year.

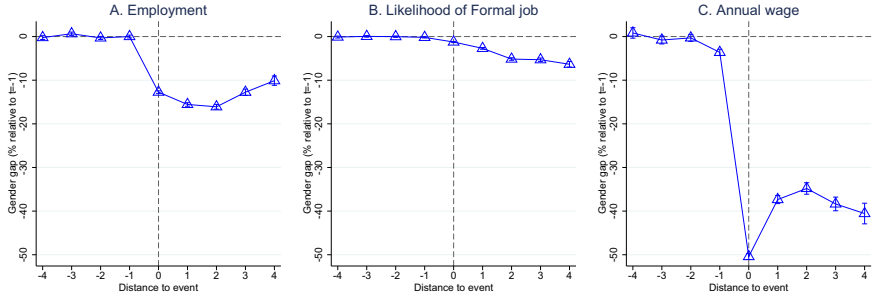

Fig. 1 Gender gap. Result from estimates based on Callaway and Sant'Anna (2021). Normalized gender gaps, calculated as $\text{Gandergap}_t = (\text{D}_t^{\text{Female}} - \text{D}_t^{\text{Male}})/\overline{Y}_B^{\text{Female}}$, where the gap is shown for parents of children without disabilities. The normalization is given by $\overline{Y}_B^G$, where $\overline{Y}$ is the average outcome for group G at period B, with B set to −1. Vertical lines correspond to 5% confidence intervals. Outcomesare: employment (Panel **A**), likelihood of having a formal job (Panel **B**), and annual wages (Panel **C**). Gaps are available in Table A.7, point estimates in Table A.5, and normalized coefficients in Table A.6

Additionally, in Panel B of Fig. 1, we see that among those parents who remain employed, mothers are less likely than fathers to hold formal jobs, indicating a shift towards informal employment. In the year of childbirth, the gender gap in formal employment is 1.2%, widening to 6.3% four years later. This transition to informal employment may help mothers' overall employment rate but at the cost of job security and benefits. These findings are consistent with the hypothesis that informal employment serves as a buffer against employment declines for mothers (Berniell et al. 2023).

Regarding annual wages, Panel C of Fig. 1 shows a sharp 50.4% drop in mothers' wages relative to fathers' wages in the year of childbirth. Although this gap diminishes over time, it is still 39.9% four years post-childbirth. This wage decline exceeds the reductions reported in previous studies, such as Berniell et al. (2023), highlighting that the labor impact of motherhood is relevant in both the intensive and extensive margins (as in wages and employment).

In Fig. 2 we explore how the post-childbirth employment gap differs between our heterogeneities. Panels A to F display results for six dimensions: partnership status, presence of other adults in the household, registration in the Social Household Registry (RSH), tertiary education, main earner status, and pre-birth labor attachment. Each panel compares mothers with (the "Yes" red line) and without (the "No" blue line) the characteristic. The x-axis is years relative to the birth (from − 4 to + 4) and the y-axis shows the normalized gender gap (percent relative to the year before birth).

Having a partner provides some short-run cushioning but no lasting protection. One year after birth, the gender gap is 13.7% for mothers with a partner versus 17.1% for those without; by year four both groups converge to similar levels (about 10.5% and 11.7%, respectively), suggesting that partnership offers short-run cushioning but little divergence in medium-run recovery.

Household composition amplifies disparities. Gender gaps are larger in households with another adult present: one year after childbirth, the gap is 23.8% compared to 11.2% in households without another adult, and by year four it remains substantially larger (22.5% vs 14.1%). This pattern arises because, although both mothers and fathers reduce their employment less in households with another adult

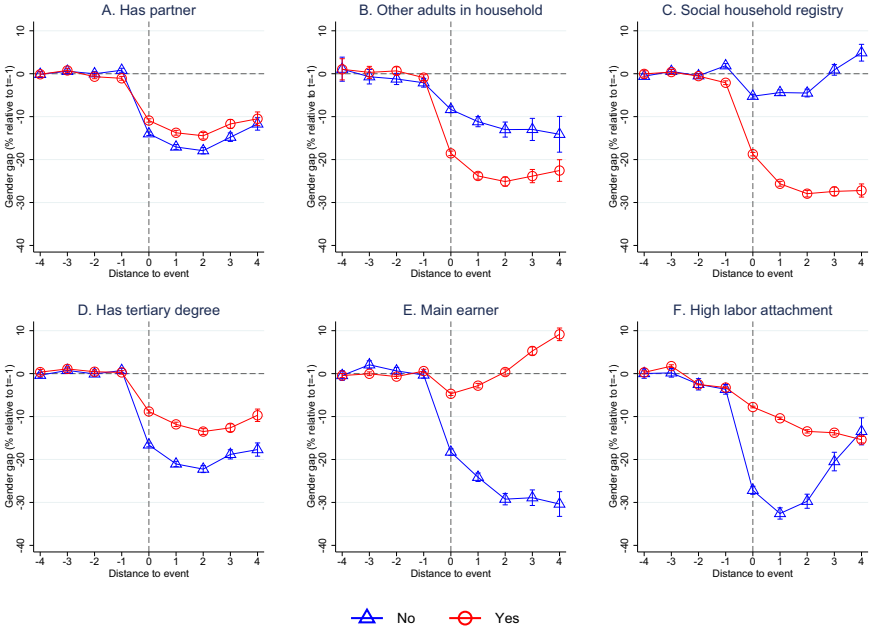

Fig. 2 Heterogeneities in gender gaps in employment among parents of CwoD. Notes: Estimates are based on Callaway and Sant'Anna (2021). Figures show normalized gender gaps in employment for parents of CwoD, calculated as $\text{Gap}_t = (\text{D}_t^{\text{Female}} - \text{D}_t^{\text{Male}})/\overline{Y}_B^{\text{Female}}$, where $\overline{Y}_B^G$ is the average employment of group G in the baseline period $B = -1$. Vertical bars represent 5% confidence intervals. Panels display heterogeneities by household and labor characteristics: has a partner (Panel A), other adults in the household (Panel B), registered in the Social Household Registry (RSH) (Panel C), tertiary education (Panel D), main earner (Panel E), and high labor attachment (Panel F). In each panel, the blue line represents individuals with the characteristic ("Yes"), and the red line represents individuals without the characteristic ("No"). Detailed results are reported in Table A.8, point estimates in Table A.9, and normalized coefficients in Table A.10

(see Tables A.9 and A.10), the reduction is considerably smaller for fathers than for mothers, widening the gender gaps— a pattern that may seem counterintuitive. These findings suggest that while the presence of another adult may ease childcare demands, mothers continue to assume the greater share of responsibility.

Social Household Registry membership proxies socioeconomic vulnerability. One year after childbirth, the gender gap in employment is much larger among registered households (25.6%) compared with a modest gap among non-registered households (4.4%). By year four, the contrast is even sharper: registered households continue to show a wide gap (27.2%), while in non-registered households the gap essentially disappears and even turns slightly positive (4.9%). These patterns highlight that gender gaps are substantially more persistent among registry members, consistent with the greater vulnerability of these households.

Education mitigates the short-run shock. One year after childbirth, the gender gap in employment is smaller among mothers with tertiary education (11.8%) compared to less-educated mothers (21.0%). By year four, the gap for graduates also remains milder (9.7% vs 17.7%). Higher human capital thus provides partial protection against the widening of gender gaps, especially shortly after childbirth.

Being the main income earner also significantly lessens the gender gap. One year after childbirth, main earners experience a gender employment gap of only 3%, compared to 24% for secondary earners. By year four, the difference becomes even more pronounced: main earners exhibit a small positive gap (+9.2%), while non-main earners face a much larger gap of 30.4%. Being the household's primary income source thus appears to buffer immediate caregiving costs and facilitate longer-run labor market recovery.

Pre-birth labor attachment moderates short-run costs but does not alter longer-run convergence. High-attachment mothers face a one-year gap of 10.4% compared with 32.6% for low-attachment mothers; by year four, the gap for high-attachment mothers widens to 15.4%, while the gap for low-attachment mothers shrinks to 13.4%. Strong attachment therefore moderates short-term gender penalties, but in the longer run, both groups converge to similarly persistent gender gaps.

Taken together, these heterogeneities paint a coherent picture: socioeconomic vulnerability (registry membership, not being the main earner, lower education, and weak pre-birth labor attachment) amplifies the caregiving penalty and makes it more persistent, whereas markers of labor-market strength (education, being the main earner, and strong labor attachment) blunt the short-run hit and, in some cases, support partial recovery. The distributional burden of childcare on mothers is therefore shaped not only by childbirth itself but also by their pre-existing labor market position and household circumstances.

4.2 Caregiving intensity penalty

In this section, we exploit the quasi-experimental variation between having children with and without disabilities to isolate the effect of intensive caregiving demands on employment outcomes. First, we compare the gender gap of parents of children with and without disabilities. Second, we compare the intra-gender effects to study the different patterns of fathers and mothers, depending on their children's disability status.

Gender gaps. The blue triangles in Fig. 3 represent the gender gap for mothers of children with disabilities, while the grey circles indicate the gender gap for mothers of children without disabilities. This side-by-side presentation allows us to observe the divergent patterns that emerge in employment, job formality, and wages in the years before and after childbirth, revealing how the presence of a child with a disability may amplify or alter the typical motherhood penalties observed in the labor market.

Panel A of Fig. 3 shows the gender gap in the probability of being employed. Before childbirth, employment outcomes are similar for mothers and fathers, with no discernible trend. Immediately after childbirth, there is a sharp drop in employment for mothers, resulting in a gender employment gap of 20.9% for parents of CwD, compared with 15.6% for parents of CwoD (see Table A.7). Over the following years, the gap for parents of CwD continues to widen, reaching 30% four years after childbirth, whereas for parents of CwoD the gap grows more slowly and remains smaller at 10.1% by year four. Notably, the gender gap for parents of CwoD follows an inverted U-shape, increasing until two years after childbirth

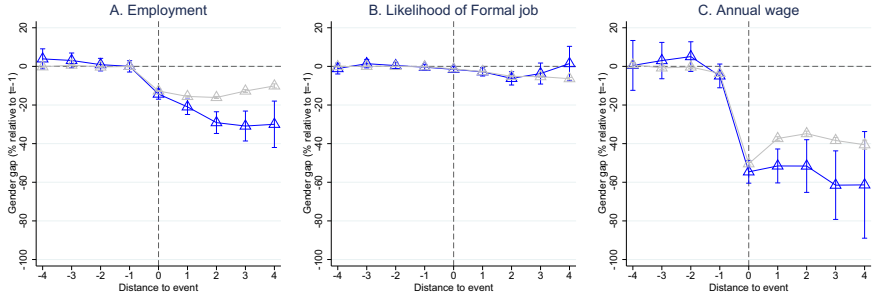

Fig. 3 Gender gap and child disability. Result from estimates based on Callaway and Sant'Anna (2021). Normalized gender gaps, calculated as $\text{Gender gap}_t = (\text{D}_t^{\text{Female}} - \text{D}_t^{\text{Male}})/\overline{Y}_B^{\text{Female}}$, where the gap is shown in blue for parents of children with disabilities. The gray line corresponds tothe gender gap without child disability, plotted in Figure 1. The normalization is given by $\overline{Y}_B^G$, where $\overline{Y}$ is the average of the outcome for group G at period B, with B set to -1. Vertical lines correspond to 5% confidence intervals. Gaps are available in Table A.7, point estimates in Table A.5, and normalized coefficients in Table A.6

before declining, while for parents of CwD it remains elevated throughout the observed period.[12]

Furthermore, like mothers of CwoD, mothers of CwD fall behind men regarding their likelihood of holding a formal job if employed, as seen in Panel B of Fig. 3. The effect for mothers of CwD is stronger, although the gap is not statistically significant in all periods. For example, one year after childbirth, the gender gap is 2.8% for parents of CwD and 2.7% for parents of CwoD, and two years after childbirth it is 6.2% for parents of CwD and 5.1% for parents of CwoD. Overall, these results indicate that gender gaps in the likelihood of holding a formal job are similar for both groups, although for mothers of CwD the estimated gaps are not statistically significant in years three and four.

Finally, the effect on annual wages, conditional on being employed, is presented in Panel C of Fig. 3. Similar to the employment outcomes, we observe that gender wage gaps are more pronounced for parents of CwD. By year 4, these gender gaps are 61.3% for parents of CwD, compared to 40.5% for parents of CwoD.

In general, these results reveal how intensive care demands lead to exacerbated gender inequalities in the labor market, affecting mothers more severely in terms of employment, job stability, and wages. Mothers of CwD encounter a double gap: in addition to reduced employment, those who remain employed are more likely to occupy informal, lower-paid positions.[13]

Intra-gender gaps. In the previous section, we presented different labor market patterns for parents of children with and without disabilities. In this section, we further explore these patterns after childbirth by comparing mothers (fathers) of CwD to those with CwoD. By focusing on differences within mothers and fathers based on their children's disability status, we minimize the confounding gender-specific labor

[12] Table A.5 shows that these gender gaps reflect declines in employment for both mothers and fathers, with the decrease for mothers of CwD being substantially larger.

[13] If, due to greater caregiving demands, parents of children with disabilities are less likely to have another child within four years, then the labor market penalties we observe arise even in the context of potentially smaller families.

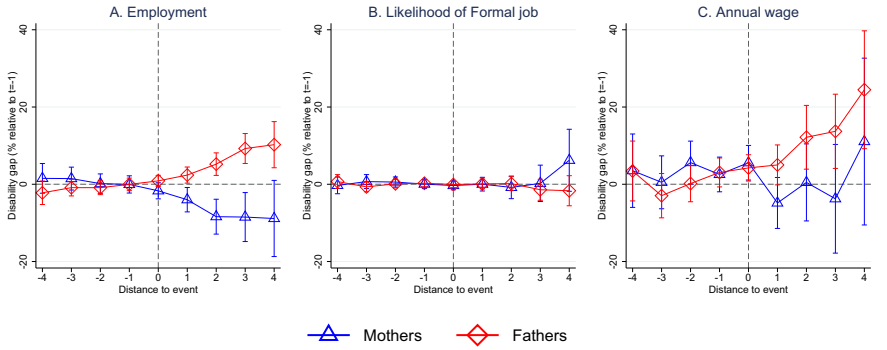

Fig. 4 Intra gender gap. Notes: Result from estimates based on Callaway and Sant'Anna (2021). Normalized intra-gender gaps due to childhood disability are calculated as $\text{Intra} - \text{gender gap}_t = (D_t^{CwD} - D_t^{CwoD})/\overline{Y}_B^{CwD}$, where the gap is shown separately for females (in blue) and males (in red). The normalization is given by $\overline{Y}_B^G$, where $\overline{Y}$ is the average outcome for group G at period B, with B set to -1. Vertical lines correspond to 5% confidence intervals. Outcomes are: employment (Panel A), likelihood of having a formal job (Panel B), and annual wages (Panel C). Gaps are available in Table A.7, point estimates in Table A.5, and normalized coefficients in Table A.6

market dynamics that would arise in direct mother-to-father comparisons. This approach strengthens the causal inference of disability-related penalties in employment, job formality, and wages for parents. Additionally, comparing intra-gender penalties for mothers and fathers allows us to assess the extent to which task specialization arrangements occur within couples.

Figure 4 displays the intra-gender gap for employment, formal employment, and annual wages. The intra-gender gap represents the difference in outcomes for mothers or fathers of children with and without disabilities, as a percentage of the outcomes for parents of children with disabilities, normalized to the year before childbirth.

The patterns of employment are particularly striking. Columns (3) and (4) of Table A.5 show that the decrease in employment for fathers of CwD is smaller than for parents of CwoD, while the converse is true for mothers: the decrease for mothers of CwD is larger than for mothers of CwoD. Consequently, the gender gap is substantially larger for parents of CwD, as shown in the previous section. This gives rise to an employment intra-gender gap of different signs for mothers and fathers. As seen in Panel A of Fig. 4, this gap is minimal immediately after childbirth but widens dramatically thereafter, reaching approximately -8.7% for mothers and $+10.2\%$ for fathers four years after childbirth. This divergent pattern strongly suggests increased household specialization among parents of CwD, with mothers reducing employment to provide care while fathers intensify their labor market participation.

In contrast, Panel B of Fig. 4 shows that the likelihood of having a formal job does not display a substantial intra-gender gap for mothers immediately after childbirth. Over time, however, the gap gradually evolves, with mothers of CwoD experiencing decreased formal employment by year 3. For fathers, the point estimates are mostly positive and significant for fathers of CwD, whereas for fathers of CwoD they are negative at some points. This results in intra-gender gaps of different signs for mothers and fathers, though the magnitudes remain relatively small. The resilience in

formal employment for fathers of CwD may reflect the need to maintain stable health insurance coverage for their children.

The effects on wages, as shown in Panel C of Fig. 4, reveal a striking pattern. For fathers, the intra-gender wage gap increases steadily after childbirth, starting near zero and reaching approximately 24.5% by year 4. For mothers, the gap fluctuates, becomes positive by year 4, but it is mostly nonsignificant. This pattern reflects that, compared to parents of CwoD, mothers of CwD experience smaller wage losses while fathers of CwD register relative wage gains. These results suggest that parents who remain employed while caring for CwD may be more productive or selective about higher-paying positions, possibly to offset the additional costs associated with caring for children with disabilities.

Several patterns emerge from these findings. First, parents of CwD engage in greater work specialization. Although all parents adjust their work participation after childbirth, the adjustments are more pronounced and divergent for parents of CwD, with mothers significantly reducing employment while fathers maintain or increase their labor market attachment. Second, fathers of CwD maintain their formal employment at higher rates than fathers of CwoD, likely to secure stable benefits. Third, in terms of annual wages, substantial intra-gender gaps are observed for both mothers and fathers by year 4, with parents of CwD earning higher wages relative to parents of CwoD after childbirth, potentially reflecting strategic labor market choices to accommodate the additional financial demands of caring for children with disabilities.

4.3 Heterogeneities

This section examines whether the caregiving intensity effects vary by the pre-birth household and labor-market characteristics presented in Section 4.1: whether the mother has a partner, the presence of other adults in the household, whether the household is registered in the Social Household Registry, whether the mother has completed tertiary education, whether she was the main earner prior to childbirth, and whether she exhibited high labor market attachment.

Gender gaps. Figure 5 shows how the employment gender gap for parents of children with disabilities evolves around childbirth, broken down by the six baseline characteristics. This figure mirrors Fig. 2 but for parents of CwD.[14]

Among parents of CwD, partnered and unpartnered mothers suffer similar short-run losses (20.7% vs. 21.1% at one year). By year four, however, partnered mothers recover somewhat (25.8%) while unpartnered mothers fall further behind (34.0%). For partnered and unpartnered mothers of CwoD, the gaps are notably smaller (13.7% vs. 17.1 at one year) and converge to similar levels (10.5 and 11.7%) by year four. Partnership thus plays a more protective role for CwD mothers, in contrast to the near-convergence observed for CwoD.

[14] Panels A-F display the results for six dimensions: partnership status, presence of other adults in the household, registration in the Social Household Registry (RSH), tertiary education, main earner status, and pre-birth labor attachment. Each panel compares mothers with ("Yes" in the red line) and without ("No" in the blue line) the characteristic. The x-axis is years relative to the birth (from − 4 to + 4), and the y-axis shows the normalized gender gap (percent relative to the year before birth).

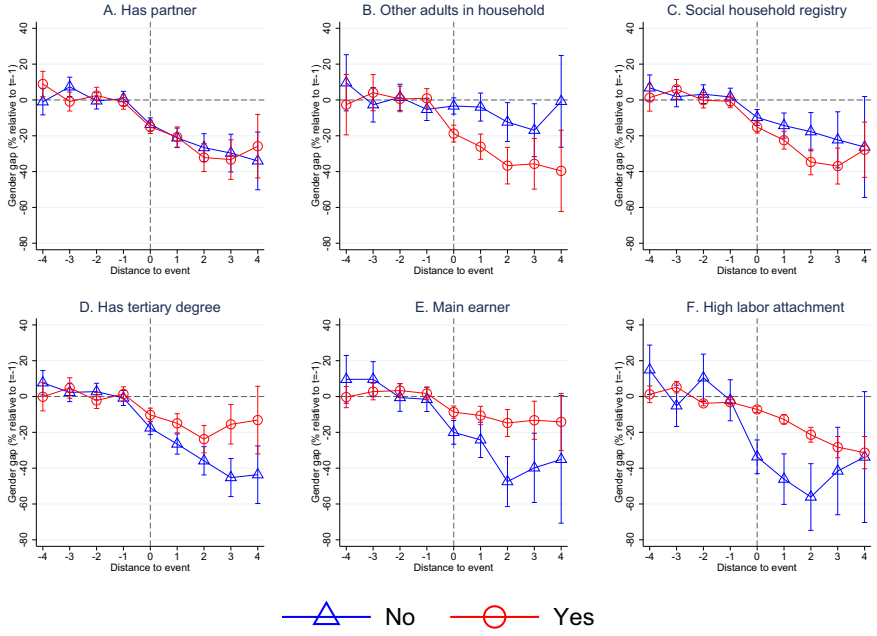

Fig. 5 Heterogeneities in gender gaps in employment among parents of CwD. Estimates are based on Callaway and Sant'Anna (2021). Figures show normalized gender gaps in employment for parents of CwD, calculated as $\text{Gap}_t = (\text{D}_t^{\text{Female}} - \text{D}_t^{\text{Male}})/\overline{Y}_B^{\text{Female}}$, where $\overline{Y}_B^G$ is the average employment of group G in the baseline period $\text{B} = -1$. Vertical bars represent 5% confidence intervals. Panels display heterogeneities by household and labor characteristics: has a partner (Panel A), other adults in the household (Panel B), registered in the Social Household Registry (RSH) (Panel C), tertiary education (Panel D), main earner (Panel E), and high labor attachment (Panel F.). In each panel, the blue line represents individuals with the characteristic ("Yes"), and the red line represents individuals without the characteristic ("No"). Detailed results are reported in Table A.8, point estimates in Table A.9, and normalized coefficients in Table A.10

Living with other adults shapes employment responses differently when a child has a disability. For mothers, by year 4, employment falls sharply in both cases, but somewhat less in nuclear households (39%) than in extended households (42%). For fathers, the contrast is more pronounced: in extended households, employment declines only slightly (8%), whereas in nuclear households it drops substantially (41%) [15]. As a result, the gender employment gap is higher in households with other adults present: 26.1% by year 1 and almost 39.6 by year 4. This mirrors the pattern observed for parents of CwoD, although in that case the gaps were considerably smaller. This provides further evidence that while the presence of another adult may ease some childcare needs, the heightened demands associated with disability ultimately fall disproportionately on mothers, reinforcing their greater responsibility.

Registry membership again signals socioeconomic vulnerability, but with important differences for parents of children with disabilities. Among CwD households, registered families show large and persistent gender gaps (22.5% at one year; 27.8% at four years), very similar to those observed for CwoD households. Strikingly, however, non-registered CwD households also display sizable and persistent

[15] See normalized coefficients in Table A.10.

gaps (14.3% and 26.3%), in sharp contrast with the almost negligible long-run gap among non-registered CwoD families (+4.9% by year four). This suggests that while registry status strongly stratifies outcomes for CwoD, the presence of a disability amplifies caregiving demands to the point that even non-registered households, typically less vulnerable, suffer lasting gender gaps.

Tertiary education strongly cushions mothers of CwD, with gender gaps of 14.9% versus 26.5% at one year and 13.1% versus 43.7% at four years. A similar pattern is observed for CwoD, though with smaller magnitudes: 11.8% vs. 21.0% at one year; 9.7% vs. 17.7% at four years. Overall, these results indicate that higher human capital consistently mitigates the employment shock of childbirth but penalties remain larger for CwD mothers, even among those with tertiary education.

Being the primary earner offers some protection for mothers of CwD, who face smaller penalties than others (10.6% vs. 24.2% at one year; 14.2% vs. 35.1% at four years). For mothers of CwoD, by contrast, the protection is much stronger: main earners see almost no loss initially (2.8%) and by year four enjoy a premium (+ 9.2%), while non-main earners bear large, persistent deficits. In the case of CwD, however, even primary earners continue to suffer meaningful losses, highlighting that heightened caregiving demands can override economic incentives to remain attached to the labor market.

Consistent with this result, previous labor market attachment moderates the short-run penalty for CwD mothers (12.7% vs. 46.1% at one year), but by year four both groups are heavily affected (31.3% vs. −33.8%). For CwoD, in contrast, high attachment not only softens the initial gap (10.4% vs. 32.6%) but also supports partial recovery by year four (15.4% vs. 13.4%). This comparison shows that while attachment provides some protection in both settings, its long-run benefits largely disappear when the child has disabilities, as intensive caregiving demands erode the advantages of prior labor market experience.

Overall, the comparison across figures shows that household context and pre-birth labor-market position matter for all parents, but the penalties are systematically deeper and more persistent when a child has disabilities. Socioeconomic vulnerability (registry membership, co-residence with other adults, not being the main earner) amplifies the already heavy caregiving costs, while markers of labor-market strength (education, primary-earner status, strong attachment) offer some buffer but cannot fully offset the long-run impact. By contrast, for parents of CwoD, these same markers often support substantial recovery by year four.[16]

Intra-gender gaps. Figure 6 displays the employment differences between parents of children with disabilities and those without, separately for mothers and fathers. As we already explained, the intra-gender gap is defined as the employment difference between CwD and CwoD parents, normalized by the pre-birth employment of CwD parents and expressed as a percentage. Positive values imply that CwD parents perform better in the labor market, while negative values indicate worse outcomes. We present intra-gender gaps from one year before and three years after childbirth. Panel I shows the intra-gender for mothers, while Panel II shows the intra-

[16] We also disaggregate results by disability type (physical, sensory, and mental), each representing roughly one-third of cases. Due to the small number of observations, confidence intervals are wide, though the results suggest a larger gap for children with sensory disabilities (see Fig. A.2).

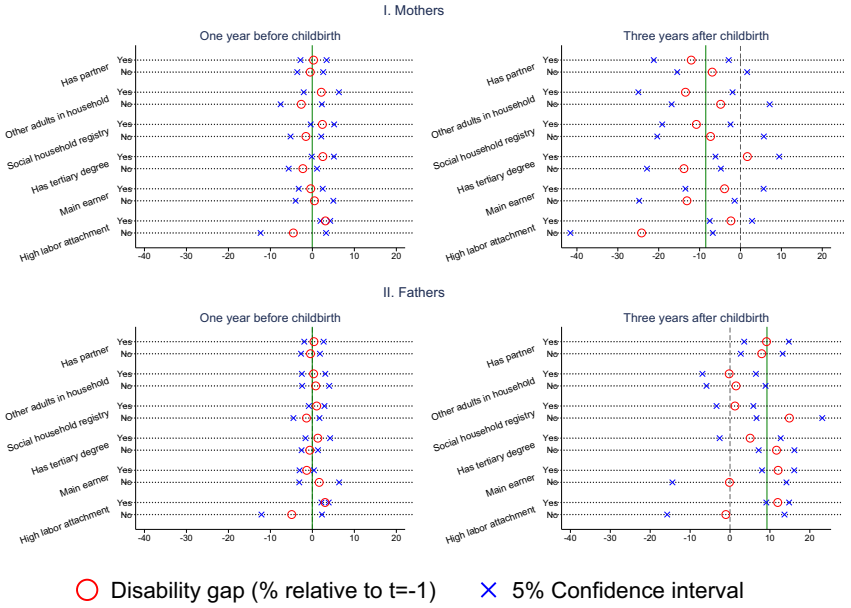

Fig. 6 Heterogeneities in employment intra-gender gaps. Notes: Estimates based on Callaway and Sant'Anna (2021). Figures plot normalized intra-gender gaps in employment due to childhood disability, calculated as $\text{Gap}_t = (\text{D}_t^{\text{CwD}} - \text{D}_t^{\text{CwoD}})/\overline{Y}_B^{\text{CwD}}$, where $\overline{Y}_B^G$ is the average employment of group G at baseline period $B = -1$. Vertical bars correspond to 5% confidence intervals. The results are shown for one year before childbirth (left) and three years after childbirth (right), separately for mothers (Panel I) and fathers (Panel II). The panels report heterogeneities by household and labor characteristics. The solid green line indicates the gap for the full sample. The dashed line at 0 is provided for reference. The point estimates and confidence intervals are reported in the accompanying tables. Gaps are also reported in Table A.8, point estimates in Table A.9, and normalized coefficients in Table A.5

gender gap for fathers. The left-hand panels show baseline intra-gender gaps computed one year before childbirth, and the right-hand panels show after-childbirth intra-gender gaps computed three years after childbirth. The y-axis shows parents with ("Yes") and without ("No") the characteristic. The x-axis shows the normalized intra-gender gaps with a 5% confidence interval.

After childbirth, partnered mothers experience somewhat larger intra-gender gaps than unpartnered mothers (12% vs. 7%), indicating modestly worse outcomes when partnered. By contrast, fathers of CwD fare better than fathers of CwoD, with positive intra-gender gaps that are slightly larger for partnered fathers (about 9%) than for unpartnered fathers (about 8%). The presence of another adult in the household also produces opposite patterns across genders. Mothers co-residing with another adult experience larger intra-gender gaps (around 13%), while those without another adult face only mild ones. Fathers show the reverse: co-residence is linked to moderate positive gaps (4-−5%), whereas fathers without another adult experience small or even negative gaps. This pattern is consistent with intra-household specialization, where mothers, particularly when partnered, take on greater caregiving responsibilities, allowing fathers to sustain or even improve their relative employment outcomes. The presence of another adult in the household reinforces this

specialization: mothers continue to provide care, fathers increase their labor supply, and the additional adult partially substitutes for them in childcare tasks.

Mothers in more vulnerable households, as identified in the Social Household Registry (RSH), experience intra-gender gaps of roughly 8-−11%, very similar to those observed for unregistered mothers. In contrast, differences are more pronounced for fathers: for registered households the intra-gender gap is not statistically different from zero, whereas for unregistered fathers, it turns positive in the longer run, reaching about 15% in year 3 and 17% in year 4. This pattern suggests that for mothers, the absence of vulnerability does not provide protection, while for fathers, vulnerability constrains their ability to increase labor supply.

Education, earner status, and pre-birth labor attachment all reveal the same underlying pattern: characteristics that the labor market tends to reward are associated with much smaller intra-gender gaps for mothers, while individuals in less advantaged positions face very large penalties. Starting with education, mothers with a tertiary education show almost no extra penalty from disability, whereas mothers without a degree face gaps of roughly 12%. Turning to earner status, mothers who were the main earners before childbirth also display relatively small additional gaps (around 5%), while non-main earners face much larger ones (about 14%). A similar dynamic emerges for labor market attachment: mothers with strong pre-birth attachment experience only minor penalties, while those with weak attachment suffer extremely large ones, reaching about 24% by the third year after childbirth. Taken together, these figures indicate that advantaged mothers— those with higher education, stronger labor force attachment, or who contribute the most to household income— do not significantly reduce their employment when facing the additional demands of raising a child with a disability, whereas disadvantaged mothers bear the heaviest costs. In contrast, for fathers, the evidence shows consistently positive intra-gender gaps (or if negative, they are small and not statistically significant), though the magnitude varies by characteristic. Main earners and those with strong pre-birth labor force attachment both display sizable and statistically significant intragender gains of around 12% by the third year after childbirth. Educational differences are also notable: fathers without tertiary education register a strongly positive and significant gap of 11.6%, while for those with tertiary education the gap is smaller (around 5%) and not statistically significant.

Our final test examines how children's disability status affects the joint labor outcomes of their parents. In Fig. 7, we show that before childbirth, the combined earnings of households with children with disabilities are similar to those of households with children without disabilities. However, after childbirth, a marked divergence emerges: four years later, households with CwD lag behind those with CwoD by nearly 20 percentage points. These results suggest that the labor market impacts of child disability extend to the household level.

Overall, this analysis reveals that the additional caregiving demands associated with childhood disability translate into sizable employment penalties for mothers and relative gains for fathers. For mothers, household support and stronger pre-birth attachment can mitigate these penalties but rarely eliminate them, so the intra-gender gap largely mirrors the pooled effect with differences in severity across groups. For fathers, in contrast, positive gaps are common, although their magnitude depends strongly on individual and household characteristics: they are especially pronounced

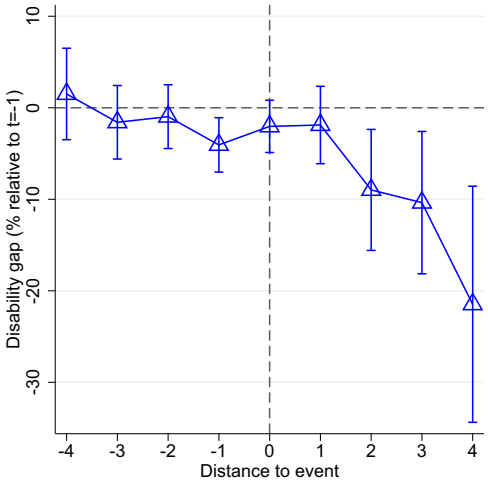

Fig. 7 Disability Gap in Household Income. Notes: Result from estimates based on Callaway and Sant'Anna (2021). Normalized disability gaps, calculated as $\text{CwD gap}_t = (\text{D}_t^{\text{CwD}} - \text{D}_t^{\text{CwoD}})/\overline{Y}_B^{\text{CwD}}$. The normalization is given by $\overline{Y}_B$, where $\overline{Y}$ is the average outcome at period B, with B set to -1. Vertical lines correspond to 5% confidence intervals. Gaps are available in Table A.11, point estimates in Table A.12, and normalized coefficients in Table A.8

among main earners, strongly labor-attached men, and those without tertiary education. More broadly, household and individual characteristics systematically shape intra-gender outcomes: factors that improve fathers' results often coincide with worse outcomes for mothers, and vice versa, underscoring the need to analyze both parental roles when assessing the labor market effects of child disability.

4.4 Robustness

As a robustness assessment, we implement two exercises focusing on the employment effects of having a child with a disability. First, we evaluate how sensitive our results are to the estimation method employed. Second, we examine how the choice of time window used to classify whether a child is registered with a disability may influence the results.[17]

Figure A.4 compares three estimators for staggered treatments: those by Callaway and Sant'Anna (2021), de Chaisemartin and D'Haultfœuille (2022), and Kleven et al. (2019a). Four years after birth, the estimated gender gap for parents of a CwD is 30.0% under Callaway and Sant'Anna (2021), 37.4% under de Chaisemartin and D'Haultfœuille (2022), and 36.7% under Kleven et al. (2019a). For parents of CwoD the same ranking holds, with Callaway and Sant'Anna (2021) again producing the

[17] As was suggested by one referee, we re-estimate our main results, restricting the sample to single-child families. The results are essentially the same as in our baseline – especially in the presence of child disability– supporting the robustness of our findings. A limitation of this restriction is that it reduces the number of families with children with disabilities, making the estimates noisier. For this reason, we retain the full sample in the main analysis, but the single-child results confirm that our findings are not driven by differential fertility behavior (see Fig. A.3).

smallest estimate (10.1%), compared to 18.4% and 19.5% under de Chaisemartin and D'Haultfœuille (2022) and Kleven et al. (2019a), respectively. The de Chaisemartin and D'Haultfœuille (2022) estimates display a visible pre-trend, which we interpret with caution following Sun and Abraham (2021). Overall, all three approaches deliver the same qualitative conclusion, with Callaway and Sant'Anna (2021) providing a lower bound of the estimated gaps.

Figure A.5 then examines the sensitivity of our results to alternative time windows used to classify a child as having a disability. In the baseline analysis, a child is classified as having a disability if registered in the RND within four years after birth. We compare this with narrower (two-year) and broader (ten-year) windows. Point estimates for the short window are larger (40.6%) than in the baseline (30.0%) or the long window (25.2%), which may reflect that children identified earlier might have more severe disabilities. However, confidence intervals are substantially wider for the short window, and the estimated effects under both the short and long windows are statistically indistinguishable from the baseline. Overall, the gender gap trajectories remain consistent across specifications, with no evidence of pre-trends and similarly sized post-birth gaps, confirming that our findings are not driven by the specific temporal threshold used to classify childhood disability.

Taken together, these robustness checks affirm that our main results regarding the substantial gender employment gap among parents of children with disabilities are methodologically sound and not sensitive to reasonable variations in estimation strategy or the operational definition of childhood disability.

5 Conclusion

This paper contributes to the literature on gender and disability by documenting the impact of childbirth on parental labor market outcomes, with a particular focus on how these effects differ depending on whether the child has a disability. By exploiting childhood disability as a quasi-experimental shock and employing a difference-in-differences event-study design, we identify the impact of intensive caregiving needs on labor outcomes, moving beyond traditional comparisons of parents versus non-parents to examine variation in caregiving intensity within families with children.

This approach allows us to estimate the dynamic effects of disability and childbirth on employment, job formality, and wages for both mothers and fathers. Our main contribution is to jointly examine gender and intra-gender disparities across families raising children with disabilities and without disabilities, an area that remains largely understudied in the economics of labor and disability. We also shed light on the intrahousehold allocation decision when both child care and income demands increase.

Our findings confirm the existence of a sizable and persistent gender gap in labor market outcomes following childbirth. Mothers face significantly larger employment penalties than fathers, are more likely to transition into informal work, and experience considerable wage losses. These patterns are consistent with a motherhood penalty and confirm that childbirth continues to be a critical turning point in women's labor trajectories. However, our key insight is that these gender gaps are substantially

amplified when families face intensive caregiving demands. Four years after childbirth, having a child with a disability increases the gender gap in employment from 10% to 29%, and the wage gap from 41% to 61%. We also find strong intragender gaps: while both mothers and fathers adjust their labor supply after childbirth, these adjustments are markedly more pronounced in families raising children with disabilities. Mothers of CwD experience steeper employment declines compared to their CwoD counterparts, while fathers of CwD often maintain or even increase their labor force attachment, especially in formal jobs more likely to secure stable income and benefits.

Importantly, our results also reveal that households with CwD suffer significant income losses over time. Despite increases in paternal labor supply, these gains are not sufficient to compensate for the sharp reduction in maternal earnings. As a result, by year four, total household earnings in CwD families are substantially lower than in comparable CwoD families, suggesting that the burden of care has both gendered and economic consequences.

Our analysis shows that household context and pre-birth labor-market position systematically shape the labor market impact of childhood disability. Socioeconomic vulnerability (being registered in the social registry used to target social policies, low labor attachment, and not being the main earner) magnifies and prolongs the employment penalties for mothers, while markers of labor-market strength (tertiary education, primary-earner status, and strong attachment) offer some short-run protection but do not shield mothers from long-run losses when a child has a disability. By contrast, for parents of children without disabilities, these same characteristics often support substantial recovery by year four. Taken together, the evidence highlights that childhood disability fundamentally alters how pre-existing advantages and disadvantages translate into long-run labor outcomes, reinforcing traditional gender specialization in caregiving roles.

Our quasi-experimental approach provides cleaner identification of caregiving effects than previous research, revealing that the intensity of care demands, not just parenthood itself, drives household labor allocation decisions. These results call for a reassessment of how social protection policies target families with children with disabilities. Traditional mechanisms based on static socioeconomic profiles may fail to capture the dynamic vulnerability triggered by intensive caregiving. Even mothers with strong pre-birth labor market attachment or those from higher-income households can experience substantial and persistent employment and income losses, potentially undermining the household's ability to maintain minimum consumption levels.

From a policy perspective, this paper strengthens the case for more flexible, disability-sensitive reconciliation policies— including subsidized childcare, targeted cash support, and respite care services— that explicitly account for the dual challenge of labor participation and high caregiving intensity. As developing countries like Chile continue to expand their social protection systems, recognizing and addressing the unique challenges faced by families with children with disabilities is not only a matter of equity: it is essential for preventing these families from falling into persistent economic vulnerability. Ultimately, caregiving for children with disabilities represents a shared societal responsibility with far-reaching implications for gender equality and household economic security.

Data Availability The data used in this study is not publicly available. It was provided by the Chilean Ministry of Social Development and Family through a formal agreement (Resolución Exenta Nº 020, dated January 30, 2024), authorizing Universidad Diego Portales to access the Registro de Información Social (RIS) for research purposes. Resolución Exenta Nº 412 of 2019, from the Undersecretary of Social Evaluation, regulates the procedure for requesting and evaluating access to data from the Registro de Información Social. All analyses were conducted in compliance with the confidentiality and data protection requirements established by the Ministry. All the findings of the study are the sole responsibility of the authors and do not in any way represent the Undersecretary mentioned above.

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Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

6 Appendix

6.1 Data

Table A.1 Data sources

Acronym	Name	Role
AFC	Administradora de Fondos de Cesantía	The unemployment insurance fund that collects and manages unemployment insurance contributions
AFP	Administradoras de Fondos de Pensiones	Private pension fund administrators that manage pension contributions
FPS	Ficha de Protección Social	A household-level socio-economic registry, designed to determine eligibility for social programs. Replaced by RSH by 2016.
MINEDUC	Ministerio de Educación	The Ministry of Education, responsible for education policies and data
MDSF	Ministerio de Desarrollo Social y Familia	The Ministry of Social Development and Family, responsible for social programs and family welfare data
RSH	Registro Social de Hogares	By 2016 replaces the FPS for determining eligibility for social programs
SRC	Servicio del Registro Civil	Vital statistics office. Maintains the National Disability Registry.

All data sources are available at the MDSF offices. Anonymized data access granted following Resolución Exenta N°412, from the Subsecretaría de Evaluación Social

Table A.2 Number of childbirths

	(1)	(2)	(3)	(4)
	Mothers		Fathers	
Year	Children with disabilities	Children without disabilities	Children with disabilities	Children without disabilities
2013	484	102,935	475	101,328
2014	576	105,017	575	104,166
2015	696	98,841	692	98,358
2016	937	93,868	933	92,716
2017	1,347	88,819	1,301	88,092
2018	1,405	89,876	1,453	91,199
Pooled	5,445	579,356	5,429	575,859

Number of childbirths by year. Columns (1) and (2) show the number of mothers. Columns (3) and (4) show the number of fathers. Columns (1) and (3) show the births of children with disabilities, while Columns (2) and (4) show the births of children without disabilities. Childhood disability corresponds to children registered at RND before they were 5 years old

Table A.3 Definitions and sources

Variable	Definition	Source
Demographics		
Age	Age in years	SRC
Labor market		
Employment	1 if employed	AFC, AFP, FPS, RSH
Likelihood of formal job	1 if holding a formal job, conditional on being employed	AFC, AFP
Annual wage	Total annual wages, conditional on being employed	AFC, AFP, FPS, RSH. In thousands of 2022 usd.
Heterogeneities		
Has partner	1 if parent has partner or is married the year before childbirth	SRC, FPS, RSH
Other adults in household	1 if household includes 18–64 adults other than the parents the year before childbirth	FPS, RSH
Registered in the Household Social Registry	1 if individual is registered in FPS or RSH the year before childbirth	FPS, RSH
Tertiary education	1 if parent has completed tertiary education by the year before childbirth	SRC
Is main earner	1 if wage exceeds half of combined earnings of both parents the year before childbirth	AFC, AFP, FPS, RSH, SRC
Labor attachment	1 if individual worked 2 years out of the three years preceding childbirth	AFC, AFP, SRC
Household		
Combined wages	Combined wages of both parents	AFC, AFP, FPS, RSH, SRC

Variables, definitions, and sources. AFC is unemployment insurance. AFP are contributory pension funds. RSH and FPS are household registries. MINEDUC is the Ministry of Education. SRC is the civil registry and vital statistics office. All wages are in thousands of 2022 USD

Table A.4 Share of individuals without employment records

	(1)	(2)	(3)	(4)
	Mothers		Fathers	
Year	Children with disabilities	Children without disabilities	Children with disabilities	Children without disabilities
2013	0.25	0.27	0.19	0.22
2014	0.21	0.24	0.17	0.19
2015	0.22	0.25	0.16	0.19
2016	0.24	0.25	0.15	0.18
2017	0.26	0.26	0.13	0.16
2018	0.27	0.24	0.11	0.13

Percentage of individuals that were not employed in formal jobs at AFC or AFP, and did not declare being employed in FPS or RSH

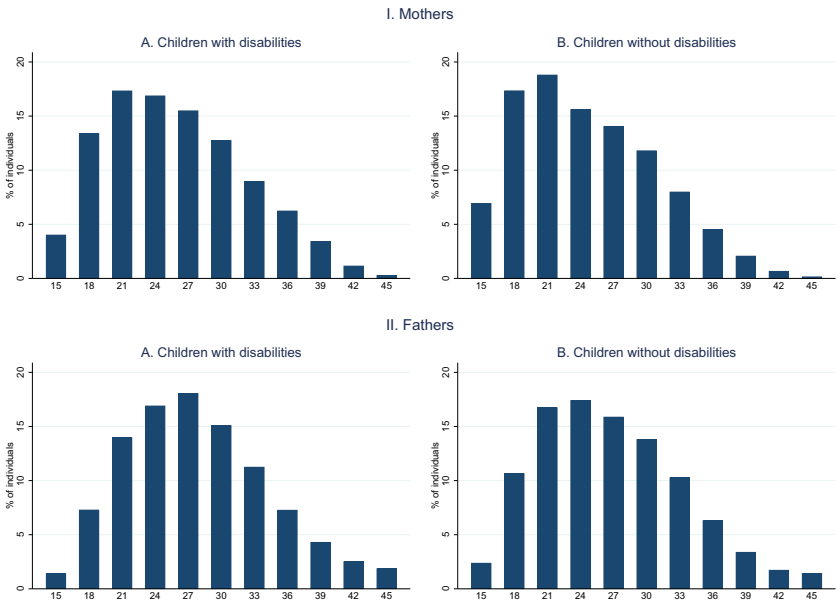

Fig. A.1 Age at childbirth. Notes: Share of individuals by age group at first childbirth. The groups of bars represent mutually exclusive age ranges, defined as $15 = [15, 18)$, $18 = [18, 21)$, and so on. Each range includes ages from the lower bound up to, but not including, the upper bound. For example, the $[15, 18)$ group includes individuals aged 15 through 17. Panel I are mothers while Panel II are fathers. Subpanel A shows parents of children with disabilities while Subpanel B shows parents of children without disabilities

6.2 Results

Table A.5 Event study coefficients

	(1)	(2)	(3)	(4)
	Mothers		Fathers	
	With disabilities	Without disabilities	With disabilities	Without disabilities
Employment				
t=-4	0.01	0.00*	− 0.01	0.00***
t=-3	0.02*	0.01***	− 0.00	0.00***
t=-2	0.01	0.01***	0.00	0.01***
t=-1	0.01	0.01***	0.01	0.01***
t=0	− 0.11***	− 0.09***	− 0.01	− 0.02***
t=1	− 0.19***	− 0.16***	− 0.05***	− 0.07***
t=2	− 0.27***	− 0.22***	− 0.07***	− 0.12***
t=3	− 0.31***	− 0.25***	− 0.10***	− 0.17***
t=4	− 0.34***	− 0.28***	− 0.14***	− 0.22***
Likelihood of Formal job				
t=-4	− 0.00	− 0.00	0.01	0.00
t=-3	0.01	0.00	− 0.01	0.00
t=-2	0.01	− 0.00	0.00	− 0.00
t=-1	− 0.00	− 0.00**	0.00	0.00
t=0	− 0.01***	− 0.01***	− 0.00	− 0.00
t=1	− 0.03***	− 0.03***	− 0.00	− 0.00***
t=2	− 0.06***	− 0.06***	− 0.01	− 0.01***
t=3	− 0.06***	− 0.06***	− 0.02*	− 0.01***
t=4	− 0.01	− 0.06***	− 0.02	− 0.00***
Annual wage				
t=-4	0.17	− 0.01	0.14	− 0.05**
t=-3	− 0.07	− 0.10***	− 0.22	− 0.05***
t=-2	0.18	− 0.11***	− 0.08	− 0.09***
t=-1	− 0.17	− 0.30***	0.08	− 0.10***
t=0	− 2.57***	− 2.85***	0.18*	− 0.06***
t=1	− 2.57***	− 2.33***	0.03	− 0.26***
t=2	− 2.45***	− 2.47***	0.15	− 0.55***
t=3	− 3.15***	− 2.96***	− 0.04	− 0.83***
t=4	− 2.75***	− 3.31***	0.35	− 1.06***

The table presents event study coefficients across three outcomes: employment (Panel 1), likelihood of holding a formal job if employed (Panel 2), and annual wages (Panel 3). Columns (1) and (2) display estimates for mothers with and without children with disabilities, while Columns (3) and (4) show the corresponding estimates for fathers. Results are based on estimates following Callaway and Sant'Anna (2021). All coefficients are normalized relative to the pre-event period ($t = -1$), given by $\overline{Y}^{G}_{t=-1}$, where $\overline{Y}$ is the average outcome for group G at period $t = -1$. The statistical significance of the coefficients is indicated by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.6 Normalized event studycoefficients

	(1)	(2)	(3)	(4)
	Mothers		Fathers	
	With disabilities	Without disabilities	With disabilities	Without disabilities
Employment				
t=-4	0.02	0.00*	− 0.02***	0.01***
t=-3	0.03*	0.01***	− 0.01***	0.01***
t=-2	0.01	0.01***	0.00***	0.02***
t=-1	0.01	0.01***	0.01***	0.01***
t=0	− 0.16***	− 0.15***	− 0.01***	− 0.02***
t=1	− 0.28***	− 0.26***	− 0.07***	− 0.11***
t=2	− 0.40***	− 0.35***	− 0.11***	− 0.19***
t=3	− 0.45***	− 0.40***	− 0.14***	− 0.27***
t=4	− 0.50***	− 0.45***	− 0.20***	− 0.35***
Likelihood of Formal job				
t=-4	− 0.00	− 0.00	0.01***	0.00***
t=-3	0.01	0.00	− 0.01***	0.00***
t=-2	0.01	− 0.00	0.00***	− 0.00***
t=-1	− 0.00	− 0.00**	0.00***	0.00***
t=0	− 0.02***	− 0.01***	− 0.00***	− 0.00***
t=1	− 0.03***	− 0.03***	− 0.00***	− 0.00***
t=2	− 0.07***	− 0.06***	− 0.01***	− 0.01***
t=3	− 0.06***	− 0.06***	− 0.03***	− 0.01***
t=4	− 0.01	− 0.07***	− 0.02***	− 0.01***
Annual wage				
t=-4	0.03	− 0.00	0.03***	− 0.01***
t=-3	− 0.01	− 0.02***	− 0.04***	− 0.01***
t=-2	0.04	− 0.02***	− 0.02***	− 0.02***
t=-1	− 0.03	− 0.05***	0.02***	− 0.02***
t=0	− 0.51***	− 0.52***	0.04***	− 0.01***
t=1	− 0.51***	− 0.42***	0.01	− 0.05***
t=2	− 0.49***	− 0.45***	0.03***	− 0.10***
t=3	− 0.62***	− 0.53***	− 0.01	− 0.15***
t=4	− 0.54***	− 0.60***	0.07***	− 0.19***

The table presents normalized event study coefficients across three outcomes: employment (Panel 1), likelihood of holding a formal job if employed (Panel 2), and annual wages (Panel 3). Columns (1) and (2) display estimates for mothers with and without children with disabilities, while Columns (3) and (4) show the corresponding estimates for fathers. Results are based on estimates following Callaway and Sant'Anna (2021). The statistical significance of the coefficients is indicated by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.7 Gender gaps and intra-gender gaps

	Gender gap		Intra-gender gap	
	With disabilities	Without disabilities	Females	Males
	(1)	(2)	(3)	(4)
Employment				
t=-4	3.88	− 0.23	1.53	− 2.20
t=-3	3.08	0.65***	1.47	− 0.87
t=-2	0.91	− 0.31*	0.18	− 0.88
t=-1	0.00	0.01	− 0.04	− 0.03
t=0	− 14.34***	− 12.73***	− 1.70	0.89
t=1	− 20.94***	− 15.56***	− 4.00**	2.38**
t=2	− 29.11***	− 16.09***	− 8.39***	5.21***
t=3	− 30.87***	− 12.75***	− 8.49***	9.26***
t=4	− 29.98***	− 10.11***	− 8.86*	10.24***
Likelihood of Formal job				
t=-4	− 1.13	− 0.11	− 0.30	0.71
t=-3	1.42	0.05	0.69	− 0.67
t=-2	0.43	− 0.02	0.58	0.13
t=-1	− 0.40	− 0.18**	0.04	0.26
t=0	− 1.54**	− 1.25***	− 0.32	− 0.05
t=1	− 2.80**	− 2.70***	0.03	0.09
t=2	− 6.20***	− 5.15***	− 0.81	0.17
t=3	− 3.71	− 5.31***	0.24	− 1.42
t=4	1.46	− 6.35***	6.21	− 1.68
Annual wage				
t=-4	0.51	0.83	3.52	3.44
t=-3	3.01	− 0.79*	0.51	− 2.96
t=-2	5.07	− 0.30	5.62**	0.19
t=-1	− 4.93	− 3.62***	2.54	3.06
t=0	− 54.59***	− 50.42***	5.58**	4.24**
t=1	− 51.55***	− 37.35***	− 4.84	5.01*
t=2	− 51.60***	− 34.81***	0.48	12.16***
t=3	− 61.49***	− 38.36***	− 3.75	13.71***
t=4	− 61.35***	− 40.56***	11.06	24.47***

The table presents gender and intra-gender gaps across three outcomes: employment (Panel 1), likelihood of holding a formal job if employed (Panel 2), and annual wages (Panel 3). Columns (1) and (2) show the gender gap, comparing individuals with and without disabilities. Columns (3) and (4) present the intra-gender gap, comparing females and males. Results are based on estimates following Callaway and Sant'Anna (2021). Normalized gender gaps are calculated as $\text{Gender gap}_t = (\text{D}_t^{\text{Female}} - \text{D}_t^{\text{Male}})/\overline{Y}_B^{\text{Female}}$. Normalized intra-gender gaps due to childhood disability are calculated as $\text{Intra} - \text{gendergap}_t = (\text{D}_t^{\text{CwD}} - \text{D}_t^{\text{CwoD}})/\overline{Y}_B^{\text{CwD}}$, with the gap shown separately for females (blue) and males (red). In both cases, the normalization is given by $\overline{Y}_B^G$, where $\overline{Y}$ is the average outcome for group G at period B, with B set to − 1. Vertical lines represent 5% confidence intervals. The statistical significance of the coefficients is indicated by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

6.3 Heterogeneities

Table A.8 Gender gaps and intra-gender gaps in employment by groups

	Gender gap		Intra-gender gap		Gender gap		Intra-gender gap	
	With disabilities	Without disabilities	Females	Males	With disabilities	Without disabilities	Females	Males
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Has partner		Yes				No		
t=-4	8.91**	− 0.13	7.01***	− 1.81	− 1.03	− 0.14	− 3.13	− 1.88
t=-3	− 0.90	0.76***	− 3.43*	− 1.62	7.32***	0.58**	6.22***	− 0.48
t=-2	2.50	− 0.70***	0.83	− 2.08	− 0.53	− 0.01	− 0.54	− 0.01
t=-1	− 1.15	− 1.07***	0.27	0.37	0.76	0.81***	− 0.51	− 0.45
t=0	− 15.03***	− 10.89***	− 3.07**	1.53	− 13.69***	− 13.98***	− 0.76	0.27
t=1	− 20.68***	− 13.75***	− 4.56**	2.85*	− 21.15***	− 17.07***	− 3.88*	1.58
t=2	− 32.13***	− 14.45***	− 11.74***	6.08***	− 26.62***	− 17.92***	− 6.22**	3.57*
t=3	− 33.29***	− 11.69***	− 12.05**	9.15***	− 29.66***	− 14.78***	− 6.92	7.94***
t=4	− 25.82***	− 10.50***	− 9.66	5.61	− 34.05***	− 11.69***	− 9.87	11.50***
Other adults in household		Yes				No		
t=-4	− 2.64	1.03	1.34	3.97	9.58	1.06	5.93	− 2.35
t=-3	4.06	0.31	4.16	0.32	− 2.67	− 0.70	2.77	4.08
t=-2	0.57	0.67	0.04	0.08	1.47	− 1.22*	0.72	− 1.43
t=-1	0.91	− 0.91***	2.13	0.29	− 5.27*	− 2.11***	− 2.65	0.79
t=0	− 18.78***	− 18.54***	− 1.87	− 0.45	− 3.36	− 8.32***	0.74	− 2.06*
t=1	− 26.09***	− 23.81***	− 4.78	− 0.91	− 3.96	− 11.17***	1.29	− 2.97
t=2	− 36.68***	− 25.11***	− 12.59***	0.34	− 12.34**	− 13.01***	− 5.31	− 2.70
t=3	− 35.66***	− 23.84***	− 13.46**	− 0.21	− 16.90**	− 12.97***	− 4.85	1.50
t=4	− 39.59***	− 22.55***	− 12.72	4.52	− 0.79	− 14.11***	1.09	− 7.73

Table A.8 continued

	Gender gap		Intra-gender gap		Gender gap		Intra-gender gap	
	With disabilities	Without disabilities	Females	Males	With disabilities	Without disabilities	Females	Males
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Social household registry		Yes				No		
t=-4	1.32	− 0.04	0.75	− 0.49	6.74*	− 0.59**	3.37	− 3.69
t=-3	5.97**	0.39	4.44**	− 0.96	1.81	0.55**	0.52	− 0.74
t=-2	− 0.14	− 0.56**	0.99	0.51	3.23	− 0.47*	1.42	− 2.12
t=-1	− 0.74	− 2.10***	2.39*	1.02	1.68	1.86***	− 1.54	− 1.41
t=0	− 15.12***	− 18.73***	0.64	− 0.86	− 9.77***	− 5.24***	− 3.98**	0.85
t=1	− 22.47***	− 25.63***	− 0.92	− 1.18	− 14.29***	− 4.39***	− 8.53***	1.58
t=2	− 34.63***	− 27.94***	− 8.82***	0.60	− 17.71***	− 4.50***	− 8.31*	4.91
t=3	− 36.90***	− 27.41***	− 10.79**	1.24	− 22.27***	0.90	− 7.32	14.88***
t=4	− 27.79***	− 27.20***	− 7.48	− 3.35	− 26.27*	4.89***	− 12.90	16.89**
Has tertiary degree		Yes				No		
t=-4	− 0.14	0.35	− 1.23	− 0.74	7.67**	− 0.37	3.37	− 3.65**
t=-3	4.77	1.10***	2.36	− 1.34	2.31	0.75***	0.54	− 0.87
t=-2	− 2.21	0.44*	0.74	3.27**	2.76	− 0.07	− 0.37	− 2.52**
t=-1	1.42	0.28	2.48*	1.29	− 0.83	0.73***	− 2.27	− 0.62
t=0	− 10.25***	− 8.82***	− 1.99	− 0.11	− 17.53***	− 16.61***	− 1.19	1.29
t=1	− 14.94***	− 11.82***	− 3.51*	0.19	− 26.52***	− 21.04***	− 3.60	3.40***
t=2	− 23.78***	− 13.49***	− 6.56**	4.28	− 35.89***	− 22.24***	− 8.38**	6.18***
t=3	− 15.50***	− 12.62***	1.68	5.05	− 45.24***	− 18.81***	− 13.83***	11.65***
t=4	− 13.15	− 9.70***	− 1.00	2.84	− 43.66***	− 17.69***	− 11.57*	12.97***
Main earner		Yes				No		
t=-4	− 0.32	− 0.45*	− 0.25	− 0.28	9.59	− 0.44	2.16	− 7.22
t=-3	2.76	− 0.04	1.03	− 1.51	9.64*	2.06***	2.28	− 5.01
t=-2	3.35*	− 0.69***	1.85	− 1.82*	− 0.57	0.64	1.51	2.46

Table A.8 continued

	Gender gap		Intra-gender gap		Gender gap		Intra-gender gap	
	With disabilities	Without disabilities	Females	Males	With disabilities	Without disabilities	Females	Males
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
t=-1	1.70	0.59***	− 0.40	− 1.34	− 1.56	− 0.32	0.50	1.62
t=0	− 8.69***	− 4.70***	− 2.72*	1.51**	− 20.02***	− 18.27***	− 2.15	0.81
t=1	− 10.60***	− 2.81***	− 3.64	3.81***	− 24.20***	− 24.13***	− 4.62	− 2.65
t=2	− 14.78***	0.37	− 5.97*	7.84***	− 47.49***	− 29.24***	− 15.41***	4.50
t=3	− 13.22**	5.27***	− 3.90	12.05***	− 39.82***	− 28.90***	− 13.10**	− 0.15
t=4	− 14.15*	9.15***	− 5.09	14.81***	− 35.08*	− 30.37***	− 13.71	− 6.34
High labor attachment		Yes				No		
t=-4	1.25	0.29	− 1.07	− 1.99	14.90**	0.02	6.00	− 7.58*
t=-3	5.22***	1.75***	1.09	− 2.35**	− 5.19	0.18	− 4.94	0.36
t=-2	− 3.81***	− 2.52***	0.70	1.97***	10.45	− 2.49***	2.78	− 8.48**
t=-1	− 3.21***	− 3.24***	3.10***	3.02***	− 2.09	− 3.66***	− 4.53	− 4.92
t=0	− 7.20***	− 7.79***	4.48***	3.86***	− 33.65***	− 27.17***	− 19.50***	− 9.01***
t=1	− 12.75***	− 10.41***	3.93***	6.20***	− 46.12***	− 32.57***	− 29.27***	− 10.91**
t=2	− 21.34***	− 13.45***	− 0.23	7.57***	− 56.10***	− 29.72***	− 31.71***	− 2.26
t=3	− 28.24***	− 13.77***	− 2.34	11.95***	− 41.59***	− 20.48***	− 24.18***	− 1.05
t=4	− 31.34***	− 15.39***	− 2.41	13.34***	− 33.79*	− 13.45***	− 26.13*	− 3.90

The table presents gender and intra-gender gaps in employment across four groups: individuals with or without a partner (Panel 1), individuals who are the main income earners in their household (Panel 2), individuals registered in the RSH (Panel 3), and individuals with high labor attachment (Panel 4). Columns (1) and (2) show the gender gap, comparing individuals with and without CwD. Columns (3) and (4) show the intra-gender gap, comparing females and males within each group. Columns (5) to (8) replicate these results for individuals outside each group. Estimates are based on Callaway and Sant'Anna (2021). The normalized gender gap is calculated as $\text{Gender gap}_t = (D_t^{\text{Female}} - D_t^{\text{Male}})/\overline{Y}_B^{\text{Female}}$. The normalized intra-gender gap due to childhood disability is calculated as $\text{Intra} - \text{gender gap}_t = (D_t^{\text{CwD}} - D_t^{\text{CwoD}})/\overline{Y}_B^{\text{CwD}}$, with gaps shown separately for females (blue) and males (red). Normalization is based on $\overline{Y}_B^G$, where $\overline{Y}$ is the average outcome for group G at period B, with B set to − 1. Vertical lines represent 5% confidence intervals. Statistical significance is indicated by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.9 Event study coefficients in employment by groups

	Mothers		Fathers		Mothers		Fathers	
	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Has partner	Yes				No			
t=-4	0.06***	0.00*	− 0.01	0.00***	− 0.02	0.00	− 0.01	0.00
t=-3	− 0.02	0.01***	− 0.01	0.00***	0.05***	0.01***	− 0.00	0.00***
t=-2	0.01	0.01***	− 0.01	0.01***	0.01	0.01***	0.01	0.01***
t=-1	− 0.00	− 0.00***	0.01	0.00***	0.01	0.01***	0.01	0.01***
t=0	− 0.12***	− 0.10***	− 0.01	− 0.02***	− 0.10***	− 0.09***	− 0.01	− 0.01***
t=1	− 0.21***	− 0.17***	− 0.05***	− 0.07***	− 0.18***	− 0.15***	− 0.04***	− 0.05***
t=2	− 0.32***	− 0.24***	− 0.08***	− 0.13***	− 0.24***	− 0.20***	− 0.07***	− 0.10***
t=3	− 0.37***	− 0.27***	− 0.11***	− 0.19***	− 0.27***	− 0.23***	− 0.08***	− 0.14***
t=4	− 0.39***	− 0.31***	− 0.19***	− 0.24***	− 0.32***	− 0.26***	− 0.10***	− 0.19***
Other adults in household	Yes				No			
t=-4	0.02	0.01	0.03	0.00	0.05	0.00	− 0.02	− 0.00
t=-3	0.03	0.00	0.00	0.00	0.02	− 0.01	0.04	− 0.00
t=-2	0.00	0.00*	0.00	0.00	− 0.00	− 0.01**	− 0.01	0.00
t=-1	0.01	− 0.00**	0.00	0.00	− 0.03*	− 0.01***	0.01	− 0.00
t=0	− 0.12***	− 0.11***	− 0.00	0.00**	− 0.09***	− 0.10***	− 0.07***	− 0.05***
t=1	− 0.19***	− 0.16***	− 0.03*	− 0.02***	− 0.15***	− 0.16***	− 0.12***	− 0.10***
t=2	− 0.28***	− 0.19***	− 0.04**	− 0.04***	− 0.26***	− 0.22***	− 0.16***	− 0.14***
t=3	− 0.30***	− 0.21***	− 0.07**	− 0.06***	− 0.30***	− 0.27***	− 0.17***	− 0.19***
t=4	− 0.31***	− 0.23***	− 0.05	− 0.09***	− 0.32***	− 0.33***	− 0.31***	− 0.24***

Table A.9 continued

	Mothers		Fathers		Mothers		Fathers	
	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Social household registry	Yes				No			
t=-4	0.00	− 0.00	− 0.01	− 0.00	0.03	0.00***	− 0.02	0.01***
t=-3	0.03*	− 0.00	− 0.01	− 0.00***	0.02	0.02***	0.01	0.01***
t=-2	0.00	− 0.01***	0.00	− 0.00***	0.03**	0.02***	0.01	0.03***
t=-1	0.00	− 0.01***	0.01	0.00	0.02	0.03***	0.01	0.02***
t=0	− 0.10***	− 0.11***	− 0.00	0.01***	− 0.09***	− 0.07***	− 0.03***	− 0.03***
t=1	− 0.17***	− 0.16***	− 0.01	− 0.00***	− 0.20***	− 0.14***	− 0.10***	− 0.11***
t=2	− 0.25***	− 0.19***	− 0.01	− 0.02***	− 0.28***	− 0.22***	− 0.15***	− 0.19***
t=3	− 0.27***	− 0.20***	− 0.02	− 0.03***	− 0.31***	− 0.25***	− 0.15***	− 0.26***
t=4	− 0.26***	− 0.21***	− 0.08**	− 0.05***	− 0.36***	− 0.27***	− 0.18***	− 0.31***
Has tertiary degree	Yes				No			
t=-4	− 0.01	− 0.00	− 0.01	− 0.00**	0.03	0.01***	− 0.02	0.01***
t=-3	0.02	0.00	− 0.02	− 0.01***	0.02	0.01***	0.00	0.01***
t=-2	0.00	− 0.00**	0.02	− 0.01***	0.01	0.02***	− 0.00	0.02***
t=-1	0.02	− 0.00***	0.00	− 0.01***	0.00	0.02***	0.01	0.01***
t=0	− 0.08***	− 0.07***	0.00	0.00*	− 0.12***	− 0.11***	− 0.01	− 0.02***
t=1	− 0.14***	− 0.11***	− 0.01	− 0.02***	− 0.22***	− 0.20***	− 0.05***	− 0.08***
t=2	− 0.20***	− 0.14***	0.00	− 0.03***	− 0.31***	− 0.26***	− 0.09***	− 0.14***
t=3	− 0.14***	− 0.15***	− 0.01	− 0.05***	− 0.40***	− 0.31***	− 0.12***	− 0.21***

Table A.9 continued

	Mothers		Fathers		Mothers		Fathers	
	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
t=4	− 0.17***	− 0.16***	− 0.06	− 0.08***	− 0.43***	− 0.36***	− 0.17***	− 0.27***
Main earner	Yes				No			
t=-4	− 0.00	0.00	0.00	0.00***	0.02	0.00	− 0.05	0.00*
t=-3	0.01	0.01***	− 0.01	0.01***	0.02	0.01***	− 0.04	− 0.01**
t=-2	0.02*	0.01***	− 0.00	0.01***	0.01	0.00**	0.02	− 0.00
t=-1	0.01	0.01***	− 0.00	0.01***	− 0.00	− 0.01***	0.01	− 0.00*
t=0	− 0.07***	− 0.05***	− 0.01	− 0.02***	− 0.14***	− 0.13***	− 0.01	− 0.02***
t=1	− 0.13***	− 0.10***	− 0.05***	− 0.08***	− 0.23***	− 0.20***	− 0.07***	− 0.05***
t=2	− 0.18***	− 0.14***	− 0.08***	− 0.14***	− 0.35***	− 0.25***	− 0.04	− 0.07***
t=3	− 0.20***	− 0.17***	− 0.11***	− 0.21***	− 0.37***	− 0.28***	− 0.11**	− 0.11***
t=4	− 0.25***	− 0.21***	− 0.14***	− 0.27***	− 0.40***	− 0.31***	− 0.17*	− 0.13***
High labor attachment	Yes				No			
t=-4	0.01	0.02***	0.00	0.02***	0.01	− 0.02***	− 0.06**	− 0.02***
t=-3	0.08***	0.06***	0.03***	0.05***	− 0.09***	− 0.07***	− 0.07***	− 0.07***
t=-2	− 0.11***	− 0.12***	− 0.08***	− 0.10***	0.24***	0.23***	0.20***	0.24***
t=-1	− 0.11***	− 0.14***	− 0.08***	− 0.11***	0.19***	0.21***	0.20***	0.22***
t=0	− 0.08***	− 0.13***	− 0.02***	− 0.05***	− 0.15***	− 0.06***	0.00	0.05***
t=1	− 0.18***	− 0.22***	− 0.06***	− 0.12***	− 0.21***	− 0.08***	− 0.01	0.05***
t=2	− 0.34***	− 0.34***	− 0.14***	− 0.21***	− 0.19***	− 0.04***	0.06**	0.08***

Table A.9 continued

	Mothers		Fathers		Mothers		Fathers	
	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
t=3	− 0.44***	− 0.41***	− 0.17***	− 0.28***	− 0.12***	− 0.01***	0.07*	0.07***
t=4	− 0.53***	− 0.51***	− 0.24***	− 0.36***	− 0.08	0.03***	0.07	0.09***

The table presents event study coefficients across four groups: individuals with or without a partner (Panel 1), individuals who are the main income earners in their household (Panel 2), individuals registered in the RSH (Panel 3), and individuals with high labor attachment (Panel 4). Columns (1) and (2) display estimates for mothers with and without children with disabilities, while Columns (3) and (4) show the corresponding estimates for fathers. Columns (5) to (8) replicate these results for individuals outside the group. Results are based on estimates following Callaway and Sant'Anna (2021). The statistical significance of the coefficients is indicated by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.10 Normalized event study coefficients in employment by groups

	Mothers		Fathers		Mothers		Fathers	
	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Has partner	Yes				No			
t=-4	0.07***	0.00*	− 0.02***	0.01***	− 0.03	0.00	− 0.02***	0.00***
t=-3	− 0.02	0.01***	− 0.01***	0.00***	0.07***	0.01***	− 0.00***	0.01***
t=-2	0.02	0.01***	− 0.01***	0.01***	0.01	0.02***	0.01***	0.02***
t=-1	− 0.00	− 0.01***	0.01***	0.00***	0.02	0.02***	0.01***	0.02***
t=0	− 0.16***	− 0.14***	− 0.01***	− 0.03***	− 0.15***	− 0.16***	− 0.01***	− 0.02***
t=1	− 0.27***	− 0.24***	− 0.07***	− 0.10***	− 0.28***	− 0.27***	− 0.07***	− 0.09***
t=2	− 0.43***	− 0.33***	− 0.11***	− 0.18***	− 0.38***	− 0.35***	− 0.11***	− 0.17***
t=3	− 0.48***	− 0.38***	− 0.15***	− 0.27***	− 0.43***	− 0.39***	− 0.13***	− 0.25***
t=4	− 0.51***	− 0.44***	− 0.25***	− 0.33***	− 0.50***	− 0.44***	− 0.16***	− 0.33***
Other adults in household	Yes				No			
t=-4	0.02	0.01	0.05***	0.00**	0.07	0.01	− 0.03***	− 0.00***
t=-3	0.05	0.00	0.01***	0.00***	0.02	− 0.01	0.05***	− 0.00***
t=-2	0.01	0.01*	0.00***	0.00	− 0.00	− 0.01**	− 0.02***	0.00***
t=-1	0.01	− 0.01**	0.01***	0.00***	− 0.04*	− 0.02***	0.01***	− 0.00***
t=0	− 0.19***	− 0.18***	− 0.00***	0.00***	− 0.12***	− 0.16***	− 0.09***	− 0.08***
t=1	− 0.30***	− 0.27***	− 0.04***	− 0.03***	− 0.20***	− 0.27***	− 0.16***	− 0.16***
t=2	− 0.43***	− 0.32***	− 0.06***	− 0.07***	− 0.34***	− 0.36***	− 0.22***	− 0.23***
t=3	− 0.46***	− 0.34***	− 0.10***	− 0.10***	− 0.40***	− 0.45***	− 0.23***	− 0.32***
t=4	− 0.48***	− 0.37***	− 0.08***	− 0.15***	− 0.42***	− 0.55***	− 0.41***	− 0.41***

Table A.10 continued

	Mothers		Fathers		Mothers		Fathers	
	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Social household registry	Yes				No			
t=-4	0.00	− 0.00	− 0.01***	− 0.00***	0.04	0.01***	− 0.03***	0.01***
t=-3	0.04*	− 0.00	− 0.02***	− 0.01***	0.03	0.02***	0.01***	0.02***
t=-2	0.00	− 0.01***	0.00***	− 0.00***	0.05**	0.03***	0.01***	0.04***
t=-1	0.01	− 0.02***	0.01***	0.00***	0.03	0.05***	0.01***	0.03***
t=0	− 0.15***	− 0.18***	− 0.00***	0.01***	− 0.13***	− 0.10***	− 0.04***	− 0.05***
t=1	− 0.25***	− 0.26***	− 0.02***	− 0.01***	− 0.29***	− 0.22***	− 0.15***	− 0.17***
t=2	− 0.37***	− 0.31***	− 0.02***	− 0.03***	− 0.39***	− 0.33***	− 0.22***	− 0.29***
t=3	− 0.40***	− 0.33***	− 0.03***	− 0.05***	− 0.44***	− 0.39***	− 0.21***	− 0.40***
t=4	− 0.39***	− 0.35***	− 0.11***	− 0.08***	− 0.52***	− 0.42***	− 0.26***	− 0.47***
Has tertiary degree	Yes				No			
t=-4	− 0.01	− 0.00	− 0.01***	− 0.00***	0.04	0.01***	− 0.03***	0.01***
t=-3	0.02	0.00	− 0.02***	− 0.01***	0.03	0.02***	0.00***	0.02***
t=-2	0.00	− 0.00**	0.03***	− 0.01***	0.02	0.03***	− 0.01***	0.03***
t=-1	0.02	− 0.01***	0.00***	− 0.01***	0.00	0.03***	0.01***	0.02***
t=0	− 0.10***	− 0.09***	0.00***	0.00***	− 0.19***	− 0.20***	− 0.02***	− 0.04***
t=1	− 0.17***	− 0.14***	− 0.02***	− 0.02***	− 0.35***	− 0.36***	− 0.09***	− 0.15***
t=2	− 0.23***	− 0.18***	0.00***	− 0.04***	− 0.51***	− 0.49***	− 0.15***	− 0.26***
t=3	− 0.17***	− 0.19***	− 0.01***	− 0.07***	− 0.65***	− 0.57***	− 0.19***	− 0.39***

Table A.10 continued

	Mothers		Fathers		Mothers		Fathers	
	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
t=4	− 0.20***	− 0.20***	− 0.07***	− 0.10***	− 0.71***	− 0.67***	− 0.27***	− 0.49***
Main earner	Yes				No			
t=-4	− 0.00	0.00	0.00***	0.01***	0.02	0.00	− 0.07***	0.01***
t=-3	0.02	0.01***	− 0.01***	0.01***	0.03	0.01***	− 0.06***	− 0.01***
t=-2	0.03*	0.01***	− 0.00***	0.02***	0.02	0.01**	0.03***	− 0.00***
t=-1	0.01	0.02***	− 0.00***	0.01***	− 0.00	− 0.01***	0.01***	− 0.01***
t=0	− 0.10***	− 0.08***	− 0.01***	− 0.03***	− 0.22***	− 0.21***	− 0.02***	− 0.03***
t=1	− 0.18***	− 0.16***	− 0.07***	− 0.13***	− 0.35***	− 0.33***	− 0.11***	− 0.09***
t=2	− 0.26***	− 0.22***	− 0.11***	− 0.22***	− 0.54***	− 0.41***	− 0.06***	− 0.12***
t=3	− 0.28***	− 0.27***	− 0.15***	− 0.32***	− 0.56***	− 0.46***	− 0.16***	− 0.18***
t=4	− 0.34***	− 0.33***	− 0.20***	− 0.42***	− 0.62***	− 0.52***	− 0.27***	− 0.21***
High labor attachment	Yes				No			
t=-4	0.01	0.03***	0.00***	0.02***	0.02	− 0.04***	− 0.12***	− 0.04***
t=-3	0.08***	0.07***	0.03***	0.05***	− 0.20***	− 0.17***	− 0.15***	− 0.17***
t=-2	− 0.12***	− 0.13***	− 0.08***	− 0.10***	0.54***	0.57***	0.44***	0.59***
t=-1	− 0.12***	− 0.15***	− 0.08***	− 0.12***	0.42***	0.51***	0.44***	0.55***
t=0	− 0.09***	− 0.13***	− 0.02***	− 0.06***	− 0.34***	− 0.16***	0.00	0.12***
t=1	− 0.20***	− 0.24***	− 0.07***	− 0.13***	− 0.48***	− 0.21***	− 0.02***	0.12***
t=2	− 0.36***	− 0.36***	− 0.15***	− 0.22***	− 0.42***	− 0.11***	0.15***	0.19***

Table A.10 continued

	Mothers		Fathers		Mothers		Fathers	
	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities	With disabilities	Without disabilities
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
t=3	− 0.46***	− 0.44***	− 0.18***	− 0.30***	− 0.27***	− 0.03***	0.15***	0.18***
t=4	− 0.56***	− 0.54***	− 0.25***	− 0.39***	− 0.19	0.08***	0.15***	0.22***

The table presents normalized event study coefficients across four groups: individuals with or without a partner (Panel 1), individuals who are the main income earners in their household (Panel 2), individuals registered in the RSH (Panel 3), and individuals with high labor attachment (Panel 4). Columns (1) and (2) display estimates for mothers with and without children with disabilities, while Columns (3) and (4) show the corresponding estimates for fathers. Columns (5) to (8) replicate these results for individuals outside the group. Results are based on estimates following Callaway and Sant'Anna (2021). All coefficients are normalized relative to the pre-event period ($t = -1$), given by $\overline{Y}^{G}_{t=-1}$, where $\overline{Y}$ is the average outcome for group G at period $t = -1$. The statistical significance of the coefficients is indicated by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

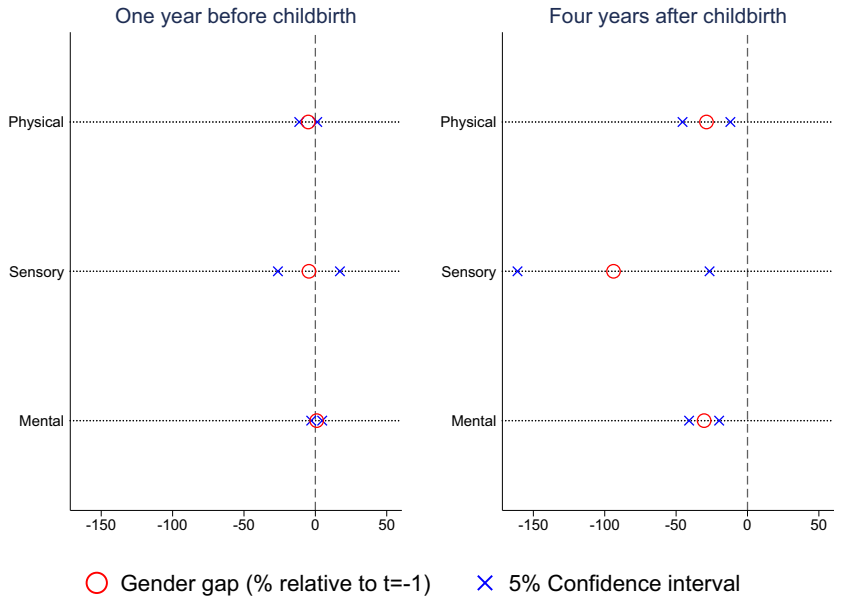

Fig. A.2 Gender gaps by type of disability. Notes: Estimates are based on Callaway and Sant'Anna (2021). Figures show normalized gender gaps in employment for parents of CwD, calculated as $\text{Gap}_t = (\text{D}_t^{\text{Female}} - \text{D}_t^{\text{Male}})/\overline{Y}_B^{\text{Female}}$, where $\overline{Y}_B^G$ is the average employment of group G in the baseline period $B = -1$. Gender gaps are divided by type of child disability: physical, sensory, and mental. The left-hand panel gives gender gap estimates one year before childbirth, while the right-hand panel gives gender gap estimates four years after childbirth

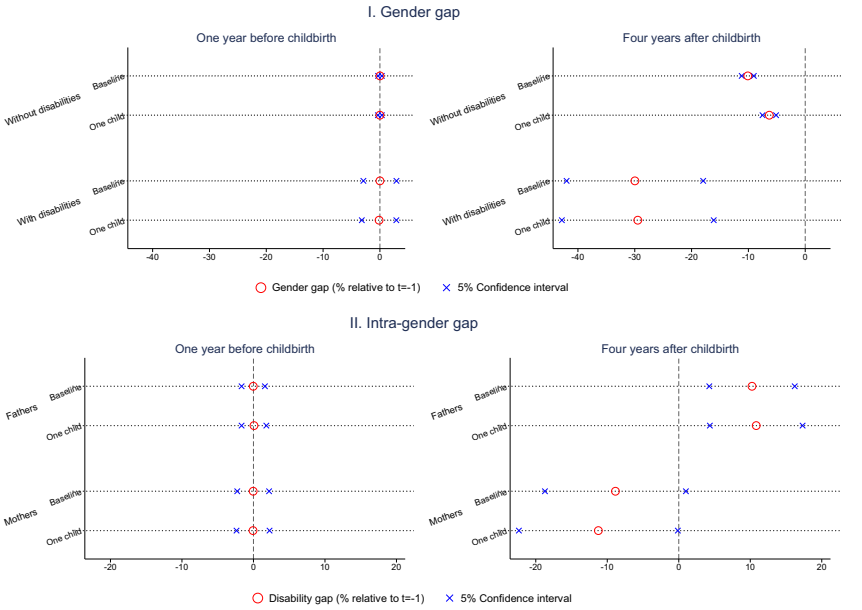

Fig. A.3 Gender gaps in single-child households. Notes: Estimates are based on Callaway and Sant'Anna (2021). Gender gaps by child disability and intra-gender-gaps, based on whether the family had a single child. In Panel I, the figures show normalized gender gaps in employment for parents of CwD, calculated as $\text{Gap}_t = (\text{D}_t^{\text{Female}} - \text{D}_t^{\text{Male}})/\overline{Y}_B^{\text{Female}}$, where $\overline{Y}_B^G$ is the average employment of group G in the baseline period $B = -1$. The types of disabilities are physical, sensory, and mental. The left-hand panel gives gender gap estimates one year before childbirth, while the right-hand panel gives gender gap estimates four years after childbirth. In Panel II, the figure shows normalized disability gaps, calculated as $\text{CwD gap}_t = (\text{D}_t^{\text{CwD}} - \text{D}_t^{\text{CwoD}})/\overline{Y}_B^{\text{CwD}}$. The normalization is given by $\overline{Y}_B^G$, where $\overline{Y}$ is the average outcome for group G at period B, with B set to -1. Vertical lines correspond to 5% confidence intervals

6.4 Household results

Table A.11 Disability gap in household income

	(1) Disability gap
t=-4	1.51
t=-3	− 1.59
t=-2	− 0.97
t=-1	− 4.06***
t=0	− 2.04
t=1	− 1.88
t=2	− 8.98***
t=3	− 10.37***
t=4	− 21.47***

Estimates are based on Callaway and Sant'Anna (2021). The normalized disability gap is calculated as $\text{Disability gap}_t = (\text{D}_t^{\text{With disability}} - \text{D}_t^{\text{Without disability}})/\overline{Y}_B^{\text{With disability}}$. Normalization is based on $\overline{Y}_B$, where $\overline{Y}$ is the average outcome at period B, with B set to − 1. Vertical lines represent 5% confidence intervals. Statistical significance is indicated by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.12 Event study coefficients in household income

	With disabilities (1)	Without disabilities (2)
t=-4	− 0.05**	− 0.18
t=-3	− 0.09***	0.05
t=-2	− 0.11***	− 0.03
t=-1	− 0.24***	0.12
t=0	− 1.78***	− 1.60***
t=1	− 1.75***	− 1.59***
t=2	− 2.63***	− 1.84***
t=3	− 3.50***	− 2.58***
t=4	− 4.25***	− 2.35***

Results are based on estimates following Callaway and Sant'Anna (2021). The statistical significance of the coefficients is indicated by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.13 Normalized event study coefficients in household income

	With disabilities (1)	Without disabilities (2)
t=-4	− 0.01**	− 0.02
t=-3	− 0.01***	0.01
t=-2	− 0.01***	− 0.00
t=-1	− 0.03***	0.01
t=0	− 0.20***	− 0.18***
t=1	− 0.20***	− 0.18***
t=2	− 0.30***	− 0.21***
t=3	− 0.40***	− 0.29***
t=4	− 0.48***	− 0.27***

Results are based on estimates following Callaway and Sant'Anna (2021). All coefficients are normalized relative to the pre-event period ($t = -1$), given by $\overline{Y}^{G}_{t=-1}$, where $\overline{Y}$ is the average outcome for group G at period $t = -1$. The statistical significance of the coefficients is indicated by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

6.5 Robustness

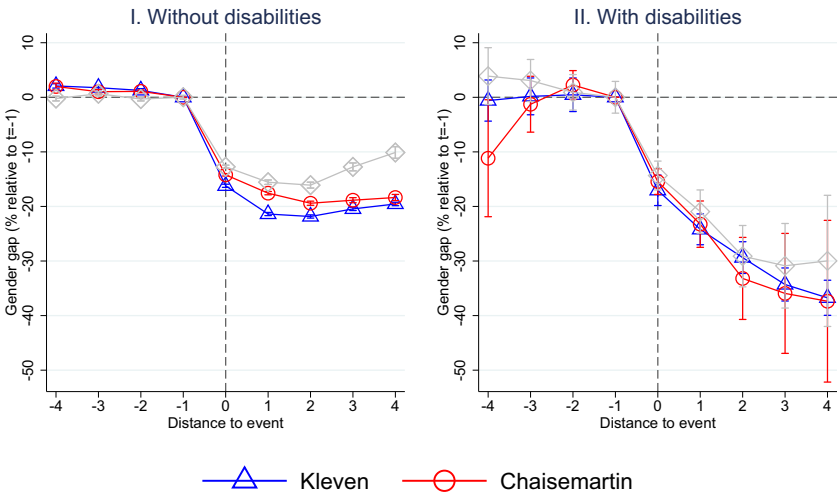

Fig. A.4 Employment gap robustness to estimation method. Notes: Panel I reports results for parents of CwD and Panel II to CwoD. Results from estimates based on Callaway and Sant'Anna (2021) are shown in gray, Kleven et al. (2019) in blue, and de Chaisemartin and D'Haultfœuille (2022) in red. Gender gaps are normalized as Gender gap$_t = (\mathrm{D}_t^{\mathrm{Female}} - \mathrm{D}_t^{\mathrm{Male}})/\overline{Y}_B^{\mathrm{Female}}$, where the gap is calculated for parents of children without disabilities. The normalization uses $\overline{Y}_B^G$, the average outcome for group G at period B, with B set to -1. Panel I present child penalties due to births of children without disability, while Panel II presents child penalties due the the birth of children without disabilities. Vertical lines indicate 5% confidence intervals

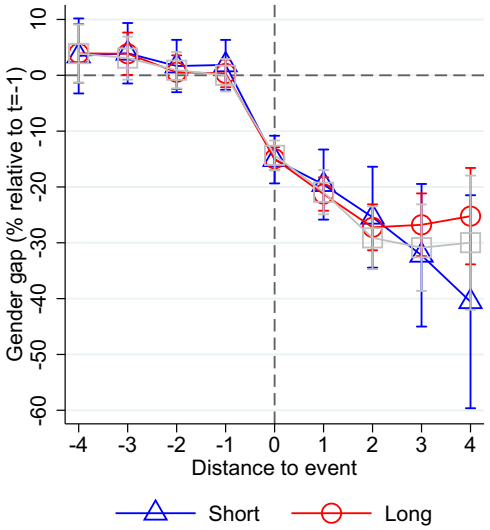

Fig. A.5 Employment gap and child disability under different registration windows. Notes: The grey line shows the baseline estimation, which defines a child as having a disability if registered within a 4-year window after birth. The blue line corresponds to the estimation using a 2-year window, while the red line corresponds to the estimation using a window of up to 10 years. Results are based on estimates from Callaway and Sant'Anna (2021). Gender gaps are normalized as Gender gap$_t = (\mathrm{D}_t^{\mathrm{Female}} - \mathrm{D}_t^{\mathrm{Male}})/\overline{Y}_B^{\mathrm{Female}}$, where the gap is calculated for parents of children with disabilities. The normalization uses $\overline{Y}_B^G$, the average outcome for group G at period B, with B set to -1. Vertical lines represent 5% confidence intervals

References

Anderson, D., Dumont, S., Jacobs, P., & Azzaria, L. (2007). The personal costs of caring for a child with a disability: A review of the literature. *Public Health Reports*, *122*, 3–16.

Becker, G. S. (1965). A theory of the allocation of time. *The Economic Journal*, *75*, 493–517.

Berniell, I., Berniell, L., de la Mata, D., Edo, M., & Marchionni, M. (2021). Gender gaps in labor informality: The motherhood effect. *Journal of Development Economics*, *150*, 102599.

Berniell, I., Berniell, L., de la Mata, D., Edo, M., & Marchionni, M. (2023). Motherhood and flexible jobs: Evidence from latin american countries. *World Development*, *167*, 106225.

Black, S. E., Breining, S., Figlio, D. N., Guryan, J., Karbownik, K., Nielsen, H. S., Roth, J., & Simonsen, M. (2020). Sibling Spillovers. *The Economic Journal*, *131*, 101–128.

Borusyak, K., Jaravel, X., & Spiess, J. (2021). Revisiting Event Study Designs: Robust and Efficient Estimation. Papers 2108.12419, arXiv.org August.

Breining, S. N. (2014). The presence of adhd: Spillovers between siblings. *Economics Letters*, *124*, 469–473.

Callaway, B., & Sant'Anna, P. H. (2021). Difference-in-differences with multiple time periods. *Journal of Econometrics*, *225*, 200–230. Themed Issue: Treatment Effect 1.

de Chaisemartin, C. & D'Haultfœuille, X. (2022). Two-way fixed effects and differences-in-differences with heterogeneous treatment effects: A survey. *The Econometrics Journal*. utac017.

Eriksen, T. L. M., Gaulke, A. P., Skipper, N., Svensson, J., & Thingholm, P. (2023). Educational consequences of a sibling's disability: Evidence from type 1 diabetes. *Economics of Education Review*, *94*, 102407.

Frijters, P., Johnston, D. W., Shah, M., & Shields, M. A. (2009). To work or not to work? child development and maternal labor supply. *American Economic Journal-Applied Economics*, *1*, 97–110.

GAO, U. (2024). Child Care Accessibility: Agencies Can Further Coordinate to Better Serve Families with Disabilities. Technical Report GAO-24-106843, United States Government Accountability Office, Washington, DC. Report to Congressional Requesters. Accessible Version.

Gunnsteinsson, S. & Steingrimsdottir, H. (2019). The long-term impact of children's disabilities on families. Workingpaper.
Kleven, H., Landais, C., & Søgaard, J. E. (2019a). Children and gender inequality: Evidence from denmark. *American Economic Journal: Applied Economics*, *11*, 181–209.
Kleven, H., Landais, C., Posch, J., Steinhauer, A., & Zweimüller, J. (2019b). Child penalties across countries: Evidence and explanations. In *AEA Papers and Proceedings*, volume 109, (pp. 122–126). American Economic Association 2014 Broadway, Suite 305, Nashville, TN 37203.
Kuziemko, I., Pan, J., Shen, J., & Washington, E. (2018). The mommy effect: Do women anticipate the employment effects of motherhood? Working Paper 24740, National Bureau of Economic Research.
Martínez, A. C. & Vial, B. (2023). Discapacidad en adultos en chile: Menores ingresos del trabajo y mayores gastos. *Revista de Estudios Publicos*, *167*.
McCann, D., Bull, R., & Winzenberg, T. (2012). The daily patterns of time use for parents of children with complex needs: A systematic review. *Journal of Child Health Care*, *16*, 26–52.
Powers, E. (2003). Children's health and maternal work activity - estimates under alternative disability definitions. *Journal of Human Resources*, *38*, 522–556.
Salkever, D. S. (1982). Children's health problems and maternal work status. *The Journal of Human Resources*, *17*, 94–109.
Sant'Anna, P. H., & Zhao, J. (2020). Doubly robust difference-in-differences estimators. *Journal of econometrics*, *219*, 101–122.
Stabile, M. & Allin, S. (2012). The economic costs of childhood disability. *The future of children*, 65–96.
Sun, L., & Abraham, S. (2021). Estimating dynamic treatment effects in event studies with heterogeneous treatment effects. *Journal of Econometrics*, *225*, 175–199.
Wasi, N., van den Berg, B., & Buchmueller, T. C. (2012). Heterogeneous effects of child disability on maternal labor supply: Evidence from the 2000 us census. *Labour Economics*, *19*, 139–154.
Wondemu, M. Y., Joranger, P., Hermansen, A., & Brekke, I. (2022). Impact of child disability on parental employment and labour income: A quasi-experimental study of parents of children with disabilities in norway. *BMC Public Health*, *22* (WOS:000857670400001).
Wooldridge, J. M. (2021). Two-way fixed effects, the two-way mundlak regression, and difference-in-differences estimators. Technical report.
Zhu, A. (2016). Maternal employment trajectories and caring for an infant or toddler with a disability. *Applied Economics*, *48*, 4606–4621.