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Abstract

This study uses administrative data and an event study methodology to analyze the impact of childbirth and the birth of a child with a disability on labor market outcomes of mothers and fathers. We use a monthly employer-employee panel based on unemployment insurance data. The findings reveal a substantial gender gap associated with childbirth, and childhood disability further widens this gap. Moreover, childhood disability creates an intra-gender gap for mothers after childbirth, where mothers of children with disabilities experience poorer labor outcomes compared to mothers of children without disabilities. These findings underscore the importance of caregiving policies in general and for children with disabilities in particular. It is crucial to consider disability in family assessments and social protection programs designed to address these disparities.

JEL: I14, J13, J16, J22, J31, J71
Keywords: Childhood disabilities, Child penalties, Gender gaps

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1 Introduction

There is a significant gender wage gap in Chile, with men earning 12% more than women in full-time employment, which is similar to the OECD average.[1] The gender disparity in the employment rate is also notable, with the female employment rate in Chile being 53.2%, nearly 20 percentage points lower than the male employment rate. This gap is wider than the average for OECD countries.

According to the National Disability Services (SENADIS) 5.8% of children in Chile have a disability, corresponding to 230 thousand children. However, this number may be higher due to under-diagnosis and under-registration of disabilities in the country.[2] Caring for children with disabilities (CwD) often involves a greater demand for time and higher costs for parents (Anderson et al., 2007; Stabile and Allin, 2012). Consequently, having a child with disabilities could potentially have a long-lasting impact on parents' employment and earning trajectories.

This study explores the impact of having children with disabilities on the gender gap in the labor market for parents in Chile. Our analysis aims to determine if having a child with a disability has differential effects on the labor market outcomes of fathers and mothers. Moreover, we also examine the presence of intra-gender gaps between mothers and fathers who have CwD compared to other mothers and fathers.

Our paper relates specifically to the economic literature that studies how individuals and households react to health shocks of household members and to health shocks involving children.[3] While non-fatal health shocks related to any adult family member may impact household well-being, increasing household out-of-

[1] The difference is even more pronounced when considering measures by the International Labour Organization (ILO). These measures consider various factors such as educational levels and participation in public sector jobs versus private sector jobs, and they include both part-time and full-time workers.

[2] Martínez and Vial (2023) document a significant gap in the number of individuals with disabilities when comparing data from the National Disability Registry and various household surveys. This suggests that the official figures may underestimate the true prevalence of disabilities in the population.

[3] There is a more general literature that explores the labor market penalties of motherhood or fatherhood in both developed and developing countries. These papers use event analysis methodologies to study the causal effect of having a child on the labor market trajectories of both mothers and fathers (Aguilar-Gomez et al., 2019; Berniell et al., 2023, 2021; Kleven et al., 2019b,a; Kuziemko et al., 2018). There is strong evidence that motherhood reduces labor force participation rates, especially for highly educated and high-earning women, and increases the likelihood of working part-time or in lower-paid positions. The literature for developed countries is scarcer, but there are some recent studies for Latin American countries Berniell et al. (2023), Chile Berniell et al. (2021), and México Aguilar-Gomez et al. (2019). These papers also document a strong and negative causal relationship between becoming a mother and employment rates and wages.

pocket health expenses and decreasing consumption, labor income or affecting mental health (Dobkin et al., 2018; Meyer and Mok, 2019; Braakmann, 2014), the impact of having a sick child may affect parent's and siblings' life trajectories and may have more long-lasting effects. Becker's theoretical model on household production (Becker, 1965) predicts that on the one hand, parents may need more time to care for a child with a disability. Therefore, they may reduce their labor supply. On the other, having a child with disabilities may put financial pressure on the household and increase parental specialization.

Most of the early empirical literature focused on the effect of children's disabilities on mother's outcomes, finding that children's disabilities are strongly negatively correlated with mother's labor outcomes (Salkever, 1982; Powers, 2003; Frijters et al., 2009; Wasi et al., 2012; Zhu, 2016). More recent papers take advantage of longitudinal and administrative data and use event analysis methodologies to estimate the causal effect of disability on parent labor market trajectories and household well-being. Gunnsteinsson and Steingrimsdottir (2019), using Danish data, find that the birth of a child with a disability has a strong permanent and increasing effect over time on the mother's earnings. The effect on the father's earnings is smaller but also persistent over time. The authors additionally find effects on the likelihood of employment (for both parents), fertility, and marital dissolution. Eriksen et al. (2021), also for Denmark, find that the onset of a chronic condition in children such as Type I Diabetes affects mothers' labor trajectories: they move to part-time work and are more prone to move to public jobs, while they experience a 5% decrease in wages. No effects are found for fathers. Wondemu et al. (2022) similarly finds for Norway that having a child with a disability hurts labor employment outcomes of mothers, with more severe conditions triggering worse outcomes. Moreover, the penalty measured as the difference in outcomes between mothers with children with disabilities and children without disabilities grows as the child ages. Regarding the effect of disability on fathers, they find that having a child with a disability has a negative impact on wages. Still, it does not impact the intensive or extensive labor margin. [4] So far, the literature suggests that mothers bear most of the economic and labor costs of having a child with a disability. As Gunnsteinsson and Steingrimsdottir (2019) point out, governments have an essential role in protecting families by at least limiting their financial and economic burden.

We report a substantial gender gap between mothers and fathers regarding the impact of parenthood on labor

[4] There is also a large branch of literature that studies specifically how health shocks in the household affect other outcomes aside from labor outcomes and/or other members. Other outcomes include marital stability (Reichman et al., 2008; Kvist et al., 2013) and siblings' educational outcomes (Black et al., 2021)

outcomes. Four years after childbirth, we observe a wage gap of 29%, a formal employment participation gap of 14%, and a months worked gap of 23%. These gaps are even more pronounced for single mothers and mothers without tertiary education. Additionally, we observe an increasing trend in these gaps over time. The birth of a child with disabilities significantly amplifies this gap. For mothers and fathers with CwD, four years after childbirth, we find a wage gap of 40%, an employment gap of 30%, and gap on the number of months worked of 41%. This gap is also wider for single mothers and mothers without tertiary education. Furthermore, childhood disability generates an intra-gender gap. Mothers of CwD experience worse labor outcomes than the rest of the mothers: with wage, participation, and months worked gaps of around 13%. Again, this gap is more prominent for single mothers of children with disabilities and mothers of children with disabilities without tertiary education. Fathers of children with disabilities face a minor wage penalty and a small premium in employment and months worked.

This paper contributes to the existing literature documenting the extent of the child penalty for mothers and fathers with children with disabilities in the context of a developing country with a modest welfare state.

The paper is organized as follows. Section 2 describes the data used, then Section 3 outlines the empirical strategy and describes the study's event design. The main results are presented in Section 4, while in Section 5 we examine heterogeneities and potential mechanisms underlying the findings. Finally, Section 6 discusses the study's limitations, summarizes the findings, and presents the conclusions.

2 Data

This paper uses administrative data obtained from the Registro de Información Social (RIS, Social Information Registry), provided by the Chilean Subsecretaria de Evaluación Social (Undersecretary of Social Evaluation).

Labor trajectories are constructed using Unemployment Insurance Fund (AFC) data. A worker-year level panel is created using the AFC data, with information on salaries, number of months worked, and contract types, distinguishing between indefinite and temporary contracts.[5] However, it is important to mention

[5]It is worth noting that salaried workers are included in this dataset even during periods of medical leave, including mater-

that both public sector employees and independent workers are not included in this registry. Therefore the analysis will be restricted to workers in the private sector. In other words, only individuals who have had at least one formal private-sector labor link between 2015 and 2020 are in this data. The AFC data are available from 2015 to 2020.

We use the Vital Statistics Data of the Civil Registry (SRC) to construct the family structure, identifying children's day of birth and gender and both of the parents registered at birth. The data also include marriage status, age, and whether the individual holds a tertiary education degree. This dataset was updated up to December 2022. We also use the National Disability Registry data from the Civil Registry, which contains information about the registration date and type of disability (physical, mental, or sensory). The registry was created in 1994 and was updated up to 2022.[6] Note that we only observe the disability status of the children up to 4 years after birth. Therefore, all our indicators of CwD correspond to children who have gotten this status in their first 4 years of age. The data from AFC (worker-level) and SRC (mother/father-level) are merged at the individual level.[7]

To complete the monthly panel, we fill in the gaps of non-formal private employment from 2015 to 2020. In cases where the worker's information is not available in the AFC for specific years, we impute zeros for employment, wage, and months worked. In Table A.1 we show the fraction of observations we impute by year, distance to childbirth, and gender. Since imputation is contingent on non-participation and males are more likely to be formally employed, the imputation rate is higher for females. Imputation rates tend to decrease with time for both genders, except in the last year. Also for both genders, imputation rates decrease with time before childbirth and remain largely constant after childbirth.

The resulting dataset has two primary sources of potential bias. First, inclusion in the estimation sample depends on having at least one period of formal private-sector occupation. As men tend to have more likelihood of employment, instances of fatherhood are more frequent in the dataset compared to instances of motherhood.

nity leave. While health insurance systems, either private or public, cover wages during medical leave, unemployment insurance payments continue to be made by the employer.

[6] Enactment of Ley Number 19.284, creating the Registro Nacional de la Discapacidad. Initial registration standards were based on conditions or deficiencies (visual, auditive, speech, physical, mental, and psychological) rather than capabilities. In 2012, Decreto 47, modifies RND registration standards to comply with the ICF criteria, focused on capabilities, and promoted by the OMS.

[7] SRC datasets are updated up to December 2020.

In contrast, civil registries document that instances of motherhood are more frequent than those of fatherhood, as children with a single registered parent are predominantly linked to a female progenitor. Table A.4 shows the number of childbirths by year, along with the proportion of children with no registered father. These figures reaffirm that instances of maternity are more common than paternity. Children of single mothers (without a registered father) account for around 10% of childbirths. The number of children with only a father or without parents is negligible. This sample definition likely upwardly biases our results.

The second source of bias is related to the coverage of employment dynamics, as informal and public sector jobs are not captured in AFC. Women are overrepresented both in informal jobs and—especially—in public sector jobs.

2.1 Events

We define the event as the year of birth of the first child. The distance to the event is measured as the number of years between the current year and the year of the event. We identify instances of births of children with disabilities (CwD) as those births whose identifier is also registered in the RND. We identify the disability status in the observed 4-year window and identify the children as CwD independent of the age (within those 4 years) when they have received the status.

Additionally, we gather information regarding the type of disability, whether physical, mental, or sensory. This results in two events: births and births of children with disabilities. The latter is subdivided into three sub-events: births of children with physical disabilities, births of children with mental disabilities, and births of children with sensory disabilities.

Table 1 presents the frequency of events related to the first child in specific years, divided into two separate panels for both mothers and fathers. The first panel includes all mothers and mothers of CwD, while the second panel includes all fathers and fathers of CwD. The years presented in the table range from 2015 to 2020.

In the mothers' panel, there were 73.37 thousand events related to the first child in the year 2015, and this

number gradually decreased over the years, reaching 37.80 thousand in 2020. For mothers of children with disabilities, the figure is naturally much lower, with 0.79 thousand events in 2015, and it further decreased over the years to 0.12 thousand in 2020.

As suggested in the previous section, due to sample selection, the frequency of events related to the first child is higher in the father's panel than in the mother's panel. In 2015, there were 89.12 thousand events, and this number non-monotonically decreased to 46.97 thousand in 2020. We also observe more fathers than mothers of CwD, with 1.02 thousand in 2015, which decreased to 0.14 thousand events in 2020. Births of CwD represent around 0.9% of all childbirths.

2.2 Outcome Variables

We use wages, labor force participation, and months worked as outcomes in our worker-year panel. These variables are compiled at the person-year level from monthly employer-employee records.

- **Wage:** Annual average of the highest observed monthly wage each month. The wages are measured in millions of 2017 Chilean pesos.[8] In cases where an individual has no employment links in a specific year, we impute a value of zero for wages. [9]
- **Labor force participation:** Binary variable that takes a value of one if the individual has formal private-sector employment links in the year.
- **Months worked:** Sum of months an individual has employment links each year.

Table 2 describes labor outcomes for mothers and fathers, of all parents, and of parents CwD. The rows represent the number of years since the year of the first child's birth, and the columns represent age, wage, labor force participation, and months worked.

[8] We use the average exchange rate in 2017, which was 649 CLP to 1 USD.

[9] Table A.3 checks whether the highest wage is substantially different from earnings (sum of wages), and the average number of jobs individuals hold. Our check suggests that most individuals hold only one job, and thus the highest wage is very similar to labor earnings. Women are, however, more likely to hold more than one job.

For mothers, wages are their highest right before childbirth and then recover two years after childbirth at approximately CLP 400,000 (US$ 616). The fraction of mothers working also peaks right before childbirth at 75% and remains stable after childbirth. The number of months worked follows a similar pattern as the employment rate, with an average of 5.4 months worked the year before childbirth. In the case of mothers of CwD, we observe slightly higher outcomes before childbirth, but all metrics drop compared to other mothers after childbirth. We also observe that mothers of CwD are older, with their first child at an average age of 27.3, compared to the average of 26.66, which can help explain the higher labor market outcomes observed before childbirth.

In the case of fathers, we observe a consistent wage increase as the distance to childbirth increases from CLP 290,000 (US$446) four years before childbirth to CLP 640,000 (US$ 986) four years after. Fathers of CwD consistently show lower wages after childbirth. Work participation also increases with distance to childbirth, although not monotonically, and fathers of CwD consistently have higher employment rates before and after childbirth. The number of months worked peaks during childbirth and the year after to 7-8 months per year, and fathers of CwD have a higher number of months worked at every distance to childbirth. Like mothers, fathers of CwD tend to be older than average, with an average age of 28.76 at childbirth compared to the overall average of 28.19.

3 Empirical Strategy

Following Kleven et al. (2019a), we utilize an event study strategy to analyze the impact of having a first child on labor market outcomes of fathers and mothers. We define an event as the period when parents have their first child and examine the differences before and after the birth within a window of 4 years prior to and 4 years following childbirth. We estimate equation 1 separately for women and men for all births and for the subset of cases where the child has a disability.

Equation 1 is the estimation specification used in the analysis.

$$Y_{ist}^{gp} = \sum_{j \neq -1} \alpha_j^{gp} \cdot \mathbb{I}[j = t] + \sum_k \beta_k^{gp} \cdot \mathbb{I}[k = \text{age}_{is}] + \sum_y \gamma_y^{gp} \cdot \mathbb{I}[y = s] + \varepsilon_{ist}^{gp} \tag{1}$$

The outcome variables are labor outcomes of parent i, of gender g, in year s, and distance to the event t. We include three sets of binary control variables. The parameters α control for the distance to the event, normalizing at $t = -1$. The parameters β control for fixed effects of age, and the parameters γ control for fixed effects of year. The inclusion of age and year-fixed effects serves as controls for life-cycle trends and economic cycle trends, respectively. All outcomes are measured in levels.

The superscripts g and p indicate gender, mothers and fathers; and type of event, parents or parents of children with disabilities.

$$g = \{\text{mothers}, \text{fathers}\} \quad \wedge \quad p = \{\text{mothers or fathers}, \text{mothers or fathers of CwD}\}$$

Thus gp indexes our four estimation samples: mothers, mothers with a child with disabilities, fathers, and fathers with a child with disabilities. Additionally, we also run these regressions within marital and educational groups, splitting our estimation sample between married and single individuals; and between individuals with and without tertiary education.

We transform the effects into a proportion by calculating $P_t^{gp} = \hat{\alpha}^{gp} / E[\hat{Y}_{ist}^{gp} | t]$, where $\hat{Y}_{ist}^{gp}$ is the predicted outcome variable excluding the fixed effects associated with the event (parameters α).[10] This way, P_t^{gp} captures the labor market impact of being at a distance of t years from childbirth, expressed as a proportion relative to the counterfactual of not having become a mother/father.

Additionally, we calculate child penalties and childhood disability penalties, both expressed in proportions. Child penalties, or the percentage by which women are falling behind men due to children, are calculated as $CP_t^{gp} = (\hat{\alpha}_t^m - \hat{\alpha}_t^w) / E[\tilde{Y}_{ist}^w | t]$, which measures the labor market gap between females and males t years before and after childbirth. Intra-gender penalties, or the percentage by which parents of CwD are falling behind other parents due to their children's disabilities, are calculated as $IGP_t^{wd} = (\hat{\alpha}_t^w - \hat{\alpha}_t^{wd}) / E[\tilde{Y}_{ist}^{wd} | t]$

[10] Specifically, $\hat{Y}_{ist}^{gp} = \sum k \hat{\beta}_k^{gp} \cdot \mathbb{I}[k = \text{age}_{is}] + \sum_y \hat{\gamma}_y^{gp} \cdot \mathbb{I}[y = s]$.

and $IGP_t^{md} = (\hat{\alpha}_t^m - \hat{\alpha}_t^{md})/E[\tilde{Y}_{ist}^{md}|t]$, which measures the labor market gap between parents of CwD and other parents t years before and after childbirth.[11]

When discussing heterogeneities, we also calculate marital and educational gaps. Marital gaps are calculated as $MG_t^g = (\hat{\alpha}_t^{g,\text{married}} - \hat{\alpha}_t^{g,\text{single}})/E[\tilde{Y}_{ist}^{g,\text{single}}|t]$, thus expressed as a penalty for singles. Educational gaps are calculated as $EG_t^g = (\hat{\alpha}_t^{g,\text{tertiary}} - \hat{\alpha}_t^{g,\text{without tertiary}})/E[\tilde{Y}_{ist}^{g,\text{without tertiary}}|t]$, expressed as a penalty for individuals without tertiary education.

4 Results

The first set of results is presented in Figure 1. This figure shows the "penalty" for the birth of a child for mothers and fathers, regardless of the disability status of their first child. In other words, this figure plots P_t^{gp} for each period, normalizing at $t = -1$.

Child Penalty

The results in Figure 1 confirm the existence of a penalty for mothers due to the birth of a child. The birth leads to a decrease in employment probability, months worked, and wages for women. On the other hand, fathers exhibit better labor outcomes after the birth. While the trajectories of men and women are almost parallel before birth, they diverge in the year of birth.

Women experience a sharp decline in wage (11%) and employment rate (14%), and a slight decrease in months worked (1.6%) with respect to their figures the month before the birth, while for men, the birth does not disrupt the previous upward trend in labor outcomes. Four years after birth, women have wages that are 9% lower, employment rate is 15% lower, and months worked are 17% fewer. This implies an increase in gender gaps in labor metrics after the event. Berniell et al. (2023) finds that in the long run (10 years), women's employment declines by 22%.[12] In Uruguay—another developing high-income economy within

[11] The coefficients for CD and CDP are estimated in different equations. We predict the corresponding Y, and the confidence interval of the coefficients.

[12] Berniell et al. (2023) estimates an event study specification similar to equation 1 in Chile, but using a monthly panel constructed with EPS data.

the Latin American region—Querejeta and Bucheli (2021) finds a medium run (5 years from childbirth) motherhood penalty on employment of 29%.[13]

Table 3 presents the proportions of labor metrics relative to counterfactual values, along with child penalties and their statistical significance. The birth of children is associated with a significant and permanent reduction in wages, employment rate, and months worked for women compared to men. According to column (3), the child penalty gap for wages changes from -8.1% four years before birth to 20.9% in the year of birth, and to %29.2 four years later. For the employment rate, the gap is -0.5% four years before, increases to 19.8% in the birth year, and reverts to 14.5% four years later. Regarding months worked, four years before birth, the child penalty gap is 4.9%, which increases to 12.17% the year of birth, and then rises to 23.6% four years after childbirth. These results imply that women face a small labor market premium before childbirth and a large penalty afterward. For context, Kleven et al. (2019a) finds child penalties on the participation of between 7% and 13% in Scandinavian countries, between 44% and 43% in English-speaking countries, and between 27% and 30% in German-speaking countries.[14]

Intra-gender Gap

Figure 2 adds the results of the event study for mothers and fathers of CwD to Figure 1. To make easier comparisons, the figures include in gray the other parent figures. Two main findings emerge: first, situations of disability in children further widen the gender gap, and second, there is an intra-gender gap for mothers and fathers of CwD, which is much more pronounced for mothers.

According to column (6) of Table 3, the gender gap between mothers and fathers of CwD is statistically significant from $t = 0$ for all labor outcomes. After the event, the gender gap between mothers and fathers of CwD widens over time and significantly exceeds the previously measured gap—in column (3)—between mothers and fathers. By the fourth year after childbirth, the wage gap is 40%, the employment gap is 30.2%, and the gap in months worked is 41.2%.[15] Comparing columns (4) and (6) of table 3, we can see that the

[13]These results compare to outcomes one year before childbirth, where according to Table 2, wages were CLP 410,000 (US$ 631) for women and CLP 500.000 (US$ 770) for men, the employment rate was 75% for women and 80% for men, and months worked were 5.85 for women and 6.52 for men.

[14]These are all developed countries: Denmark, Sweden, the United Kingdom, the United States, Austria and Germany, respectively.

[15]Before birth, the gap between parents of CwD tends to favor women and is statistically significant for wages and employment

wage gap between mothers and fathers four years after birth of having a child increases by 40% when the child has a disability (40.0% vs %29.2). The employment rate effect more than doubles (30.2% vs 14.5%), and the effect on number of months working within a year increases by 70% (41.2% vs. 23.6%). In other words, the gender gap widens between 40% and 100% depending on the outcome.

Another perspective is to analyze the differences between fathers and mothers of children with and without disabilities. In column(7), we observe a significant intra-gender gap for mothers with CwD. Penalties increase monotonically over time, and two years after childbirth penalties for all outcomes are statistically significant. Four years after childbirth, the wage gap is 13.1%, the employment gap is 30.2%, and the months worked gap is 13.7%. These results suggest that mothers of CwD face increasingly worse labor market outcomes with respect to other mothers, on top of existing gender gaps. As a comparison, Eriksen et al. (2021) finds a medium-term (5 years) mothers wage gap of between 4-5% due to childhood disability in Denmark. In Norway, Wondemu et al. (2022) finds an employment gap of 12% the year after birth and 10.4% 10 years after birth.

Column (8) shows the results for fathers. Comparing fathers of children with disabilities to other fathers after childbirth, their wages are between 4% and 6% less. We do not find differences in employment. In terms of months worked, we find a premium of 3.9% in $t = 4$. Therefore, fathers of ChW are employed in similar rates and work more months, and their wages are lower than fathers of children without disabilities. These results imply that employment of fathers of CwD is unaffected (and if anything, increases) by childbirth, while their labor quality, as reflected in wages, decreases.

4.1 Robustness

Child Penalty

To address the potential biases noted in Table 2, particularly concerns regarding the external validity of our conclusions given our subsample of individuals with formal private-sector labor ties, we use the the

but not months worked. However, the magnitudes are small when compared to the gaps observed after childbirth. For instance, two years before the birth, the wage difference between mothers and fathers was -2.7%, the employment gap was -0.7%, and the gap in months worked 0.3%.

Employment and Earnings Survey (EPS) to construct a panel structure spanning from 2002 to 2015.[16] We replicate our estimation of equation 1 and estimate the model using two different samples. The first is the full sample, encompassing all variables observations, while the second sample consists of observations selected based on the presence of at least one formal private-sector employment link, which is the inclusion restriction in the AFC data.

Comparing the results from both samples will provide insights into the generalizability of the findings obtained from the formal private-sector employment panel. It allows us to assess whether the patterns and conclusions observed in the formal private sector sample remain consistent when considering a broader sample of individuals from the household survey, particularly regarding including individuals in the labor force who may not have formal private sector labor ties.

In Table A.5, we find that the sample selection criteria used in the administrative data[17] bias the frequency of events, leading to a higher number of fathers compared to mothers, as indicated by the disparity between columns (3) and (5). However, without this restriction, the number of mothers surpasses that of fathers. Pooling all events, we observed 1,189 instances of motherhood and 1,046 occurrences of fatherhood, in line with our estimation that 10% of childbirths involve single mothers. Of those mothers, 657 hold formal labor attachments, while 834 of those fathers do, verifying that males are more likely to hold private sector jobs.

Table A.6 examines whether labor outcomes and demographic characteristics significantly differ for individuals with any formal private sector labor. First, mothers (and to-be mothers) with formal private-sector labor ties tend to be older. The year of birth, mothers in general are 28.5 years old, whereas mothers with any private sector employment 29.3. The wage level is substantially higher for mothers with any private sector employment: the year of birth the average wage is CLP 300,000 (US$ 462) vs CLP 220,000 (339 US$) for mothers in the complete sample. On the other hand, there is not a substantial wage difference for fathers. The same is true for employment rate and months worked. Hence, using the restricted sample will be more likely to have a greater impact on the statistics of mothers than those concerning fathers.

[16] The Encuesta de Protección Social survey is the largest and oldest longitudinal panel survey in Chile. It covers the labor and pension history of the respondents, with detailed information in areas such as education, health, social security, job training, assets and wealth, family history, and household information. It is published by the Subsecretaria de Previsión Social (Undersecretary of Social Security), part of the Ministerio del Trabajo y Previsión Social (Ministry of Labor and Social Security).

[17] Individuals who had at least one formal private sector job in a four-year window around childbirth.

In Figure A.6, we study the existence of child penalties in both samples. Panel A reports the result for the sample constructed with the same criteria as the administrative data, and panel B the whole sample. For comparison, in both graphs, the gray line represents the figures in the other sample. First, we find that child penalties persist when including individuals with non-formal private-sector or public-sector labor attachments. Second, if anything, the gender gap widens if we include individuals with non-formal private-sector or public-sector labor attachments. According to columns (3) and (6) of Table A.8, the gender gap consistently increases if we relax our private sector labor attachment restriction. Four years after childbirth we find that the wage gap increases from 32% to 46%, the employment gap increases from 19% to 33%, and the months worked gap increases 23% to 36%.[18] Lastly, as expected from the descriptive statistics, differences are minimal for fathers but significant for mothers. It is the mothers without formal private sector labor attachments who primarily drive the increase in the gender gap after childbirth and experience more pronounced negative effects of child penalties compared to mothers with formal labor attachments.

We also check if any relevant differences arise from estimating the effects on the highest wage rather than earnings (sum of wages across jobs). Figure **??** shows that the gender gaps hold, both including informal and public sector jobs and restricting to individuals with private sector labor attachments.

Finally, in Figure A.8, we examine whether childbirth affects the allocation of work between the private sector and informal or public sector jobs, which is an analysis that cannot be performed with the administrative data. Panels I, II, and III show the employment rate, months worked and the share of months worked for mothers and fathers in the private, informal, and public sectors, respectively, before and after childbirth. Fathers increase their employment rate, months worked, and share of months worked in the private sector (Panel I), and decrease them in the informal sector (Panel II). Therefore fathers shift away from informal employment after childbirth. On the other hand, there is no clear pattern of public sector employment. On the other hand, mothers decrease employment, months worked and share of months worked in the private sector (Panel I), and although we do not find significant effects for females, there seems to be a shift towards informal employment after childbirth, especially in the share of months worked allocated towards informal

[18] This labor market gap favoring individuals with private sector labor attachments also gives rise to an intra-gender gap, according to column (7) and (8) of A.8. Four years after childbirth, females fall 8% in wages, 9% in employment, and 7% in months worked, with respect to females with private sector labor attachments. For fathers, this intra-gender gap is much smaller, with 2%, 1%, and 1%, respectively.

labor linkages (Panel II). These results suggest that childbirth tends to push mothers towards informal employment and fathers towards formal employment. We do not find clear movement patterns in public sector jobs for either mothers or fathers.

Intra-gender Genalty

We now compare the estimation of the intra-gender penalty arising due to CwD across criteria defining childhood disability. In addition to the criterion of registration in the RND, we impose the restriction that enrollment in RND must occur within 24 months after the birth of the child with disabilities. According to figure A.9, a shorter selection window strengthens the effect for mothers and weakens it for fathers, leading to an increased gender gap. However, the differences between both selection criteria are not statistically significant. It is worth noting that early diagnostics may be correlated with more severe disability, which could explain the higher disability penalties observed in this subgroup.

Finally, Figure A.5 explores whether different types of disabilities—including physical, mental and sensory disabilities—have differential impacts. Physical and mental disabilities are not distinct from grouped disabilities in their labor market impact. Sensory disabilities have a distinct negative impact on female wages and employment rates, while they have a positive impact on months worked by males.

5 Heterogeneity

In this section, we examine whether there are variations in gender and intra-gender gaps for the birth of children with and without disabilities, taking into account marital status and educational level, since these are both available within our administrative datasets. Both marital status and education are drivers of labor market outcomes. Contreras and Plaza (2010) finds that women with tertiary degrees are much more likely to participate in the labor market, while marital status affects labor supply decisions within households. Table A.2 shows demographic characteristics by gender. With respect to males, females are more likely to be married (12.7% vs. 11.9%), and more likely to hold tertiary education degrees (15.7% vs. 11.9%).

To study heterogeneities, we will focus on three sets of results. First, we will analyze child penalties within

groups—married or single, with or without tertiary education—and by whether they are parents of CwD. Then we will check if there are marital or educational intra-gender gaps within parental groups (parents or parents of CwD) in order to check whether single individuals (or individuals without tertiary education) have different outcomes than married individuals (or individuals with tertiary education). Finally, we investigate if there are intra-gender gaps by group depending on whether individuals are parents of CwD. This is to compare within each group—singles, married, without tertiary education, with tertiary education—whether parents of CwD have differential outcomes.

5.1 Marital Status

Figure A.1 presents the general child penalty for single and married panels in Panel I and II, respectively. In both panels, the gray line represents the figures for parents with the other civil status. We observe that single parents, especially single mothers, experience a much stronger impact due to childbirth compared to married parents. For mothers, the largest gap in employment and months worked occur in the year of childbirth or the subsequent year, and then the effect decreases. Regarding wages, the gap between married and single mothers persists rather than reversing. In contrast, we observe a short-term labor market premium for single fathers immediately after childbirth, but over time this premium turns into a penalty. Four years after childbirth, single fathers have lower wages, formal employment, and months worked compared to married fathers. For single individuals, from column (3) in table A.9 these same gaps are 26.2%, 14.4%, and 24.1%. For married individuals, from column (6) in Table A.9, we find that, four years after childbirth, the wage gap is 24%, the participation gap is 15.9%, and the months worked gap is 23.7%. These results compare with pooled child penalties of 29.2%, 14.5% and 23.6%, respectively.

When considering the additional effect of childhood disability, we observe in Figure A.2 that single mothers of CwD experience lower labor outcomes after childbirth compared to single mothers without children with disabilities. Columns (11) and (14) in Table A.9 report child penalties for single and married parents of CwD, revealing that these tend to be much higher than previously reported penalties for both singles and married individuals, the one exception being the wage penalty of married individuals. Four years after childbirth, wage penalties for single females are 47.3%, employment penalties are 29.6% and months

worked penalties are 41.%. In the case of married individuals, these penalties are 15.7%, 37.4%, and 47.7%, respectively. These results compare with pooled child penalties of parents of CwD, of 40.0%, 30.2%, and 41.2%, respectively.Both of these results suggest that wage penalties are largely driven by single mothers and that employment and months worked penalties are driven by married mothers. Childhood disability further increases these gaps.

We now explore if marital gaps are significant, or whether married individuals have a labor market premium with respect to their single counterparts, by gender and by whether their child is a CwD. Four years after childbirth, column (7) in Table A.9 shows that married mothers have a small labor market premium with respect to single mothers, while column (15) in Table A.9 shows that married mothers of CwD have a large labor market premium with respect to single mothers of CwD, with 17.9% higher wages, 15.4% higher employment rates and 16.5% more months worked. The marital gap of fathers can be seen in column (8), where we observe a large wage premium (21.3%) and small employment and months worked premium. For fathers of CwD we also observe a wage premium (18.1%), and small employment and months worked premiums; they cease to be significant by the fourth year after childbirth. These results imply that married individuals face a labor market premium, and this holds especially for mothers of CwD.

Finally we check if there are intra-gender gaps within marital groups by whether their child has a disability, this is to compare single mothers (fathers) with single mothers of CwD (fathers of CwD), and married mothers (fathers) with married mothers of CwD (fathers of CwD). Column (17) of Table A.9 reports that childhood disability penalties are large for single mothers, where four years after childbirth the wage penalty is 16.2%, the employment penalty is 13.4%, and the months worked penalty is 14.6%. For married mothers, penalties are also large for employment (15.3%) and months worked (16.7%), as can be seen in column (19). For fathers, we observe a large wage penalty for married individuals (18.6%). Childhood disability creates significant labor market gaps between mothers of CwD with respect to other mothers, especially among single mothers. It also creates a wage penalty for married fathers.

5.2 Education

We examine the effect of parents' education by assigning them into two categories: those with tertiary education degrees and those without. This is the only educational variable available in the SRC data.

Figure A.3 shows child penalties for individuals with and without tertiary education in Panel I and II, respectively. In both panels, the gray line represents the results for parents with the other educational status. According to these results, mothers without tertiary education experience lower labor outcomes after having children compared to those with tertiary education. There is a significant negative effect on the private sector employment rate of mothers without tertiary education. In contrast, fathers without tertiary education exhibit higher labor outcomes compared to fathers with tertiary education. The effect on wages is permanent, while the difference in employment and months worked between fathers with and without tertiary education decreases over time. From columns (3) and (6) of Table A.10, child penalties four years after childbirth are much higher for mothers without tertiary education: the wage penalty is 30.5% (vs. 20.3%), the employment penalty is 15.5% (vs. 9.8%), and the months worked penalty is 25.3% (vs. 15.8%).

Regarding the effect of childhood disability, Figure A.4 shows that mothers without tertiary education who have children with disabilities experience lower labor performance after the birth of their first child compared to mothers without tertiary education and without children with disabilities. Columns (11) and (14) of Table A.10 show that, for mothers of CwD without tertiary education, child penalties are higher than those of other mothers and lower for mothers of CwD with tertiary education. Four years after childbirth mothers of CwD without tertiary education exhibit wage penalties of 46.3%, employment penalties of 33.3%, and months worked penalties of 45.0%. The same results for mothers of CwD with tertiary education are 12.6%, 8.6%, and 15.7%. These results suggest that the higher child penalties observed for mothers of CwD are largely driven by those without tertiary education.

We also analyze if there are educational gaps among parents, by gender and childhood disability. According to column (7) of Table A.10, mothers without tertiary education face a labor market penalty with respect to mothers with tertiary education; four years after childbirth they have a 16.1% wage penalty, a 6.7% employment penalty, and a 3.8% months worked penalty. For mothers of CwD, this penalty is non-significant

in wages, but much larger in employment (22.0%) and months worked (20.8%). Fathers without tertiary education, as seen in column (8), also face a labor market gap with respect to fathers with higher education; their wage penalties are 9.2%, their employment penalties are 2.0%, and their months worked penalties are 8.4%. Column (16) shows the case of fathers of CwD, where these results hold for the wage penalty (12.2%), are non-significant for employment, and reverse for months worked (a 4.4% premium). These results reaffirm our finding that labor market gender gaps due to parenthood (of CwD or not) are further widened by educational gaps.

Finally, we check if there are intra-gender gaps by educational group associated with childhood disability. Column (17) of table A.10 shows that—among individuals with no tertiary education—there exists a penalty for mothers of CwD with respect to other mothers, facing four years after childbirth, a wage penalty of 18.4%, an employment penalty of 15.3%, and a months worked penalty of 17.1%. Column (19) reveals that among mothers with tertiary education, the penalties are 17.3% in wages, non-significant in employment, and 13.5% in months worked. This implies that educational gaps widen intra-gender gaps arising due to childhood disability. Four years after childbirth we find no intra-gender gaps by educational group due to childhood disability for males. This suggests that females, whether with or without tertiary education, bear the burden of labor market penalties due to childhood disability.

6 Conclusion

In this study, we employed an event study methodology and administrative data to investigate the medium-term effects of childbirth on the labor trajectories of mothers and fathers, taking into account the presence of childhood disabilities. The study focuses on three key outcome variables: formal monthly wages, formal employment participation, and months worked.

We found a substantial gender gap between mothers and fathers regarding the impact of parenthood on labor outcomes. Four years after childbirth, we observed a wage gap of 29%, a formal employment participation gap of 14%, and a months worked gap of 23%. These gaps were even larger for single mothers and mothers without tertiary education. We also observed an increasing trend in these gaps over time.

Additionally, the birth of a child with disabilities significantly widens this gap. Among mothers and fathers with CwD, four years after childbirth, we observed a wage gap of 40%, an employment gap of 30%, and a months worked gap of 41%. Once again, this gap was larger for single mothers and mothers without tertiary education.

Furthermore, situations of childhood disability also give rise to an intra-gender gap for mothers. Mothers of CwD experience worse labor outcomes compared to children without disabilities after childbirth. Four years after childbirth, among mothers with children with disabilities compared to other mothers, we observed a wage gap of 13%, a participation gap of 13%, and a months worked gap of 14%. As in previous cases, this gap is larger for single mothers of children with disabilities and mothers of children with disabilities without tertiary education. On the other hand, fathers of children with disabilities face a small wage penalty and a small premium in employment and months worked.

Our robustness checks suggest that including the informal sector and public would lead to higher estimated penalties associated with childbirth. Furthermore, our findings suggest that childbirth tends to steer women towards informal employment, while the opposite effect is observed for men, with a shift towards formal employment.

This study has important limitations that should be acknowledged. Firstly, the AFC labor panel used in this analysis lacks information on public sector workers and self-employed individuals. Some periods of non-participation in the labor market could be explained by employment in the public sector or self-employment, leading to a measurement error in the dependent variable. While our estimators remain consistent if the measurement error is not systematically related to the explanatory variables, the precision of our estimates may be compromised as the magnitude of the measurement error increases. Additionally, there is a possibility of correlation between the measurement error and the explanatory variables, as job opportunities for men and women are often influenced by their unique capabilities and attributes.

Second, the records of the National Disability Registry (RND) are incomplete regarding the number of people with disabilities. According to SENADIS (National Disability Service) report, only 13.9% of the population with disabilities is registered in the database. This implies that the proportion of childhood disability events

may be underestimated, and there is a possibility that we are including women in the control group (women with children not registered in the RND) who actually have children with disabilities. This may result in an underestimation of the effects of the birth of children with disabilities. To address this limitation, a possible extension of this analysis could involve using birth data combined with hospitalization data to identify children with severe health problems at birth and more accurately identify the presence of childhood disabilities.

These findings underscore the importance of caregiving policies in general and for children with disabilities in particular. It is crucial to consider disability in family assessments and social protection programs design to address these disparities.

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Main Figures

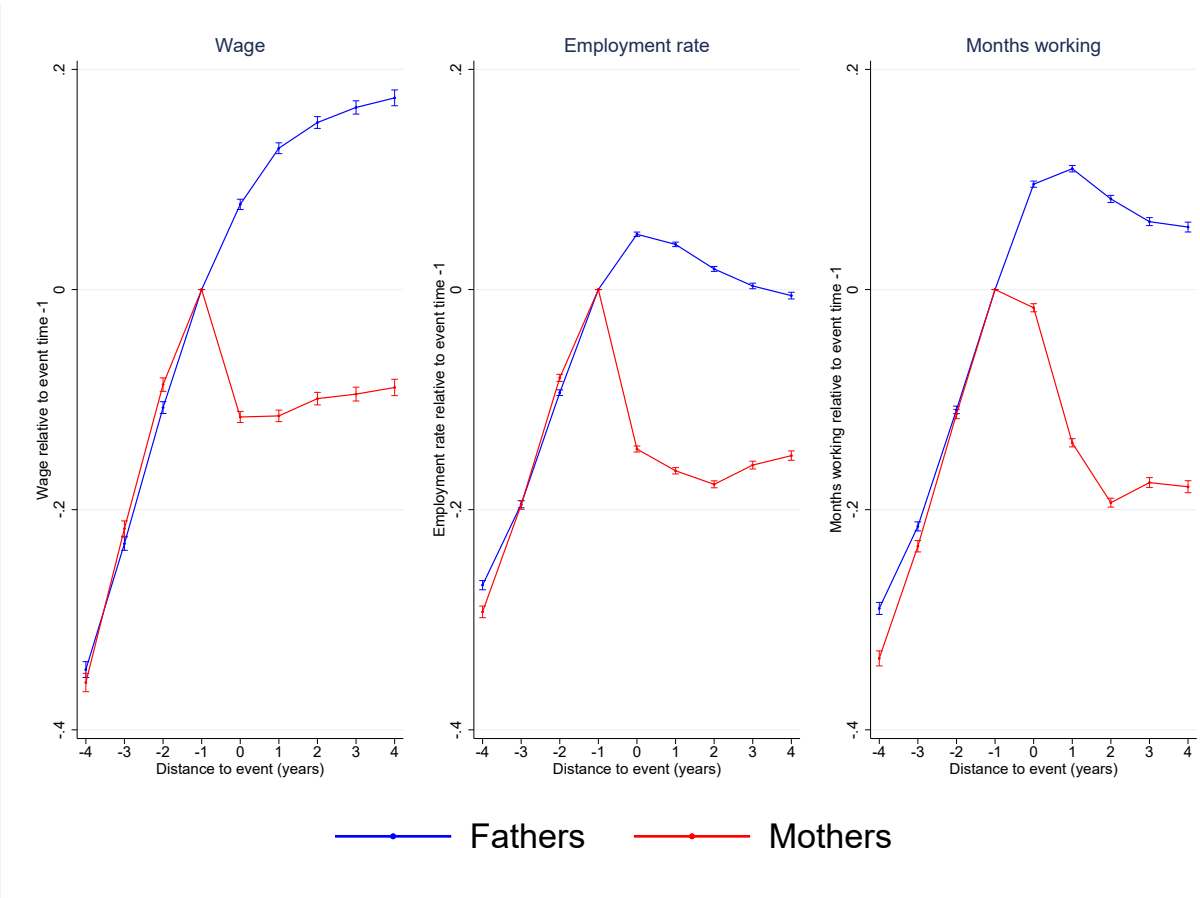


Figure 1: Gender Gap

Note: Wage, employment rate, and months worked are presented according to the distance in years from the event date, based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha}/E[\tilde{Y}_{ist}^{gp}|t]$. Point estimates available in table 3. The Y-axis represents the proportion relative to the level at $t-1$. The X-axis represents the distance in years from the birth date. The figure shows the point estimate along with a 5% confidence interval.

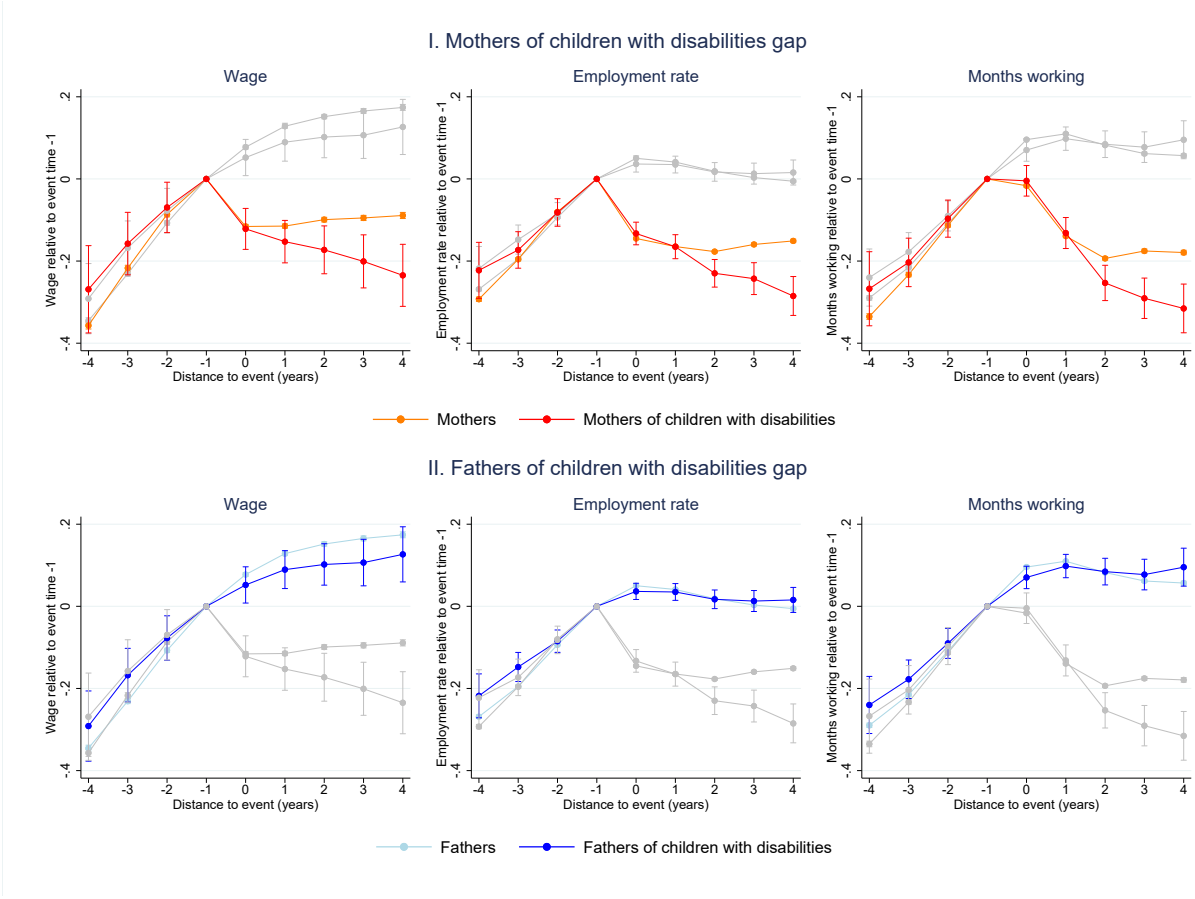


Figure 2: Gender Gap and Children with Disabilities

Note: Wage, labor force participation, and months worked are presented according to the distance in years from the event date, based on the estimation of Equation 1 and the calculation of $P_t^{gp} = \hat{\alpha}/E[\tilde{Y}_{ist}^{gp}|t]$. Point estimates available in table 3. The Y-axis represents the proportion relative to the level at $t-1$. The X-axis represents the distance in years from the birth date. The figure shows the point estimate along with a 5% confidence interval.

Main Tables

Table 1: Frequency of Events

	Females		Males	
Year	Mothers	Mothers of CwD	Fathers	Fathers of CwD
2015	73.37	0.79	89.12	1.02
2016	67.62	0.74	82.92	0.98
2017	62.84	0.70	77.12	0.84
2018	62.58	0.58	80.31	0.69
2019	57.94	0.34	73.74	0.44
2020	37.80	0.12	46.97	0.14
Pooled	362.14	3.25	450.18	4.10

Note: Frequencies are presented in thousands. The first panel shows the frequency of events by year for women, while the second panel displays the frequency of events by year for men. Columns (1) and (3) represent events associated with the birth of daughters or sons. Columns (2) and (4) show events associated with the birth of daughters or sons with disabilities.

Table 2: Descriptive Statistics

Panel I	Mothers				Mothers of CwD			
	Age	Wage	Employment rate	Months working	Age	Wage	Employment rate	Months working
t=-4	23.67	0.22	0.46	2.74	24.41	0.24	0.53	2.90
t=-3	24.55	0.29	0.56	3.81	25.18	0.29	0.61	3.80
t=-2	25.28	0.36	0.67	4.88	25.97	0.34	0.71	4.95
t=-1	25.99	0.41	0.75	5.85	26.65	0.37	0.78	5.94
t=0	26.66	0.37	0.64	5.67	27.30	0.34	0.68	6.07
t=1	27.57	0.39	0.65	5.40	28.24	0.33	0.67	5.85
t=2	28.30	0.41	0.64	5.04	29.12	0.33	0.60	4.85
t=3	28.98	0.42	0.66	5.08	29.89	0.32	0.58	4.43
t=4	29.69	0.43	0.65	4.68	30.54	0.31	0.53	3.93
Panel II	Fathers				Fathers of CwD			
	Age	Wage	Employment rate	Months working	Age	Wage	Employment rate	Months working
t=-4	25.11	0.29	0.53	3.33	25.78	0.29	0.59	3.38
t=-3	25.97	0.36	0.61	4.38	26.54	0.36	0.67	4.43
t=-2	26.72	0.43	0.71	5.50	27.18	0.42	0.74	5.52
t=-1	27.46	0.50	0.80	6.52	28.01	0.47	0.82	6.50
t=0	28.19	0.55	0.85	6.94	28.76	0.51	0.86	7.20
t=1	29.09	0.59	0.85	7.51	29.72	0.55	0.87	8.07
t=2	29.86	0.62	0.84	7.19	30.60	0.57	0.85	7.63
t=3	30.56	0.64	0.82	6.89	31.41	0.58	0.84	7.20
t=4	31.34	0.64	0.80	6.12	32.32	0.59	0.83	6.42

Note: Panel I displays descriptive statistics by distance to the event for mothers. Panel II displays descriptive statistics by distance to the event for fathers. The columns show group averages for age, wage, employment rate, and months worked. Wage is measured in millions of 2017 chilean pesos. The first 4 columns pertain to maternity/paternity events, while the last 4 columns pertain to maternity/paternity events of children with disabilities.

Table 3: Gender Gap and Children with Disabilities

	Parents			Parents of children with disabilities			Intra-gender gap	
	P_t^{Female}	P_t^{Make}	Child penalty	$P_t^{\text{Mothers of CwD}}$	$P_t^{\text{Fathers of CwD}}$	Child penalty	Female penalty	Male penalty
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I. Wage								
t=-4	-0.3570	-0.3453	-0.0819***	-0.2688	-0.2916	-0.1063***	-0.1164**	-0.0766*
t=-3	-0.2172	-0.2309	-0.0696***	-0.1575	-0.1677	-0.0559***	-0.0789**	-0.0776***
t=-2	-0.0864	-0.1073	-0.0450***	-0.0694	-0.0772	-0.0271***	-0.0244	-0.0369
t=0	-0.1158	0.0774	0.2094***	-0.1217	0.0521	0.1881***	-0.0062	0.0290
t=1	-0.1148	0.1284	0.2675***	-0.1527	0.0894	0.2669***	0.0238	0.0449**
t=2	-0.0991	0.1517	0.2783***	-0.1727	0.1020	0.3045***	0.0595**	0.0564**
t=3	-0.0950	0.1654	0.2896***	-0.2008	0.1066	0.3395***	0.0912***	0.0659**
t=4	-0.0890	0.1741	0.2927***	-0.2348	0.1266	0.4002***	0.1311***	0.0552*
II. Employment rate								
t=-4	-0.2928	-0.2686	-0.0051***	-0.2226	-0.2180	-0.0211***	-0.0593*	-0.0385
t=-3	-0.1956	-0.1951	-0.0159***	-0.1730	-0.1477	0.0146***	-0.0141	-0.0409**
t=-2	-0.0803	-0.0937	-0.0200***	-0.0817	-0.0848	-0.0071***	0.0053	-0.0064
t=0	-0.1449	0.0502	0.1986***	-0.1329	0.0364	0.1713***	-0.0062	0.0124
t=1	-0.1647	0.0410	0.2081***	-0.1651	0.0350	0.2019***	0.0050	0.0051
t=2	-0.1770	0.0187	0.1967***	-0.2298	0.0171	0.2480***	0.0537***	0.0013
t=3	-0.1595	0.0032	0.1629***	-0.2428	0.0129	0.2567***	0.0815***	-0.0097
t=4	-0.1509	-0.0055	0.1451***	-0.2851	0.0156	0.3021***	0.1306***	-0.0211
III. Months working								
t=-4	-0.3351	-0.2897	0.0049***	-0.2674	-0.2402	-0.0029	-0.0815*	-0.0653**
t=-3	-0.2332	-0.2152	-0.0084***	-0.2033	-0.1776	0.0029	-0.0394	-0.0452**
t=-2	-0.1131	-0.1093	-0.0095***	-0.0967	-0.0902	-0.0031	-0.0169	-0.0211
t=0	-0.0166	0.0957	0.1217***	-0.0046	0.0703	0.0821***	-0.0111	0.0198
t=1	-0.1392	0.1098	0.2578***	-0.1317	0.0981	0.2388***	0.0020	0.0031
t=2	-0.1936	0.0823	0.2811***	-0.2533	0.0846	0.3448***	0.0670***	-0.0068
t=3	-0.1754	0.0617	0.2403***	-0.2906	0.0774	0.3734***	0.1175***	-0.0175
t=4	-0.1792	0.0568	0.2368***	-0.3154	0.0954	0.4126***	0.1375***	-0.0393*

Note: Outcome variables are shown for each gender as a proportion with respect to $t-1$, and are based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha}_t / E[\tilde{Y}_{ist}^{gp}|t]$. Child penalties are calculated as $CP_t^{gp} = (\hat{\alpha}_t^m - \hat{\alpha}_t^w)/E[\tilde{Y}_{ist}^w|t]$. Intra-gender penalties are calculated as $IGP_t^{wd} = (\hat{\alpha}_t^w - \hat{\alpha}_t^{wd})/E[\tilde{Y}_{ist}^{wd}|t]$ and $IGP_t^{md} = (\hat{\alpha}_t^m - \hat{\alpha}_t^{md})/E[\tilde{Y}_{ist}^{md}|t]$. Statistical significance of penalties given by $^*\ p < 0.10$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$.

A Appendix Figures

A.1 General

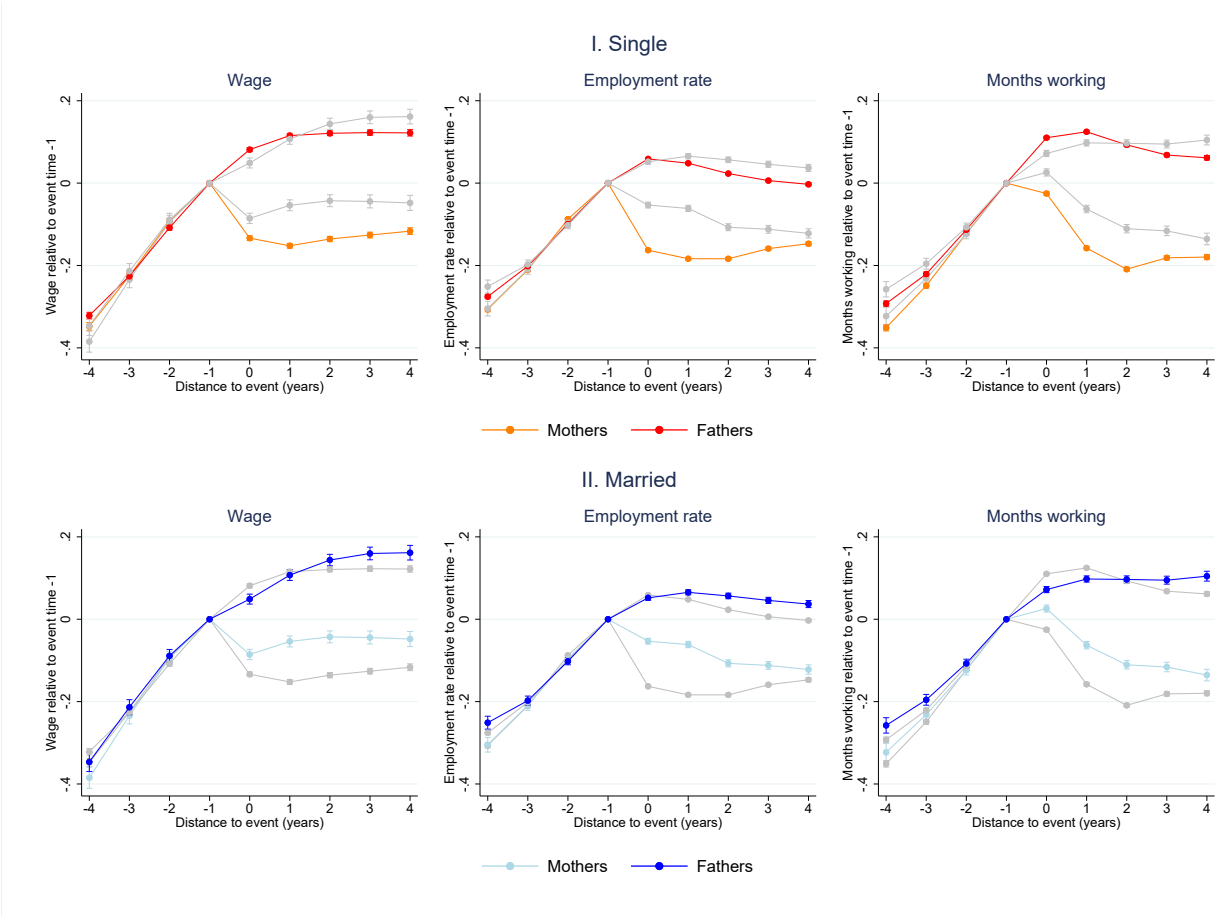
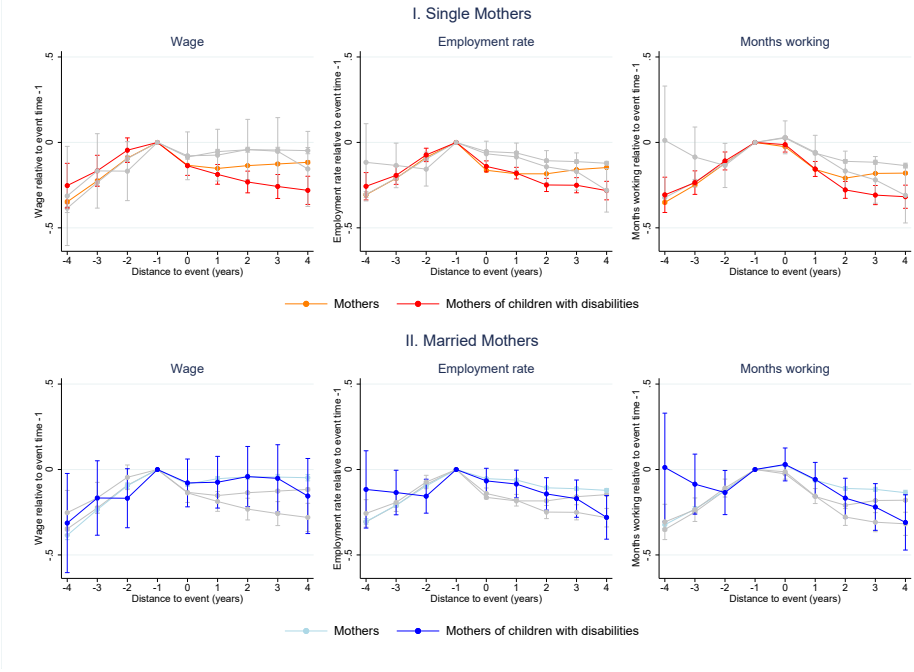


Figure A.1: Gender Gap: Marital Status Heterogeneity

Note: Wage, labor force participation, and months worked are presented according to the distance in years from the event date, based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha}/E[\tilde{Y}_{ist}^{gp}|t]$. Point estimates available in Table **??**. The Y-axis represents the proportion relative to the level at $t-1$. The X-axis represents the distance in years from the birth date. The figure shows the point estimate along with a 5% confidence interval.

(a) Females



(b) Males

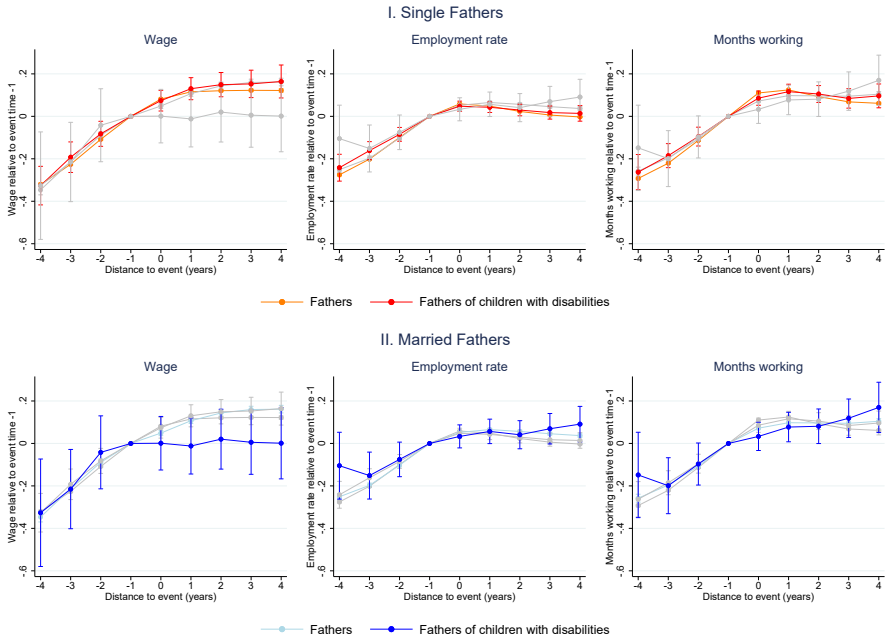


Figure A.2: Intra-gender Gap and Children with Disabilities: Marital Status Heterogeneity

Note: Wage, labor force participation, and months worked are presented according to the distance in years from the event date, based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha} / E[\tilde{Y}_{ist}^{gp}|t]$. Point estimates available in Table A.9. The Y-axis represents the proportion relative to the level at $t-1$. The X-axis represents the distance in years from the birth date. The figure shows the point estimate along with a 5% confidence interval.

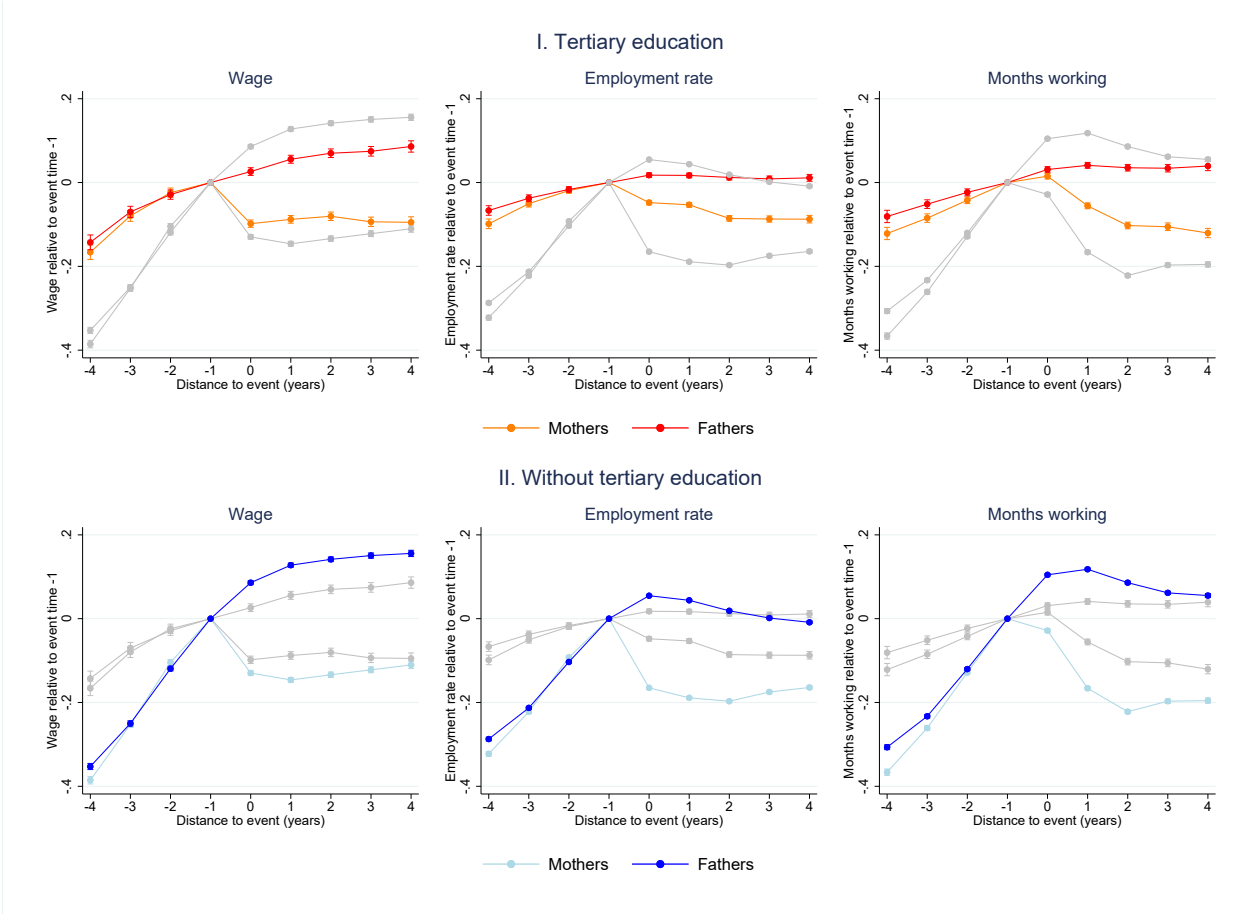
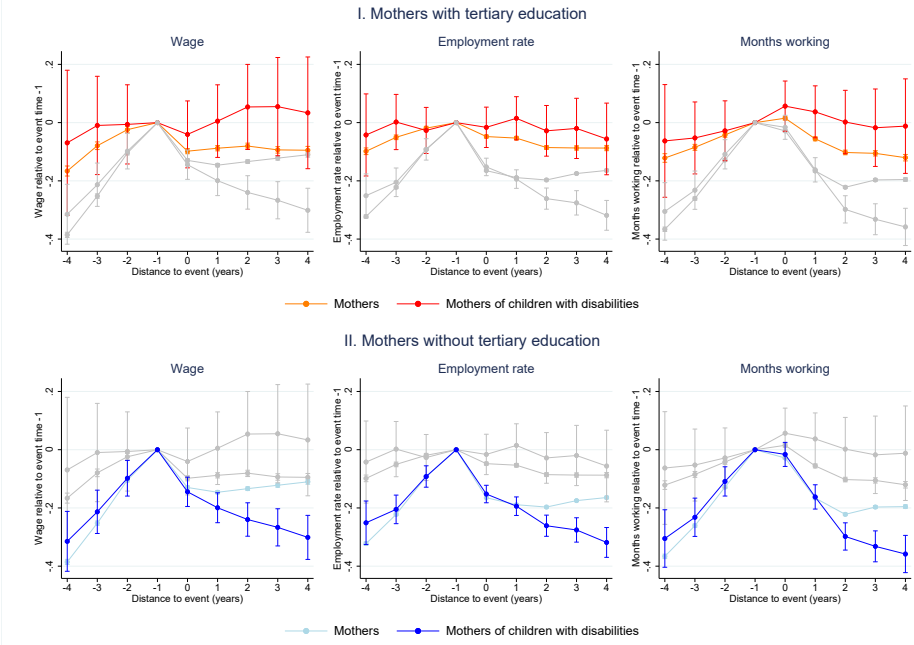


Figure A.3: Gender Gap: Heterogeneity by Education

Note: Wage, labor force participation, and months worked are presented according to the distance in years from the event date, based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha} / E[\tilde{Y}_{ist}^{gp}|t]$. Point estimates available in Table A.10. The Y-axis represents the proportion relative to the level at $t-1$. The X-axis represents the distance in years from the birth date. The figure shows the point estimate along with a 5% confidence interval.

(a) Females



(b) Males

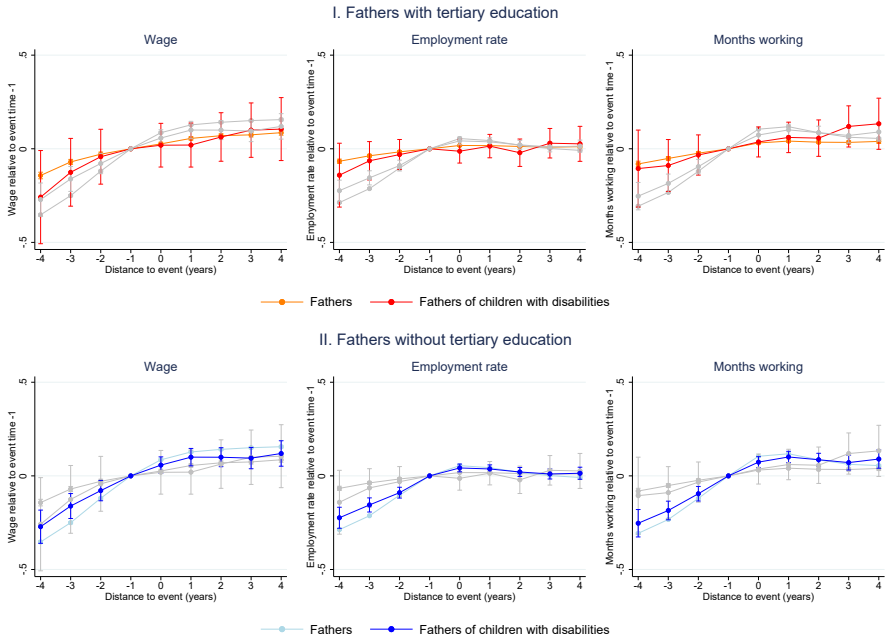


Figure A.4: Intra-gender Gap and Children with Disabilities: Heterogeneity by Education

Note: Wage, labor force participation, and months worked are presented according to the distance in years from the event date, based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha} / E[\tilde{Y}_{ist}^{gp}|t]$. Point estimates available in Table A.10. The Y-axis represents the proportion relative to the level at $t-1$. The X-axis represents the distance in years from the birth date. The figure shows the point estimate along with a 5% confidence interval.

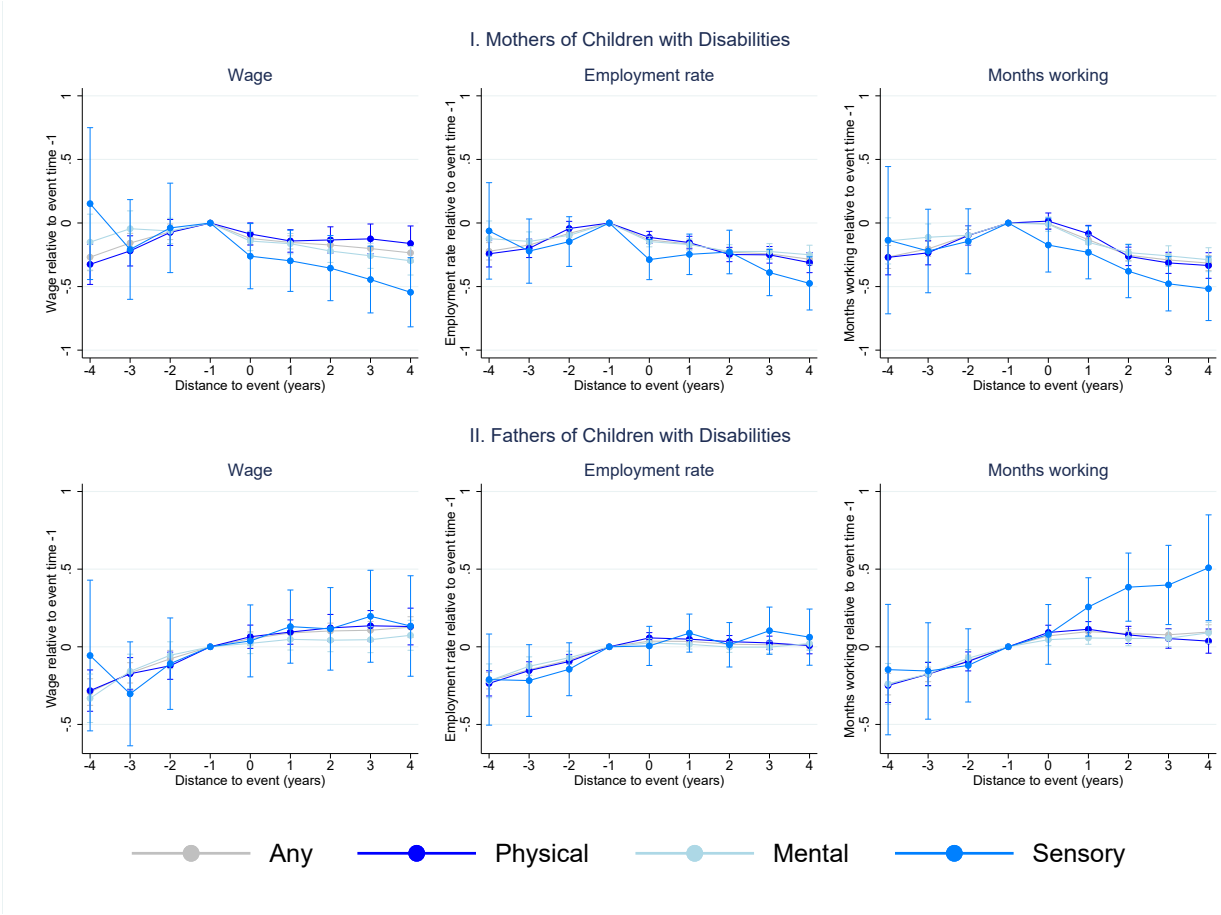


Figure A.5: Impact of Children with Disabilities: Heterogeneity by Type of Disability

Note: Wage, labor force participation, and months worked are presented according to the distance in years from the event date, based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha}/E[\tilde{Y}_{ist}^{gp}|t]$. The Y-axis represents the proportion relative to the level at $t-1$. The X-axis represents the distance in years from the birth date. The figure shows the point estimate along with a 5% confidence interval.

A.2 Informal and Public Sector

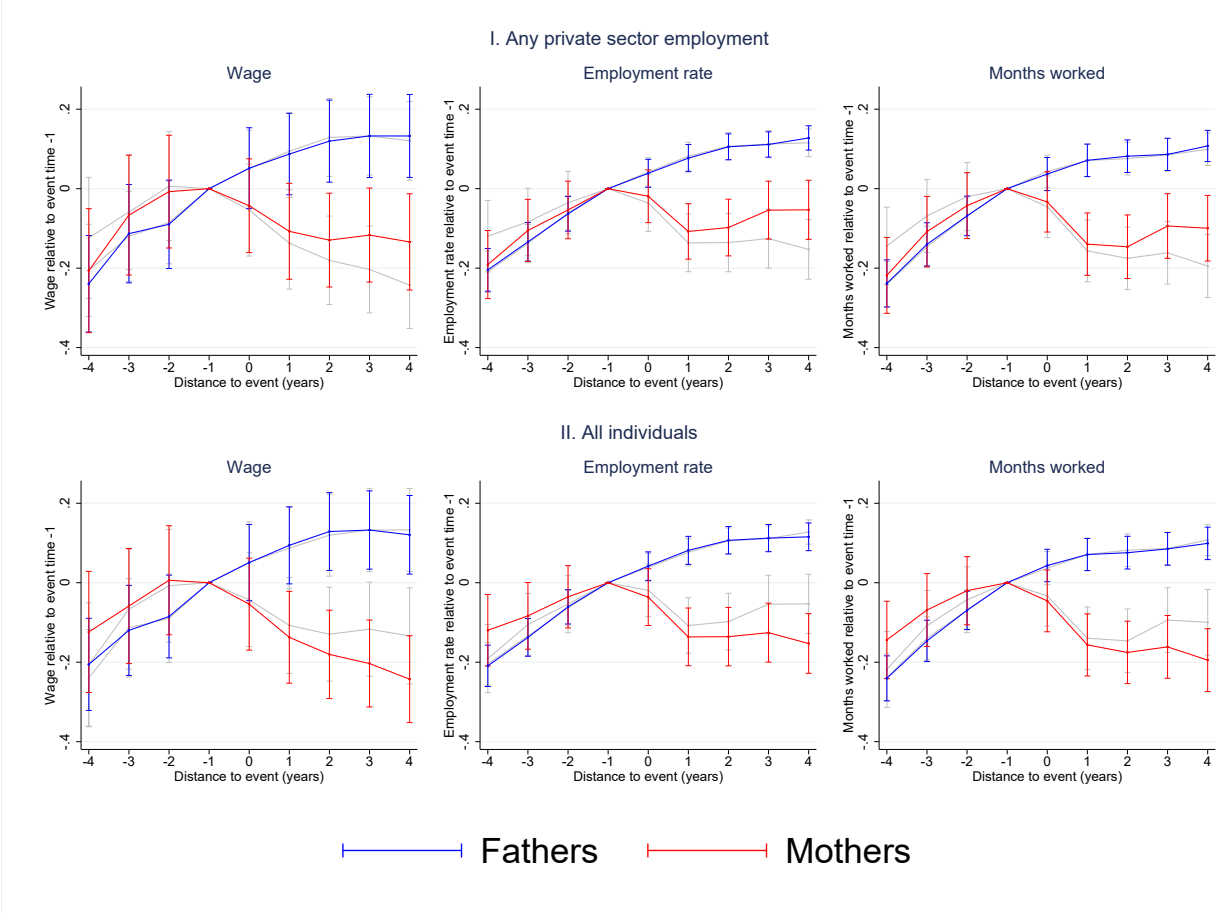


Figure A.6: Gender Gap Including Informal Sector

Note: Wage, labor force participation, and months worked are presented according to the distance in years from the event date, based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha}/E[\tilde{Y}_{ist}^{gp}|t]$. The Y-axis represents the proportion relative to the level at $t-1$. The X-axis represents the distance in years from the birth date. Results from a survey based yearly labor panel between 2002 and 2015. Panel I includes parents with at least one period of private sector employment in a four-year window around childbirth. Panel II includes all parents in a four-year window around childbirth. The figure shows the point estimate along with a 5% confidence interval. Based on data from EPS.

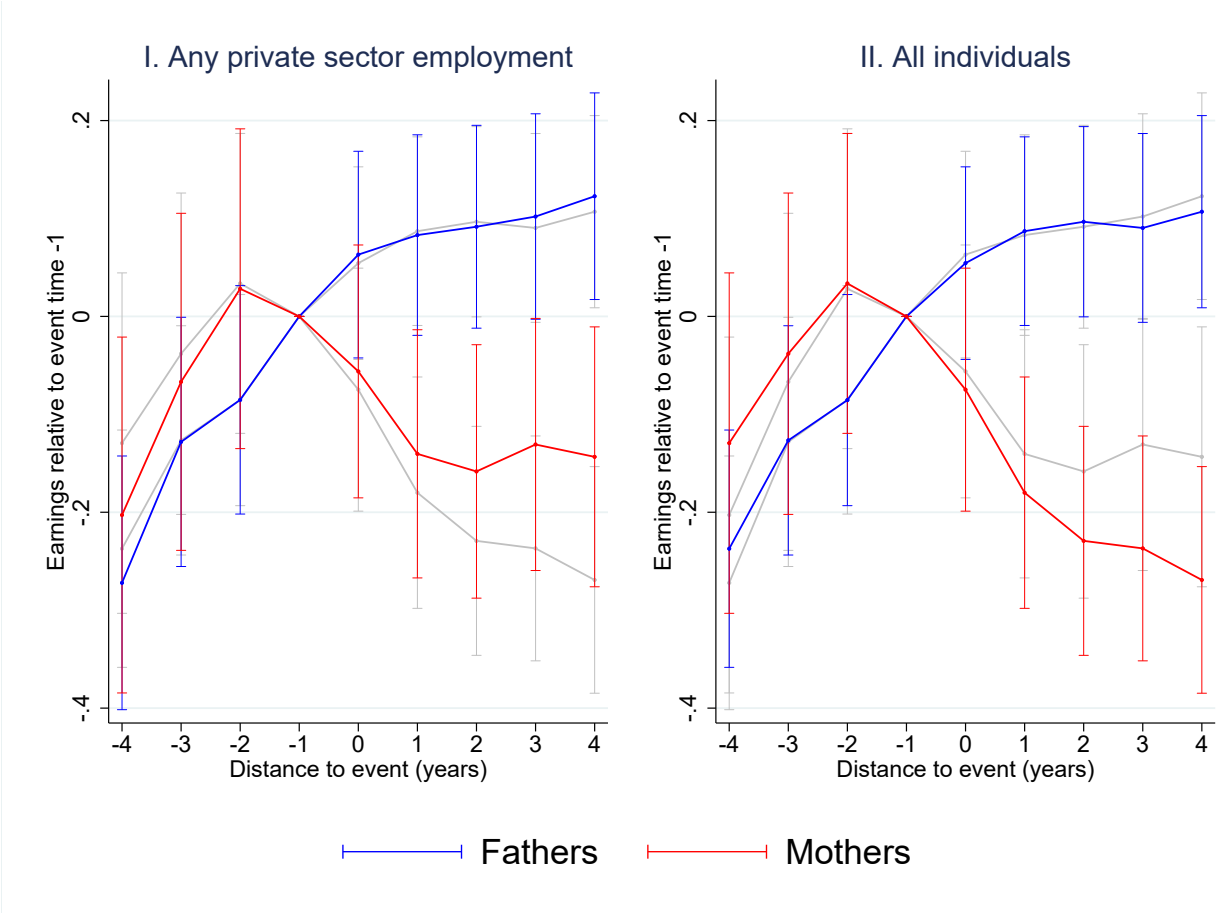


Figure A.7: Earnings Gender Gap

Note: Earnings are presented according to the distance in years from the event date, based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha}/E[\tilde{Y}_{ist}^{gp}|t]$. The Y-axis represents the proportion relative to the level at $t-1$. The X-axis represents the distance in years from the birth date. Panel I. only includes parents with at least one period of formal employment in a four-year window around childbirth. Panel II includes all parents. The figure shows the point estimate along with a 5% confidence interval. Based on data from EPS.

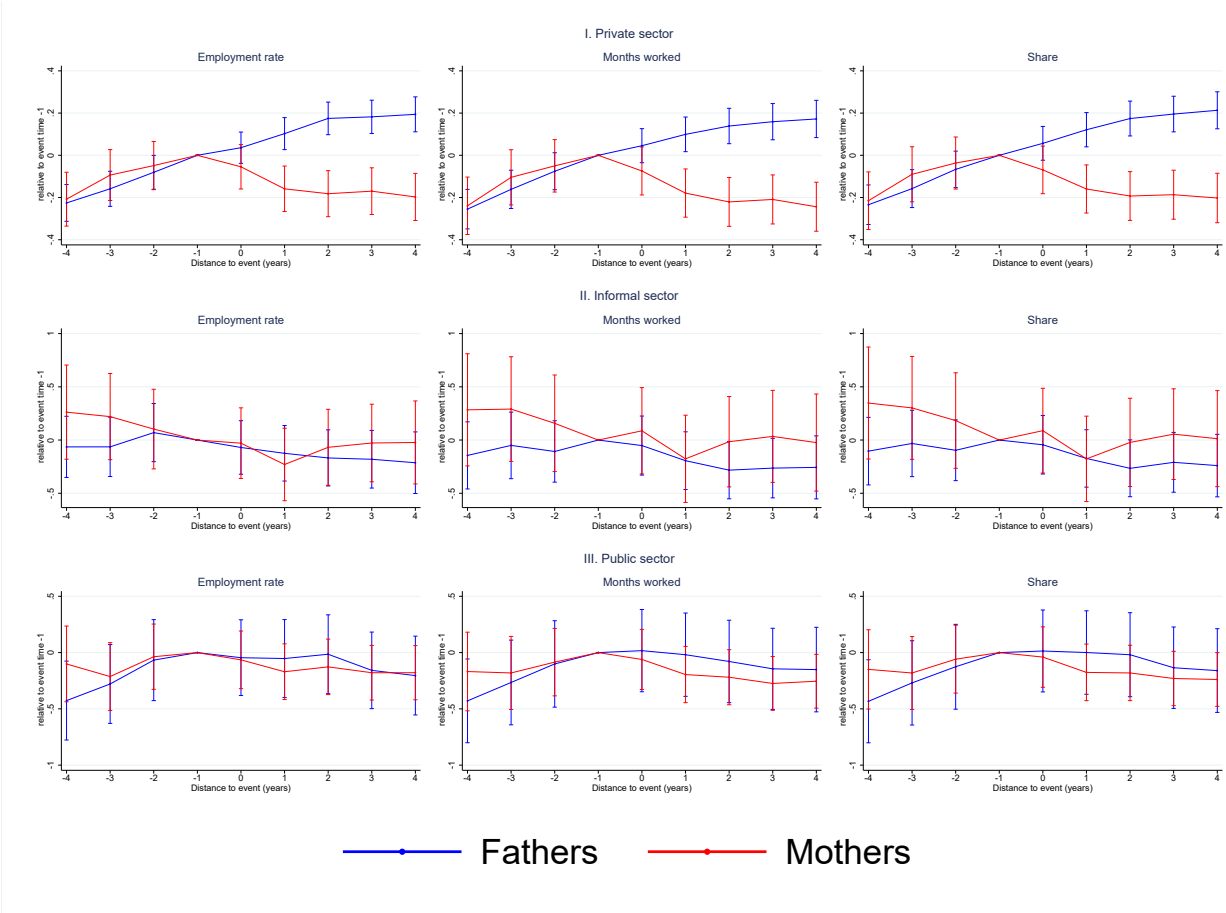


Figure A.8: Formal and Informal Sector Employment

Note: Wage, labor force participation, and months worked are presented according to the distance in years from the event date, based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha}/E[\tilde{Y}_{ist}^{gp}|t]$. The Y-axis represents the proportion relative to the level at $t-1$. The X-axis represents the distance in years from the birth date. The figure shows the point estimate along with a 5% confidence interval. Based on data from EPS.

A.3 Childhood Disability Definition

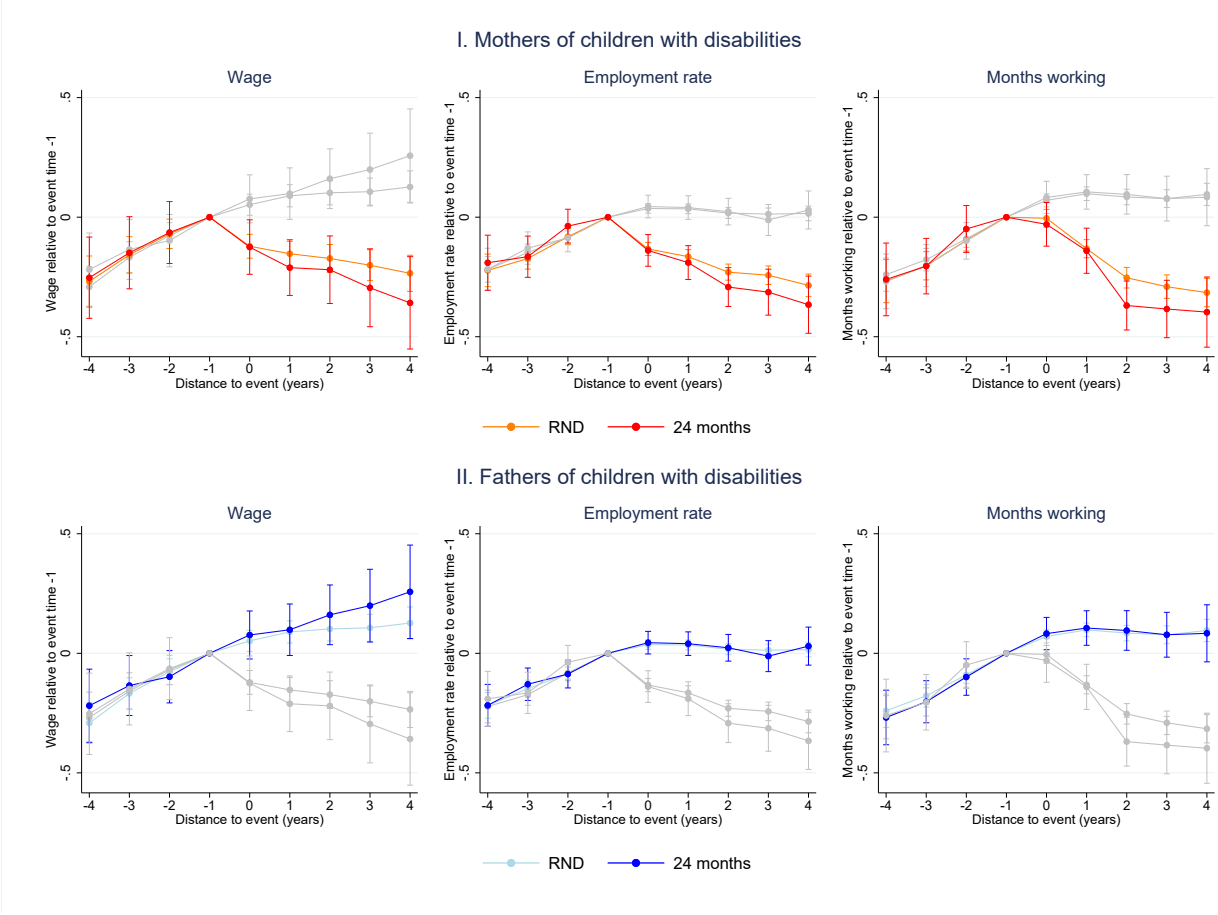


Figure A.9: Robustness of Gender Gap and Childhood Disability Definition

Note: Wage, participation, and months worked are shown according to the distance in years from the event, based on the estimation from equation 1 and the calculation of $P_t^{gp} = \hat{\alpha}/E[\tilde{Y}_{ist}^{gp}|t]$. The Y-axis represents the proportion relative to the level at $t-1$. The X-axis represents the distance in years from the date of birth. The figure displays the point estimate along with a 5% confidence interval. RND identifies events of childhood disability. 24 months identifies events of childhood disability with registration in RND occurring up to 24 months after birth.

B Appendix Tables

B.1 Imputed Observations

Table A.1: Imputed Observations

	Females						Males					
	2015	2016	2017	2018	2019	2020	2015	2016	2017	2018	2019	2020
t=-4	55.55	51.18	-	-	-	-	49.86	42.54	-	-	-	-
t=-3	47.51	41.45	41.04	-	-	-	43.73	37.83	32.66	-	-	-
t=-2	38.31	31.55	31.20	27.61	-	-	33.21	30.72	27.56	21.53	-	-
t=-1	34.41	23.45	22.87	20.16	20.22	-	25.87	19.77	19.69	17.21	14.06	-
t=0	42.32	33.98	33.97	31.67	31.35	40.25	19.73	14.10	14.45	12.96	12.04	19.67
t=1	-	34.62	33.74	34.57	33.00	41.13	-	12.73	13.90	13.89	12.87	20.50
t=2	-	-	32.65	32.45	34.17	44.76	-	-	13.98	14.57	15.10	21.76
t=3	-	-	-	29.65	30.84	43.65	-	-	-	14.74	15.68	23.25
t=4	-	-	-	-	29.84	40.62	-	-	-	-	16.01	23.75

Note: This table shows the percentage of imputed observations in the labor panel. Rows represent distance to childbirth and columns represent years. The left panel shows results for females. The right panel shows results for males. All values are in percentages.

B.2 Demographics

Table A.2: Demographics

	Females	Males
Panel I. Demographics		
Age	26.91	28.41
% Married	12.70	11.91
% with Tertiary Education	15.76	11.96
Panel II. Labor Outcomes		
Wage	0.38	0.53
Employment %	64.96	78.66
Months worked	5.08	6.42

Note: Panel I shows average demographic characteristics by gender. Panel II shows average labor outcomes by gender. Wages are in millions of 2017 CLP.

B.3 Earnings and Number of Jobs

Table A.3: Wages, Earnings and Number of Jobs

	Females				Males			
	Earnings	Wage	Number of jobs	Indefinite contract	Earnings	Wage	Number of jobs	Indefinite contract
2015	0.60	0.57	1.09	0.67	0.73	0.71	1.06	0.62
2016	0.58	0.55	1.09	0.63	0.70	0.68	1.06	0.60
2017	0.59	0.56	1.08	0.63	0.71	0.70	1.06	0.60
2018	0.61	0.58	1.08	0.64	0.73	0.71	1.06	0.61
2019	0.63	0.60	1.08	0.65	0.75	0.74	1.06	0.62
2020	0.67	0.64	1.08	0.72	0.78	0.77	1.06	0.67

Note: This table shows average earnings (sum of monthly wages), wage (highest monthly wage), number of jobs and likelihood of working under an indefinite contract. Rows indicate years. The left panel shows results for females. The right panel shows results for males. Earnings and wages are in millions of 2017 CLP.

B.4 Childbirth Records

Table A.4: Childbirth Records

Year	Number of births	Only mother
2015	244.67	9.15%
2016	231.75	8.69%
2017	219.19	8.70%
2018	221.73	8.39%
2019	210.19	7.95%
2020	194.98	7.69%

Note: The first column shows the number of births (in thousands). Column two shows the percentage of children registered with only a mother. The share of children with no mothers or without parents is negligible. Based on data from INE (National Statistics Institute).

B.5 Informal Sector

Table A.5: Frequency of Events and Formal Sector Participation

	Mothers		Fathers	
Year	All	Any private sector employment	All	Any private sector employment
2002	100	56	98	75
2003	72	50	83	74
2004	81	50	65	52
2005	83	55	64	53
2006	82	50	91	76
2007	63	35	64	54
2008	67	38	84	66
2009	142	68	88	67
2010	112	52	86	71
2011	127	68	96	77
2012	89	50	80	60
2013	61	31	48	34
2014	66	36	59	43
2015	44	18	40	32
Pooled	1189	657	1046	834

Note: The first panel displays the frequency of events by year for women. The second panel displays the frequency of events by year for men. Columns (1) and (3) show events associated with the birth of daughters or sons. Columns (2) and (4) show events associated with the birth of daughters or sons of parents with at least one period of formal employment in a four-year window around childbirth. Based on data from EPS.

Table A.6: Descriptive Statistics Including Informal Sector

Panel I	Females				Females with any private sector employment			
	Age	Wage	Employment rate	Months worked	Age	Wage	Employment rate	Months worked
t=-4	29.15	0.21	0.52	5.06	29.25	0.24	0.62	5.98
t=-3	28.84	0.23	0.55	5.35	29.19	0.28	0.68	6.49
t=-2	28.98	0.25	0.57	5.74	29.30	0.30	0.71	7.11
t=-1	28.65	0.26	0.59	5.82	29.21	0.32	0.76	7.43
t=0	28.55	0.25	0.58	5.60	29.28	0.32	0.75	7.33
t=1	28.48	0.23	0.50	4.99	29.28	0.31	0.66	6.50
t=2	28.57	0.23	0.53	5.08	29.56	0.31	0.71	6.82
t=3	28.80	0.22	0.52	5.21	29.86	0.30	0.71	7.10
t=4	29.18	0.22	0.54	5.24	30.32	0.30	0.73	7.03
Panel II	Males				Males with any private sector employment			
	Age	Wage	Employment rate	Months worked	Age	Wage	Employment rate	Months worked
t=-4	30.81	0.43	0.73	7.24	30.98	0.39	0.74	7.25
t=-3	30.65	0.49	0.80	8.25	30.74	0.49	0.81	8.41
t=-2	30.89	0.49	0.85	8.85	31.04	0.49	0.86	8.92
t=-1	30.86	0.53	0.87	9.17	30.95	0.54	0.89	9.27
t=0	31.07	0.55	0.91	9.68	31.02	0.56	0.93	9.77
t=1	31.02	0.57	0.93	10.00	30.88	0.59	0.94	10.12
t=2	31.35	0.59	0.95	10.14	31.23	0.60	0.96	10.31
t=3	31.59	0.59	0.95	10.13	31.32	0.61	0.97	10.30
t=4	31.73	0.60	0.97	10.60	31.46	0.63	0.99	10.86

Note: Panel I displays descriptive statistics by distance to the event for mothers. Panel II displays descriptive statistics by distance to the event for fathers. The columns show group averages for age, wage, labor force participation, and months worked. Wage is measured in millions of 2017 Chilean pesos. The first 4 columns identify maternity/paternity events, while the last 4 columns identify maternity/paternity events of parents with at least one period of formal employment in a four-year window around childbirth. Based on data from EPS.

Table A.7: Labor Distribution

Panel I	Females								
	Private sector			Informal sector			Public sector		
	Employment rate	Months worked	Share	Employment rate	Months worked	Share	Employment rate	Months worked	Share
t=-4	0.35	3.24	0.29	0.08	0.58	0.06	0.07	0.66	0.06
t=-3	0.39	3.57	0.32	0.08	0.55	0.05	0.06	0.66	0.06
t=-2	0.40	3.82	0.34	0.06	0.47	0.04	0.09	0.84	0.08
t=-1	0.42	3.93	0.34	0.05	0.39	0.03	0.09	0.93	0.08
t=0	0.38	3.64	0.33	0.06	0.39	0.04	0.08	0.83	0.07
t=1	0.32	3.09	0.28	0.04	0.28	0.03	0.08	0.81	0.07
t=2	0.34	3.19	0.29	0.05	0.34	0.03	0.09	0.86	0.08
t=3	0.33	3.30	0.29	0.05	0.37	0.03	0.09	0.82	0.07
t=4	0.35	3.25	0.30	0.04	0.27	0.02	0.09	0.86	0.07
Panel II	Males								
	Private sector			Informal sector			Public sector		
	Employment rate	Months worked	Share	Employment rate	Months worked	Share	Employment rate	Months worked	Share
t=-4	0.52	4.90	0.44	0.10	0.71	0.06	0.03	0.27	0.02
t=-3	0.56	5.60	0.49	0.11	0.81	0.07	0.05	0.42	0.04
t=-2	0.60	6.06	0.54	0.12	0.86	0.08	0.05	0.41	0.03
t=-1	0.62	6.15	0.55	0.12	0.91	0.08	0.06	0.47	0.04
t=0	0.64	6.54	0.59	0.12	0.87	0.08	0.05	0.48	0.04
t=1	0.66	6.83	0.61	0.09	0.76	0.07	0.05	0.48	0.04
t=2	0.70	7.04	0.63	0.08	0.57	0.05	0.06	0.55	0.05
t=3	0.73	7.49	0.68	0.07	0.56	0.06	0.05	0.50	0.05
t=4	0.73	7.79	0.69	0.07	0.65	0.06	0.05	0.47	0.04

Note: Panel I displays descriptive statistics by distance to the event for mothers. Panel II displays descriptive statistics by distance to the event for fathers. The columns show group averages for employment rate, months worked, and share of months active. Columns (1) to (3) refer to formal sector jobs. Columns (4) to (6) refer to informal sector jobs. Columns (7) to (9) refer to public sector jobs. Based on data from EPS.

Table A.8: Gender Gap and Private Sector Jobs

	Any private sector employment			All individuals			Intra-gender gap	
	P_t^{Female}	P_t^{Male}	Child penalty	P_t^{Female}	P_t^{Male}	Child penalty	Female penalty	Male penalty
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I. Wage								
t=-4	-0.1991	-0.2398	-0.1706***	-0.1039	-0.2075	-0.3149***	-0.1624***	-0.0376***
t=-3	-0.0651	-0.1095	-0.1027***	-0.0473	-0.1169	-0.1899***	-0.0406	0.0053
t=-2	-0.0092	-0.0861	-0.1232***	0.0133	-0.0826	-0.1807***	-0.0257	-0.0053
t=0	-0.0459	0.0483	0.1209***	-0.0611	0.0448	0.1527***	-0.0007	0.0046
t=1	-0.1129	0.0823	0.2402***	-0.1476	0.0881	0.3244***	-0.0027	-0.0036
t=2	-0.1322	0.1117	0.3045***	-0.1921	0.1212	0.4308***	0.0176	-0.0057
t=3	-0.1160	0.1263	0.3128***	-0.2140	0.1219	0.4520***	0.0638***	0.0087
t=4	-0.1281	0.1297	0.3273***	-0.2525	0.1104	0.4622***	0.0882***	0.0241***
II. Employment rate								
t=-4	-0.1889	-0.2058	-0.0614***	-0.1193	-0.2102	-0.2092***	-0.1340***	-0.0046**
t=-3	-0.1092	-0.1310	-0.0473***	-0.0855	-0.1350	-0.1247***	-0.0628***	-0.0015
t=-2	-0.0564	-0.0610	-0.0160	-0.0366	-0.0588	-0.0547***	-0.0400***	-0.0046***
t=0	-0.0176	0.0365	0.0610***	-0.0368	0.0418	0.1014***	0.0130	-0.0038***
t=1	-0.1084	0.0771	0.2006***	-0.1387	0.0840	0.2681***	-0.0064	-0.0039***
t=2	-0.0973	0.1065	0.2237***	-0.1379	0.1112	0.3061***	0.0089	-0.0004
t=3	-0.0505	0.1112	0.1821***	-0.1276	0.1149	0.2977***	0.0619***	0.0007
t=4	-0.0484	0.1300	0.1997***	-0.1557	0.1221	0.3309***	0.0935***	0.0134***
III. Months working								
t=-4	-0.2154	-0.2403	-0.1002***	-0.1430	-0.2423	-0.2670***	-0.1440***	-0.0062**
t=-3	-0.1136	-0.1351	-0.0597***	-0.0716	-0.1423	-0.1669***	-0.0819***	0.0026
t=-2	-0.0452	-0.0649	-0.0374***	-0.0212	-0.0670	-0.0909***	-0.0401***	-0.0000
t=0	-0.0329	0.0346	0.0770***	-0.0470	0.0431	0.1189***	0.0026	-0.0073***
t=1	-0.1409	0.0718	0.2323***	-0.1590	0.0735	0.2799***	-0.0288**	0.0006
t=2	-0.1477	0.0847	0.2550***	-0.1790	0.0813	0.3108***	-0.0164	0.0062***
t=3	-0.0911	0.0880	0.2017***	-0.1634	0.0885	0.3033***	0.0449***	0.0026***
t=4	-0.0951	0.1128	0.2349***	-0.1972	0.1070	0.3616***	0.0750***	0.0101***

Note: Outcome variables are shown for each gender as a proportion with respect to $t-1$, and are based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha}_t / E[\tilde{Y}_{ist}^{gp}|t]$. Child penalties are calculated as $CP_t^{gp} = (\hat{\alpha}_t^m - \hat{\alpha}_t^w)/E[\tilde{Y}_{ist}^w|t]$. Intra-gender penalties are calculated as $DP_t^{wd} = (\hat{\alpha}_t^w - \hat{\alpha}_t^{wd})/E[\tilde{Y}_{ist}^{wd}|t]$ and $DP_t^{md} = (\hat{\alpha}_t^m - \hat{\alpha}_t^{md})/E[\tilde{Y}_{ist}^{md}|t]$. Statistical significance of penalties given by $^{*}\ p < 0.10$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$. Based on data from EPS.

C Heterogeneity

Table A.9: Marital Status, Gender Gap and Children with Disabilities

	Parents								Parents of children with disabilities											
	Singles			Married			Marital Gap		Singles			Married			Marital Gap		Singles intra-gender gap		Married intra-gender gap	
	P_t^F (1)	P_t^M (2)	Child penalty (3)	P_t^F (4)	P_t^M (5)	Child penalty (6)	Females (7)	Males (8)	$P_t^{\text{Mothers of CwD}}$ (9)	$P_t^{\text{Fathers of CwD}}$ (10)	Child penalty (11)	$P_t^{\text{Mothers of CwD}}$ (12)	$P_t^{\text{Fathers of CwD}}$ (13)	Child penalty (14)	Females (15)	Males (16)	Female Penalty (17)	Male Penalty (18)	Female Penalty (19)	Male Penalty (20)
I. Wage																				
t=-4	-0.3478	-0.3217	-0.0599***	-0.3848	-0.3464	-0.0742***	-0.5328***	-0.5073***	-0.2527	-0.3263	-0.1623***	-0.3133	-0.3265	-0.2112***	-0.6187***	-0.4910***	-0.0915	0.0091	-0.2740**	-0.1096
t=-3	-0.2253	-0.2257	-0.0545***	-0.2345	-0.2136	-0.0405***	-0.3072***	-0.2780***	-0.1659	-0.1925	-0.0746***	-0.1668	-0.2150	-0.1372***	-0.3662***	-0.3068***	-0.0592	-0.0313	-0.1459	-0.0444
t=-2	-0.0921	-0.1083	-0.0407***	-0.0945	-0.0887	-0.0174***	-0.1216***	-0.0981***	-0.0455	-0.0823	-0.0548***	-0.1681	-0.0420	0.1121***	-0.1658***	-0.1232***	-0.0456	-0.0255	0.0428	-0.0693
t=0	-0.1336	0.0813	0.2332***	-0.0856	0.0488	0.1456***	-0.0589***	0.0290**	-0.1366	0.0739	0.2261***	-0.0785	0.0010	0.0799***	-0.0529***	0.0360***	0.0051	0.0071	-0.0421	0.0607
t=1	-0.1522	0.1154	0.2914***	-0.0539	0.1071	0.1840***	0.0348***	0.1195***	-0.1871	0.1302	0.3416***	-0.0744	-0.0119	0.0572***	0.0708***	0.1064***	0.0364	-0.0140	-0.0038	0.1428**
t=2	-0.1357	0.1209	0.2809***	-0.0428	0.1437	0.2165***	0.0442***	0.1882***	-0.2316	0.1493	0.4077***	-0.0415	0.0202	0.0716***	0.1405***	0.1640***	0.0965***	-0.0267	-0.0223	0.1529**
t=3	-0.1261	0.1226	0.2733***	-0.0444	0.1597	0.2364***	0.0323**	0.2155***	-0.2580	0.1529	0.4379***	-0.0518	0.0055	0.0604***	0.1641***	0.1922***	0.1318***	-0.0277	-0.0163	0.1833***
t=4	-0.1166	0.1219	0.2627***	-0.0481	0.1616	0.2408***	0.0165	0.2130***	-0.2805	0.1642	0.4735***	-0.1552	0.0012	0.1571***	0.1793***	0.1811***	0.1626***	-0.0385	0.0818	0.1860**
II. Employment rate																				
t=-4	-0.3064	-0.2757	-0.0009**	-0.3047	-0.2511	0.0354***	-0.0535***	-0.0097	-0.2567	-0.2419	-0.0144***	-0.1166	-0.1048	-0.0114	-0.0886***	-0.0304	-0.0373	-0.0212	-0.2128**	-0.1336*
t=-3	-0.2102	-0.2014	-0.0088***	-0.2088	-0.1974	0.0008*	-0.0260***	-0.0149***	-0.1927	-0.1616	0.0196***	-0.1348	-0.1514	-0.0284***	-0.0326	-0.0479***	-0.0078	-0.0335*	-0.0702	-0.0380
t=-2	-0.0876	-0.0995	-0.0192***	-0.0962	-0.1022	-0.0100***	-0.0182***	-0.0093***	-0.0732	-0.0848	-0.0150***	-0.1562	-0.0752	0.0769***	-0.0267*	-0.0212*	-0.0095	-0.0122	0.0620	-0.0234
t=0	-0.1629	0.0587	0.2260***	-0.0533	0.0520	0.1065***	0.1051***	-0.0050**	-0.1404	0.0478	0.1902***	-0.0666	0.0332	0.1019***	0.0858***	0.0045	-0.0135	0.0094	0.0133	0.0170
t=1	-0.1836	0.0483	0.2349***	-0.0614	0.0654	0.1280***	0.1187***	0.0180***	-0.1798	0.0428	0.2241***	-0.0849	0.0568	0.1443***	0.1178***	0.0221**	0.0044	0.0045	0.0235	0.0069
t=2	-0.1837	0.0232	0.2081***	-0.1071	0.0565	0.1646***	0.0723***	0.0336***	-0.2489	0.0297	0.2798***	-0.1428	0.0410	0.1857***	0.1403***	0.0264**	0.0699***	-0.0068	0.0338	0.0148
t=3	-0.1590	0.0061	0.1655***	-0.1121	0.0458	0.1586***	0.0430***	0.0398***	-0.2505	0.0178	0.2692***	-0.1705	0.0693	0.2432***	0.1356***	0.0277**	0.0930***	-0.0117	0.0550	-0.0237
t=4	-0.1472	-0.0029	0.1441***	-0.1220	0.0369	0.1595***	0.0206***	0.0400***	-0.2820	0.0139	0.2969***	-0.2801	0.0909	0.3748***	0.1548***	0.0228	0.1342***	-0.0168	0.1539***	-0.0536
III. Months working																				
t=-4	-0.3511	-0.2925	0.0193***	-0.3230	-0.2578	0.0346***	-0.0422***	-0.0171**	-0.3068	-0.2628	0.0237***	0.0121	-0.1484	-0.2731***	-0.0908**	-0.0667**	-0.0481	-0.0485	-0.4815***	-0.0899
t=-3	-0.2491	-0.2207	0.0007**	-0.2315	-0.1957	0.0204***	-0.0325***	-0.0075	-0.2353	-0.1851	0.0323***	-0.0856	-0.1991	-0.1574***	-0.0499*	-0.0520**	-0.0169	-0.0442*	-0.1682**	0.0095
t=-2	-0.1225	-0.1134	-0.0052***	-0.1236	-0.1072	0.0098***	-0.0275***	-0.0094**	-0.1086	-0.0953	0.0057**	-0.1348	-0.0969	0.0209***	-0.0374*	-0.0293*	-0.0106	-0.0198	0.0001	-0.0086
t=0	-0.0253	0.1101	0.1470***	0.0259	0.0720	0.0484***	0.0576***	-0.0262***	-0.0131	0.0858	0.1049***	0.0297	0.0332	0.0076	0.0424**	-0.0073	-0.0098	0.0172	-0.0023	0.0367
t=1	-0.1579	0.1246	0.2930***	-0.0630	0.0977	0.1638***	0.0755***	-0.0031	-0.1554	0.1164	0.2780***	-0.0579	0.0773	0.1451***	0.0821***	-0.0051	0.0148	-0.0022	-0.0078	0.0161
t=2	-0.2090	0.0929	0.3080***	-0.1106	0.0967	0.2091***	0.0692***	0.0239***	-0.2779	0.1052	0.3871***	-0.1673	0.0809	0.2570***	0.1493***	0.0050	0.0857***	-0.0176	0.0512	0.0123
t=3	-0.1813	0.0682	0.2531***	-0.1160	0.0948	0.2117***	0.0391***	0.0433***	-0.3082	0.0844	0.3947***	-0.2193	0.1188	0.3528***	0.1736***	0.0240	0.1366***	-0.0181	0.0957	-0.0280
t=4	-0.1796	0.0615	0.2417***	-0.1356	0.1046	0.2377***	0.0195***	0.0579***	-0.3178	0.0963	0.4126***	-0.3096	0.1698	0.4778***	0.1652***	0.0204	0.1466***	-0.0362	0.1678**	-0.0620

Note: Outcome variables are shown for each gender as a proportion with respect to $t-1$, and are based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha}_t / E[\tilde{Y}_{ist}^{gp}|t]$. Child penalties are calculated as $CP_t^{gp} = (\hat{\alpha}_t^m - \hat{\alpha}_t^w)/E[\tilde{Y}_{ist}^{w}|t]$. Intra-gender penalties are calculated as $IGP_t^{wd} = (\hat{\alpha}_t^w - \hat{\alpha}_t^{wd})/E[\tilde{Y}_{ist}^{wd}|t]$ and $DP_t^{md} = (\hat{\alpha}_t^m - \hat{\alpha}_t^{md})/E[\tilde{Y}_{ist}^{md}|t]$. Marital gaps are calculated as $MG_t^g = (\hat{\alpha}_t^{g,\text{married}} - \hat{\alpha}_t^{g,\text{single}})/E[\tilde{Y}_{ist}^{g,\text{single}}|t]$. Statistical significance of penalties given by $^{*}\ p < 0.10, ^{**}\ p < 0.05, ^{***}\ p < 0.01$.

Table A.10: Tertiary Education, Gender Gap and Children with Disabilities

	Parents								Parents of children with disabilities											
	Without tertiary education			With tertiary education			Educational Gap		Without tertiary education			With tertiary education			Educational Gap		Without tertiary education intra-gender gap		With tertiary education intra-gender gap	
	P_t^F (1)	P_t^M (2)	Child penalty (3)	P_t^F (4)	P_t^M (5)	Child penalty (6)	Females (7)	Males (8)	$P_t^{\text{Mothers of CwD}}$ (9)	$P_t^{\text{Fathers of CwD}}$ (10)	Child penalty (11)	$P_t^{\text{Mothers of CwD}}$ (12)	$P_t^{\text{Fathers of CwD}}$ (13)	Child penalty (14)	Females (15)	Males (16)	Female Penalty (17)	Male Penalty (18)	Female Penalty (19)	Male Penalty (20)
I. Wage																				
t=-4	-0.3855	-0.3528	-0.0859***	-0.1663	-0.1427	-0.0176***	-0.0534***	-0.0104	-0.3147	-0.2715	-0.0610***	-0.0694	-0.2582	-0.2336***	-0.1347***	-0.0876***	-0.0800*	-0.0773*	-0.1147	0.0848
t=-3	-0.2523	-0.2500	-0.0749***	-0.0794	-0.0700	-0.0100***	0.0383***	0.0658***	-0.2134	-0.1610	-0.0052	-0.0097	-0.1255	-0.1414***	-0.0061	-0.0211	-0.0454	-0.0862***	-0.0807	0.0409
t=-2	-0.1044	-0.1192	-0.0495***	-0.0241	-0.0287	-0.0126***	0.0387***	0.0416***	-0.0980	-0.0786	-0.0062	-0.0061	-0.0424	-0.0477*	0.0312**	0.0019	-0.0080	-0.0393	-0.0231	0.0073
t=0	-0.1297	0.0859	0.2399***	-0.0981	0.0262	0.1316***	-0.1471***	-0.0123	-0.1446	0.0575	0.2217***	-0.0405	0.0191	0.0665***	-0.1366***	0.0141	0.0128	0.0260	-0.0873*	0.0130
t=1	-0.1462	0.1277	0.3075***	-0.0879	0.0556	0.1588***	-0.1005***	0.0299***	-0.1994	0.1000	0.3323***	0.0051	0.0201	0.0238	-0.0529***	0.0532***	0.0499**	0.0241	-0.1255**	0.0474
t=2	-0.1338	0.1416	0.3117***	-0.0805	0.0700	0.1696***	-0.0929***	0.0581***	-0.2397	0.0997	0.3734***	0.0538	0.0629	0.0405*	0.0051	0.0941***	0.1013***	0.0377	-0.1694**	0.0224
t=3	-0.1220	0.1506	0.3107***	-0.0937	0.0746	0.1885***	-0.1434***	0.0638***	-0.2667	0.0948	0.3940***	0.0549	0.0995	0.1019***	-0.0093	0.1132***	0.1398***	0.0513**	-0.1968**	-0.0084
t=4	-0.1103	0.1557	0.3050***	-0.0949	0.0861	0.2035***	-0.1611***	0.0929***	-0.3011	0.1195	0.4632***	0.0335	0.1051	0.1265***	0.0151	0.1220***	0.1849***	0.0318	-0.1739**	0.0005
II. Employment rate																				
t=-4	-0.3225	-0.2872	-0.0017***	-0.0985	-0.0667	0.0302***	0.2023***	0.2134***	-0.2510	-0.2236	-0.0018	-0.0424	-0.1408	-0.1075***	0.1367***	0.1535***	-0.0557	-0.0492*	-0.0560	0.0768
t=-3	-0.2222	-0.2129	-0.0124***	-0.0505	-0.0374	0.0127***	0.1622***	0.1721***	-0.2050	-0.1552	0.0375***	0.0020	-0.0641	-0.0687***	0.1484***	0.1160***	-0.0045	-0.0498***	-0.0528	0.0276
t=-2	-0.0924	-0.1033	-0.0199***	-0.0191	-0.0163	0.0027***	0.0702***	0.0858***	-0.0921	-0.0897	-0.0020	-0.0269	-0.0309	-0.0056**	0.0713***	0.0727***	0.0055	-0.0106	0.0071	0.0148
t=0	-0.1649	0.0548	0.2246***	-0.0479	0.0177	0.0655***	0.1099***	-0.0361***	-0.1522	0.0423	0.1969***	-0.0162	-0.0130	0.0023**	0.1004***	-0.0242***	-0.0029	0.0108	-0.0345	0.0305
t=1	-0.1889	0.0439	0.2360***	-0.0531	0.0170	0.0701***	0.1291***	-0.0262***	-0.1940	0.0370	0.2328***	0.0148	0.0143	0.0009	0.1371***	-0.0198**	0.0143	0.0057	-0.0724**	0.0024
t=2	-0.1970	0.0188	0.2171***	-0.0856	0.0123	0.0978***	0.1021***	-0.0061***	-0.2610	0.0208	0.2831***	-0.0282	-0.0210	0.0045*	0.1686***	-0.0084	0.0691***	-0.0023	-0.0672*	0.0331
t=3	-0.1749	0.0016	0.1766***	-0.0870	0.0088	0.0958***	0.0790***	0.0074***	-0.2756	0.0103	0.2866***	-0.0199	0.0297	0.0543***	0.1808***	-0.0014	0.1027***	-0.0087	-0.0805*	-0.0210
t=4	-0.1642	-0.0086	0.1550***	-0.0874	0.0112	0.0985***	0.0670***	0.0202***	-0.3185	0.0141	0.3338***	-0.0561	0.0264	0.0860***	0.2208***	-0.0027	0.1535***	-0.0226	-0.0435	-0.0153
III. Months working																				
t=-4	-0.3663	-0.3067	0.0085***	-0.1215	-0.0809	0.0379***	0.2099***	0.2145***	-0.3050	-0.2529	0.0147**	-0.0629	-0.1057	-0.0489***	0.1438***	0.1563***	-0.0726	-0.0685**	-0.0605	0.0255
t=-3	-0.2609	-0.2329	-0.0091***	-0.0849	-0.0515	0.0331***	0.1450***	0.1719***	-0.2321	-0.1848	0.0184***	-0.0527	-0.0893	-0.0369***	0.1140***	0.1225***	-0.0336	-0.0530**	-0.0416	0.0319
t=-2	-0.1285	-0.1202	-0.0111***	-0.0422	-0.0234	0.0188***	0.0696***	0.0921***	-0.1089	-0.0953	0.0014	-0.0282	-0.0332	-0.0066	0.0514**	0.0671***	-0.0166	-0.0256	-0.0199	0.0077
t=0	-0.0284	0.1046	0.1476***	0.0152	0.0312	0.0156***	0.0502***	-0.0658***	-0.0161	0.0736	0.0988***	0.0566	0.0366	-0.0185***	0.0360**	-0.0377***	-0.0098	0.0233*	-0.0400	-0.0044
t=1	-0.1661	0.1180	0.2980***	-0.0556	0.0411	0.0961***	0.0874***	-0.0667***	-0.1622	0.1010	0.2738***	0.0370	0.0607	0.0294***	0.0916***	-0.0544***	0.0132	0.0061	-0.0978**	-0.0202
t=2	-0.2220	0.0859	0.3164***	-0.1025	0.0353	0.1371***	0.0815***	-0.0429***	-0.2980	0.0862	0.3921***	0.0021	0.0569	0.0609***	0.1681***	-0.0461***	0.0927***	-0.0062	-0.1204**	-0.0209
t=3	-0.1969	0.0617	0.2639***	-0.1054	0.0342	0.1387***	0.0560***	-0.0208***	-0.3319	0.0710	0.4081***	-0.0176	0.1194	0.1546***	0.1986***	-0.0318**	0.1456***	-0.0119	-0.1131*	-0.0835
t=4	-0.1955	0.0552	0.2531***	-0.1205	0.0394	0.1580***	0.0388***	-0.0084**	-0.3582	0.0899	0.4500***	-0.0121	0.1336	0.1578***	0.2087***	-0.0442**	0.1716***	-0.0360	-0.1359*	-0.0913

Note: Outcome variables are shown as a proportion with respect to $t-1$, and are based on the estimation of equation 1 and the calculation of $P_t^{gp} = \hat{\alpha}_t / E[\tilde{Y}_{ist}^{gp}|t]$. Child penalties are calculated as $CP_t^{gp} = (\hat{\alpha}_t^m - \hat{\alpha}_t^w)/E[\tilde{Y}_{ist}^w|t]$. Intra-gender penalties are calculated as $IGP_t^{wd} = (\hat{\alpha}_t^w - \hat{\alpha}_t^{wd})/E[\tilde{Y}_{ist}^{wd}|t]$ and $DP_t^{md} = (\hat{\alpha}_t^m - \hat{\alpha}_t^{md})/E[\tilde{Y}_{ist}^{md}|t]$. Educational gaps are calculated as $EG_t^g = (\hat{\alpha}_t^{g,\text{tertiary}} - \hat{\alpha}_t^{g,\text{without tertiary}})/E[\tilde{Y}_{ist}^{g,\text{without tertiary}}|t]$. Statistical significance of penalties given by $^{*}\ p < 0.10$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$.