

Maternal Labor Market Prospects and Intra-household Bargaining over Time Allocation*

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Abstract

How do couples allocate their time when they have a child, and does it change with changing labor market prospects for mothers? First, we document that children bring a 40% increase in their parents' active time – that is, total time spent on paid work, housework, or parenting – and that this increase falls disproportionately on mothers, by a 2-to-1 ratio. Second, by exploiting the improvement in maternal labor market conditions brought about by the Australian 2009 Fair Work Act, we show that this gendered allocation of time is not affected by improved labor market prospects for women. Finally, we show that mothers who work longer hours reduce housework, but not time spent directly with children, mitigating concerns that maternal participation in the labor market comes at their children's expense.

1 Introduction

A growing literature documents that, after the birth of their first child, women reduce their labor supply while men don't. This so-called child penalty is large and persistent, and it is an empirical regularity in most developed countries (Kleven et al., 2022; Ciasullo and Uccioli, 2022). However, less is known about the reason why we observe this large asymmetric change, what are the tradeoffs in terms of time use that couples face with the arrival of a child, and why they are solved with specialization. While it will come as no surprise to any parent that children require time, how much time they require and how this time is split between parents has not been quantified in the literature, possibly due to the fact that the administrative datasets that are generally used do not report time use outside employment. And while it is often heard that partners in a couple specialize because women have worse labor market opportunities, this statement is hard to prove or disprove because female labor market opportunities are rarely exogenously assigned.

In this paper, we make two contributions: first, we document that children bring a 40% increase in their parents' active time (that is, time spent in paid work, housework, or parenting), and this increase falls disproportionately on mothers, by a 2-to-1 ratio.

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Second, we show that this gendered allocation and disproportionate burden share don't change when women's labor market prospects improve.

Our work focuses on heterosexual couples in contemporaneous Australia, which provides two key elements for answering these questions: detailed longitudinal data on family structure and time use, and a large reform that improved labor market conditions for mothers. The *Household, Income, and Labor Dynamics in Australia* survey contains detailed longitudinal information on Australians' family structure and time use since the year 2001, thus allowing us to document what kind of time demands children bring, how parents split tasks, and whether this has changed systematically over time. The Australian 2009 Fair Work Act was a large reform that substantially increased labor supply of new mothers (as documented in Ciasullo and Uccioli, 2022), which helps us shed light on how improved labor market conditions for women (do not) affect intra-household bargaining over time allocation. Our focus on heterosexual couples is due to the very small number of births we observe in homosexual couples, but comparing the time cost of children in homosexual and heterosexual couples is an important avenue for future research.

The arrival of a child brings with it a large increase in demand for her parents' resources. We document that in the five years following the birth of their first child, couples increase their active time (that is, total time spent on paid work, housework, or parenting) by 40%, relative to the five years before. At the level of the couple, the very large amount of time that parenting necessitates (65 hours a week) as well as the large increase in housework (+13 hours a week), partially comes at the expense of paid work (-30 hours a week), but largely comes from forgone leisure and sleep. In addition, the lower time spent in paid work translates into a decrease in household income by 15 log points.

This large increase in demand for parents' time falls disproportionately on women, who perceive the resulting task allocation as unfair. In the five years following the birth of their first child, women increase their active time by 54% (31 hours per week), while men increase it by 25% (15 hours per week), from a pre-child base (an average of the five years before childbirth) of 57 and 61 hours per week of active time respectively. In addition, while men continue doing the same amount of paid work as before fatherhood, and add a few hours of parenting on top of them, women drastically reduce their hours in paid work, while doubling the time spent on household chores and spending 47 hours a week directly with the child. This allocation is not perceived as fair by women, 65% of whom report doing more or much more than their fair share of housework and parenting, but this perception is not shared by men, 70% of whom declare doing at least their fair share of both housework and parenting. In addition, if income is not fully pooled within the couple, lower earnings for women translate into lower relative consumption for them: we don't explore this aspect in this paper, but it's important to take it into account when considering couples' welfare.

The specialization and large unbalance in time allocation across new parents we document could be attributed to worse labor market opportunities for women: we find evidence for the former but not for the latter. Specialization and unbalance in task allocation might arise from low labor market prospects for two separate reasons. On the one hand, for a given level of returns to housework-parenting, lower returns to paid work will push mothers towards work at home - a within-person shift in tasks. We do find some evidence of this happening. On the other hand, worse labor market opportunities for women translate

into a lower outside option, which implies, under the lenses of a bargaining model, that she gets a smaller fraction of whatever output (utility) the couple generates - a between-people shift in tasks. This implies that improved labor market conditions should reduce women's share of time burden, something we do not find evidence for.

The 2009 Fair Work Act provides the quasi-exogenous variation in female labor market conditions that allows us to study its impact on intrahousehold bargaining. The 2009 Fair Work Act entitled parents of young children to request a change in working arrangements. As shown in Ciasullo and Uccioli (2022), this enabled new mothers to request a regular and predictable schedule, more compatible with their child-rearing obligations, thus lowering the cost of working for them and therefore implicitly increasing the return to market work.

Leveraging the fact that some occupations were more exposed to the Fair Work Act than others, we compare post-childbirth time allocation in treated versus non-treated couples. Following Ciasullo and Uccioli (2022), we define as treated a woman who, two years prior to her first childbirth, was in an industry-occupation in the middle tercile of the regularity distribution (see Ciasullo and Uccioli, 2022 for a detailed explanation of this exposure measure). Here we consider a couple as treated if the woman in the couple is treated. Our main outcome of interest is the "child penalty" in time use and satisfaction. The child penalty is measured as the change in certain variables in the years following the birth of someone's first child relative to before, and we compute it for mothers, fathers, and couples.

Improved labor market conditions for women did not translate into a reallocation in the time burden of children from women to men, which implies that worse labor market conditions are not the main reason behind the observed unequal burden on mothers and fathers. Both mothers and fathers in treated couples still faced the same post-childbirth increase in active time as similar couples before the law and as non-treated couples. After the birth of their first child, women in treated couples faced an increase in active time by 32 hours and men by 19 hours, statistically indistinguishable from non-treated couples. Thus, improved labor market conditions for women did not translate into a more favorable allocation of time: despite doubling their labor market hours, treated mothers still bear two-thirds of the time burden that children bring with them. This implies that either the change in labor market conditions was not large enough, which sounds unlikely given the magnitude of the change in labor supply, or that children are perceived as a woman's business, regardless of her labor market status.

The increase in labor supply of mothers came at the expense of housework, but not of parenting, which should mitigate worries about negative effects on children of their mothers working. Treated mothers increased their post-childbirth labor supply by almost eight hours per week. These came mostly at the expense of housework (-5.5 hours per week) and from leisure, but not from time playing with and caring for children (-0.5 hours per week, not significantly different from zero). This suggests that, in line with the theory in Gronau (1977), when relative returns to market work increase, mothers do more of it and less home production. However, not all home production is equal: women cut on housework and not on parenting, which has important implications in the discussion of the cost to children of having both their parents work.

Related Literature Our work speaks to three main literatures: the growing interest in the observed child penalty for women and its motives; the study of determinants and consequences of intra-household bargaining; the question of whether children are negatively or positively affected by having their mothers work.

We contribute to the child penalty literature by exploring how women allocate their time when they become mothers, and what role intra-household bargaining plays in this choice of time allocation. A large and growing literature documents the negative impact of children on their mothers' labor supply and earnings (Angelov et al., 2016; Lundborg et al., 2017; Kleven et al., 2022). Several studies have documented proximate causes for this observed pattern: Goldin (2014) finds the culprit in "greedy" jobs (those that disproportionately reward long hours, so that couples maximize income by specializing, rather than equally sharing paid work and housework), Gallen (2018) finds that the pay gap for mothers is entirely explained by productivity differences, Bolotnyy and Emanuel (2022), using data from bus and train operators in Massachusetts, find that the gender gap in weekly earnings can be explained by women avoiding unplanned overtime, weekends, and holidays. However, these papers do not address why mothers and not fathers are those that step out of greedy jobs, and why mothers' and not fathers' productivity decreases when they have children. In this paper, we document that in fact women cut their labor supply because of the huge amount of time they spend parenting and taking care of the house, and that this gendered allocation is not affected at all by a substantial improvement in their labor market conditions. This is consistent with work by Andresen and Nix (2022) and Kleven et al. (2021), who show that predicted comparative advantage of women in the couple does not make them less likely to cut their labor supply when they have a child.

Relative to the literature on intra-household bargaining in developed countries, recently summarized by Chiappori et al. (2022), we focus on the changes brought by children and on the causal impact of labor market conditions on bargaining outcomes. Our focus on the causal impact of women's labor market conditions is the main difference relative to Apps and Rees (2010), the closest paper in this space.

Finally, we contribute to the quest for empirical evidence regarding whether a working mother is good or bad for her children. Specifically, we focus on the key argument that is generally made against working mothers: less time spent directly with the child. We find that a greater maternal labor supply does not translate into less time spent with the child, which help explain findings such as the null impact of extended parental leave on children's outcomes (Dustmann and Schönberg, 2012; Dahl et al., 2016; Huebener et al., 2019). Our finding is consistent with what Bastian and Lochner (2022) find for the US.

2 Data and Methodology

The *Household, Income, and Labor Dynamics in Australia* survey contains information on Australians' family structure and time use, thus allowing us to document what kind of time demands children bring and how parents split tasks. Its longitudinal structure enables us to observe changes in people's habits around the birth of their first child, thus accounting for secular trends in time use.

2.1 Data and Sample Selection: Heterosexual Couples in HILDA

The *Household, Income, and Labor Dynamics in Australia* survey (HILDA) contains a rich set of information on a representative sample of Australian households since 2001. For each of the approximately 8,000 sampled households, everyone above 15 years old is interviewed, but basic demographics are also collected for younger members of the household. Individuals within families are followed over time, and family linkages are codified, which allows us to match each individual with their spouse or *de facto* partner and to identify when children are born. At the time of the analysis, data up to 2019 are available to researchers - hence our sample covers the years 2001-2019.

Sample Restrictions We make two sets of sample restrictions: one is individual-based, and one is couple-based. The individual restrictions are analogous to those in Ciasullo and Uccioli (2022): we restrict to individuals aged 15 to 65, we only keep parents whose first child is born between 2003 and 2017 (in order to observe at least two years before and two years after the first childbirth), and for parents, we only keep observations from 6 years before childbirth to 10 years after, in line with Kleven et al. (2019).

The couple-based restrictions are germane to our study of intra-household bargaining. We restrict our sample to women who report having a male partner the year their first child is born. This excludes 10% of first births from single mothers and 1% of first births from lesbian couples (not enough to adequately study them separately, which would be desirable if sample size allowed). Partnerships and marriages don't last forever: some women who report having a partner the year of their first childbirth no longer do in subsequent years (7% and 11%, 2 and 5 years after first childbirth respectively), and some change partner (0% and 3%, 2 and 5 years after first childbirth respectively). In our primary sample, for each year we match each woman to the partner she indicates that year, regardless of whether he is the partner in the year of her first childbirth. In our secondary sample, we match each woman to the partner she indicates the year of her first childbirth, regardless of whether they are no longer or not yet a couple. Results are pretty much identical. We only report results on the primary sample, but results on the secondary sample are available upon request.

Given our focus on couples, and how time is split in the couple, we restrict the analysis to couples for which we observe variables of interest for both men and women. If a given variable in a given year is missing for the man, we set the corresponding variable to missing for his partner as well, and vice-versa. This allows us to make sure that results on men and women are comparable, that is, they come from the same couples. In practice it doesn't matter very much, because the time use portion of the survey is filled by a random subset of the surveyed individuals, but this allows for a cleaner interpretation.

We keep couples of non-parents as controls. From the sample of non-mothers, we assign random fake childbirth years, and we perform symmetrical matching with partner and cleaning procedures as for the mothers.

Descriptive Statistics The summary statistics in Table 1 already show the gendered use of time in Australian couples. Of the 72,000 couple-year observations in our sample, 15%

of observations pertain to couples who have their first child during our sample period. Despite this relatively low fraction of new parents, in our sample women on average do more household work (25.1 hours per week) than paid work (24.7 hours) and spend 13.3 hours per week playing with and taking care of children. Their male partners instead spend most of their active time working for pay (42 hours per week) and only an average of 6 hours per week parenting (playing with and taking care of children). Variables at the couple level are the sum of the corresponding variables for the two partners.

2.2 Methodology: Measuring Changes around Childbirth

We formalize our analysis of changes around childbirth using a standard event-study methodology, with the event being the birth of someone's first child.

Our main object of interest is how time use, and other variables such as disposable income and self-reported satisfaction, change around the birth of their first child for women, men, and couples as a whole. Formally, we are interested in the coefficients γ_k from the following event study regression:

$$Y_{it} = \alpha_i + \delta_t + \beta_{h(i)} + \sum_{\substack{k=-5, \\ k \neq -2}}^{10} \left\{ \gamma_k \times \mathbb{1}\{t - E_i = k\} \right\} + \epsilon_{it}, \quad (1)$$

where E_i represents the year of birth of i 's first child, and α_i, δ_t , and $\beta_{h(i)}$ are individual, time, and age fixed effects respectively. We run it separately for men and women, and for couples as a single entity where appropriate. The coefficients of interest are the γ_k 's, representing the change in outcome Y k periods from childbirth relative to two years before – the child penalty in Y , k years from childbirth. Never-parents and individuals who don't have their first child in our sample years are kept in the sample and act as controls. In order to account for heterogeneous treatment effects across cohorts, we estimate the equation above using the Sun and Abraham (2020) estimator. We cluster standard errors at the individual level.

3 The Status Quo: the Tradeoffs that Children Bring and How They are Solved

We begin by documenting what happens to parents' time use at baseline when their first child is born. The arrival of a child brings with it a large increase in time demands, and this additional time burden falls disproportionately on women, who shoulder two-thirds of this increase. We observe couples specializing – men in paid work and women in housework and parenting – but women perceive to be doing more than their fair share, while men perceive to be doing their fair share.

3.1 Tradeoffs in the Status Quo: Children Need their Parents' Time

Children require plenty of resources from their parents. Panel (a) in Figure 1 shows how time use for the couple evolves in the years around the birth of their first child. It plots

γ_k 's from estimating equation (1) on couple time use – the sum of time spent on a given activity by both partners. In the five years following the birth of the first child, mothers and fathers spend more than 65 hours a week playing and taking care of the child (orange circles) and face an increase in housework duties by 13 hours a week (green triangles). A large fraction of this time is taken out of leisure – total active time (which is the sum of paid work, housework, and parenting) increases by 46 hours a week, a 40% increase relative to pre-child total active time. A sizeable portion is also taken out of paid work, which decreases by 30 hours a week (a 30% decrease relative to pre-child). This results in a decrease in household disposable income by 15 log points, as displayed in panel (a) of Figure 2.

These figures show that children bring pressure on time and new tradeoffs. We explore next how couples solve these tradeoffs and how they share this increased burden.

3.2 How Couples Solve the Tradeoff in the Status Quo: Partners Specialize, and the Time Burden Falls Disproportionately on Women

The large increase in time demands brought by the arrival of a child falls disproportionately on women, by a 2-to-1 ratio. In addition, while men continue doing the same amount of paid work as before fatherhood, and add a few hours of parenting on top of them, women drastically reduce their hours in paid work in order to make space for parenting and housework, and this has longer term consequences for her labor supply, which remains low even after parenting needs decrease.

The Time Burden Falls Disproportionately on Women Out of the large increase in active time for the couple following the birth of a child, women shoulder two-thirds of it. Panel (b) of Figure 1 shows how total active time evolves around the birth of their first child for the couple as a whole (in orange) and separately for women (in pink) and men (in blue). In the first five years following the birth of their first child, women increase their active hours by 54%, which corresponds to 31 hours per week - more than twice the 15 hours increase their male partners face (25% increase relative to their pre-child active time). While the couple's total active time slightly decreases in the subsequent five years, driven by lower parenting needs when the child goes to school, women still bear the vast majority of it.

Partners Specialize and This has Long Term Consequences The increase in total active time of both partners hides very heterogeneous changes in time use. Panels (c) and (d) of Figure 1 show the change in active time around the birth of their first child, for women and men respectively, both in total active time and differentiated by their sub-components: paid work, housework, and parenting. In panel (d) we see that for men time in paid work increases by a small insignificant amount, time spent in household work hardly changes, and the entire increase in active time (15 hours per week) comes from time spent parenting. For women, in panel (c), the story is very different: in order to make space for the 47 hours a week spent parenting and the 12 hours a week of increased housework, they decrease time in paid work by 29 hours per week (a 72% decrease relative to their

pre-child work hours) in addition to decreasing their leisure/sleep by 31 hours a week (a 54% increase in active time, relative to the five years before childbirth). The underlying raw averages of time use, which show possibly even more clearly the magnitude of these changes, are displayed in Appendix Figure A.1.

Choices of time use made when the first child is born have long-lasting consequences. From panel (c) of Figure 1, we see that, while parenting needs decrease over time, women do not increase time in paid work symmetrically, suggesting that work choices made at a time of high pressure - the arrival of a baby - might be hard to reverse even after the direct pressure from the baby decreases. This is also reflected in earned income: as shown in Figure 2(b), women's disposable income drops with the arrival of their first child and ten years later hasn't recovered. If there isn't perfect income pooling, or if bargaining power in a couple depends on income, this might have adverse consequences for women's welfare in the long run.

Women Perceive the Task Sharing as Unfair, Men Do Not The observed division of labor in the household, in which couples specialize but women do twice as much total work than men, is not perceived as fair by women, but it is perceived as fair by men. Figure 3 displays how partners in the couples of our sample respond to the questions "Do you think you do your fair share around the house?" and "Do you think you do your fair share of looking after the children?". Around 50% of women perceive that they do more or much more than their fair share, and this number increases to 65% after childbirth (driven by an increase in women who say they do much more than their fair share). On the other hand, only 25% of men perceive that they do less than their fair share, and this number is constant before and after the arrival of a child. The same pattern, possibly more extreme, concerns parenting, for which around 70% of women report doing more or much more than their fair share, but only 25% of their male partners report doing less than their fair share. In summary, while the median mother perceives to be doing more than her fair share both in terms of housework and parenting, the median father comfortably perceives to be doing his fair share of both housework and parenting.

3.3 Satisfaction and Quality of Relationship

Children bring a great deal of life satisfaction, but also pressure on the couple. Figure 4 shows the evolution of self-reported measures of satisfaction for women and men around the birth of their first child. Panel (a) shows a significant peak in self-reported life satisfaction (by roughly 0.2 standard deviations) for women and men when they have their first child, to an otherwise fairly stable level of satisfaction. Panel (b), which plots the evolution of a self-reported measure of satisfaction with their partner, displays a peak in the year *before* their first child is born, for both men and women, which collapses afterward. The answers to related questions, such as "How much do you love your spouse / partner" or "How well does your spouse / partner meet your needs", displayed in Appendix Figure A.2, tell a similar story of flat pre-trends but progressively more difficult relationships after the arrival of a child.

Despite the asymmetric increase in active time that children bring to the couple, the

patterns in satisfaction are largely symmetric, suggesting that the perceived unfairness of task sharing does not reflect into differential changes in satisfaction (even though between-group comparisons are hard to make with qualitative measures such as satisfaction).

4 (Lack of) Changes when Labor Market Opportunities Improve for Women

The specialization we documented in the previous section - men in paid work and women in housework and parenting - is often attributed to worse labor market opportunities for women. The unbalanced allocation of tasks can also be attributed to that, via lower outside options for women. Here we document that, even after labor market conditions improve for women, the unbalanced allocation in terms of active time remains, suggesting that worse labor market opportunities for women are not the explanation for the excess burden in active time women experience when becoming mothers.

4.1 Natural Experiment: The 2009 Fair Work Act

The 2009 Australian Fair Work Act, by entitling parents to request a change in working arrangements, led to an increase in labor supply of mothers in affected occupations. We exploit this quasi-exogenous improvement in labor market conditions for women in specific occupations to study how it affected the intra-household allocation of tasks.

4.1.1 Labor Market Impact of Fair Work Act

The 2009 Australian Fair Work Act, by enabling parents of young children to request a change in work arrangements, led to a large increase in the labor supply of new mothers. The Fair Work Act (Fair Work Act 2009, Act No. 28, Section 65) entitled parents of children below school age to request a “change in working arrangements”, which employers can refuse only on “reasonable business grounds”. Ciasullo and Uccioli (2022) show that this new right led new mothers to request a predictable and regular schedule, and this in turn increased the labor supply of new mothers in affected occupations. See Ciasullo and Uccioli (2022) for further information on the law and the institutional context.

Despite the law being gender-neutral, Ciasullo and Uccioli (2022) show that it led to large changes in job regularity for women, but no change in work arrangements for men. Consistently, government reports such as O’Neill (2012) indicate women represent the overwhelming majority of workers requesting change in work arrangements under the Fair Work Act. The fact that the Fair Work Act only impacted mothers, and not fathers, allows us to use this law as a natural experiment to study how improvements in labor market opportunities for women impact the intra-household allocation of tasks.

4.1.2 Empirical Strategy

While the law applied to all parents, the entire change was concentrated in occupations most exposed to the law, by virtue of the level of regularity they were offering before the

reform. Ciasullo and Uccioli (2022) show that, following the passage of the 2009 Fair Work Act, new mothers are disproportionately found in jobs with a regular schedule – and this is the only work arrangement that changes systematically. Given the wording of the law, they posit that some jobs were not affected because already fully regular – and therefore with no scope for improvement, while others were not affected because impossible to be made regular due to the nature of the job. They split jobs in terciles of regularity, measured before the passage of the law, and show that in fact the entirety of the increase in schedule regularity – and the entirety of the increase labor supply – comes from women in jobs in the middle tercile of ex-ante regularity.

We define as treated a couple in which the woman was in a job in the middle tercile of the regularity distribution two years before childbirth and if their first child was born in or after 2010. We follow Ciasullo and Uccioli (2022) to assign treatment to women, and we assign to men the treatment status of their partner: since we are interested in studying intra-household bargaining, we need the treatment definition to be common within the couple. Following Ciasullo and Uccioli (2022), for the analysis we split couples in three groups, according to the job the woman had two years before childbirth. Couples with women in jobs in the top tercile of the regularity distribution – jobs that were not affected by the law because already fully regular – act as the reference group. Couples with women in jobs in the middle tercile of the regularity distribution (tercile = 2) are the treated group, and will be referred to as couples in the middle tercile for brevity. Couples with women in jobs in the bottom tercile of the regularity distribution (tercile = 1) were also not affected by the law, because impossible to be made regular, and we use them as placebo treatment group (meaning, we also estimate the difference-in-differences for this group and show that the estimates are statistically zero). Finally, couples are indexed by the year of birth of their first child, and this is the “time dimension” in our difference-in-differences.

The object of interest is how the “child penalty” in time use (that is the difference in time spent in various activities after the birth of their first child relative to before) changed for the treated group for post-2010 childbirths relative to earlier childbirths and relative to how it changed for the reference group over the same period. Formally, we estimate the following regression:

$$\begin{aligned}
Y_{it} = & \gamma_a \times \mathbb{D}_{it}^{0-5} + \\
& + \gamma_{a,2} \times \mathbb{D}_{it}^{0-5} \times \mathbb{1}\{\text{tercile}(i) = 2\} + \\
& + \gamma_{a,1} \times \mathbb{D}_{it}^{0-5} \times \mathbb{1}\{\text{tercile}(i) = 1\} + \\
& + \gamma_b \times \mathbb{D}_{it}^{0-5} \times \text{Post}(i) + \\
& + \gamma_{b,2} \times \mathbb{D}_{it}^{0-5} \times \text{Post}(i) \times \mathbb{1}\{\text{tercile}(i) = 2\} + \\
& + \gamma_{b,1} \times \mathbb{D}_{it}^{0-5} \times \text{Post}(i) \times \mathbb{1}\{\text{tercile}(i) = 1\} + \\
& + \alpha_i + \sum_{d \in \{1,2,3\}} \{\delta_{t,d} + \beta_{h(i),d}\} \times \mathbb{1}\{\text{tercile}(i) = d\} + \\
& + [\dots] + \epsilon_{it}
\end{aligned} \tag{2}$$

where $\text{Post}(i)$ indicates that i 's first child was born after 2010 (we denote couples whose first child is born after 2010 as “late cohorts”); and the penultimate line specifies that

time and age fixed effects are estimated separately by tercile. Here γ_a is the baseline 0-5 years child penalty for the top tercile, meaning that it is the difference in Y in the five years following the birth of their first child relative to the five years before for couples (or individuals) in the reference group, as explained in the paragraph above. $\gamma_{a,2}$ is the baseline difference in this child penalty for the treated group (middle tercile) relative to the reference group (top tercile), and $\gamma_{a,1}$ is analogous for the placebo group (bottom tercile); these baselines are estimated off the early cohorts, meaning couples who had their first child between 2003 and 2008. The coefficient γ_b is the difference in 0-5 years child penalty for the late cohorts relative to the early cohorts for the reference group, and $\gamma_{b,2}$ is the difference-in-differences coefficient of interest, which captures the difference in child penalty for late versus early cohorts of couples in the treated group, relative to the same difference for the reference group. $\gamma_{b,1}$ is the difference-in-differences coefficient for the placebo group. The notation [...] indicates that analogous terms are included for the child penalty 6 to 10 years from the birth of i 's first child for completeness. They are always included in the estimation; however, the estimates are generally noisy since the number of observations is more limited, and hence these estimates are generally not displayed in the tables.¹

4.2 Time Use in the Couple: Total Active Time Did Not Change (But Was Reallocated Across Tasks)

We start by considering the effect of an improvement in maternal labor market opportunities on the total time constraints of the couple. On the one hand, a greater labor supply of the woman mechanically increases the amount of active time in the couple; on the other hand, if they can now afford to outsource parenting or housework, the total active time might actually decrease. We find that the first effect dominates, but the increase is not statistically significant.

The shock to labor supply of mothers did not affect the child penalty in couples' active time in a statistically significant way, suggesting that the shock didn't significantly relax nor tightened the time constraints for parents. In Table 2 we report the coefficient estimates from estimating equation (2) on couples' time use. Odd columns do not include the terciles interactions, and provide a simple comparison between early and late cohorts; even columns are the focus of the analysis. In even columns, the first row provides estimates of γ_a , which is the child penalty in time use for couples in the top tercile at baseline; the second row displays estimates of $\gamma_{a,2}$, which is the difference in child penalty at baseline for couples in the middle tercile relative to the top tercile. The fourth row provides estimates of γ_b , which is the difference in the child penalty in time use for the late cohorts relative to the early cohorts for the top tercile, and the fifth row shows our coefficient of interest, which is the difference in differences coefficient. This coefficient for total active time is 4.9 (SE: 5.3). This indicates that couples in the middle tercile who had a child after the passage of the law experienced an increase in post-childbirth active time which was larger than the corresponding earlier cohorts, and this increase was 4.9 hours larger than the corresponding difference for couples in the top tercile. More loosely speaking, treated

¹They are available upon request.

couples experienced an increase in post-childbirth total active time, but this increase is not statistically significant.

Treated couples reallocate some of the active time from housework to paid work, but the time spent parenting is not affected at all. The increase in labor supply of mothers mechanically increased total time spent in paid work for the couple by 8.97 hours per week (SE: 3.4), which came at the expense of time spent on housework (-4.5 hours per week, SE: 2.6). Time spent parenting instead hardly changed at all (-0.7 hours per week, SE: 4.2), which should mitigate any potential worry that greater maternal labor supply has negative effects on children via reduced time parents spend with them.

4.3 Better Labor Market Conditions for Women Did Not Translate into Reallocation of Tasks Within the Couple

In the previous section we showed that improved labor market opportunities for women did not translate into a change in total active time for the couple; we now ask whether they had an impact on the time allocation across partners or whether they impacted time use within individuals. First, one might argue that improved labor market opportunities imply that returns to labor increase and thus the individual spends more time in paid work and less in home production, as in Gronau (1977): we do find evidence of this substitution partner, but only for housework - the amount of time spent parenting is not affected by the increased labor supply. Second, one might argue that improved labor market opportunities improve a woman's bargaining position in the couple, and thus will result in a more equal allocation of time: we do not find any evidence of this happening.

Changes in Women's Time Use: with Tighter Time Constraints, They Favor Parenting Over Housework Table 3 displays the coefficients estimate from estimating equation (2) on time use of mothers. Again, the top three rows are estimates of the baseline child penalty in time use (for the top tercile, and then the distance from it for the other two terciles), the fourth row displays the difference in the child penalty between late and early cohorts for the top tercile, and rows five and six are the difference-in-differences coefficients. Our coefficients of interest are those displayed in the fifth row, which are estimates of the difference in child penalty in time use for late versus early cohorts in the middle (treated) tercile relative to the same difference for the top tercile. Figure 5 shows a version of these comparisons visually. Each panel compares the evolution of the outcome of interest around childbirth for the early cohorts (women whose first child was born between 2005 and 2008, dashed line) and the late cohorts (women whose first child was born between 2010 and 2013, solid line). The leftmost panels (in gray) are estimated on women in the top tercile, the middle panels (in orange) on women in the middle tercile, and the rightmost panels (in blue) on women in the bottom tercile. Our main object of interest is the difference in the difference between the dashed and the solid line between the middle and the leftmost panel.

Improved labor market opportunities for women translated into greater labor supply, less housework, but no changes in time spent parenting. As shown in Table 3, women in the treated group increased their labor supply by 8.2 hours per week (SE: 2.8), meaning

that labor supply basically doubled compared to earlier mothers in the middle tercile (the child penalty decreased by 23%). This translated into a decrease in time in housework by 5.5 hours per week (SE: 2.3), but no change in time spent parenting (-0.5, SE: 3.3), and hence a small insignificant increase in active time (decrease in leisure/sleep) by 2.6 hours per week (SE: 3.7). Figure 5 shows it visually: despite women in the top tercile also experienced a smaller drop in labor supply and a smaller increase in housework for the late cohorts (relative to the earlier ones), this difference was much starker and persistent for the middle tercile. Neither tercile shows any difference in time spent parenting.

This does confirm the prediction in Gronau (1977) that increased returns to market work translate into a greater fraction of time spent in paid work and a smaller fraction in home production. However, it also highlights that the first kind of home production that is substituted away is housework, which is presumably considered less important than parenting, time for which is not affected at all by the large increase in labor supply.

(Lack of) Changes in Men's Time Use We do not find any evidence that improved labor market conditions for women impact how the time burden of children is shared among partners, or that men's time use is impacted at all. Table 4 and Figure 6 replicate Table 3 and Figure 5 but for fathers. Following the large increase in their partners' labor supply, fathers in the treated group increased total active time by 1.4 hours per week (SE: 2.9). The increase is not significantly different from zero, and the point estimate is roughly half of the corresponding estimate for women, indicating that any additional time burden this labor supply shock brought to the couple was again split in a 2-to-1 fashion, where two-thirds of the burden fell on the woman's shoulders. Partners of treated women did not change time spent in paid work (-0.4 hours per week, SE: 2.2) or parenting (-0.04, SE: 1.98), and barely increased time spent doing housework (+1.3 hours per week, not statistically significant, SE: 1.3). This suggests that women's labor market opportunities are not the main reason why we observe such an unbalanced allocation of the time burden of children, and the reason is to be looked for elsewhere, possibly in gender norms.

Satisfaction Decreased for Both Parties Increased female labor supply made both men and women less satisfied with their partner. Table 5 reports the estimates from estimating equation (2) on self-reported measures of satisfaction. Treated women report lower satisfaction with their partner by -.2 standard deviations and an overall lower level of life satisfaction (-0.15 standard deviation, significant at 10%), presumably because they now work longer but are not really compensated at home for this extra effort. Male partners of treated women also report lower satisfaction with their partner (-0.17 standard deviation, significant at 10%) - possibly because the house is dirtier - but greater satisfaction with their lives (+0.13 standard deviation, significant at 10%).

5 Discussion and Conclusion

Children require a lot of resources, especially in terms of their parents' time. A large literature documents the decrease in labor supply of women when they become mothers,

but relatively less is known on how this time is spent, how the time burden that children bring with them is split between parents, and what influences this allocation. In this paper we made progress on all these dimensions.

First, we documented that the arrival of their first child is associated with a 40% increase in active time for parents, and two-thirds of this increase is born by women. In addition, while men's time use remains largely unchanged, except for a few hours per week of parenting, women drastically reduce their time in paid work in order to attend to the needs of the child and to the increased needs of the house. But this is not without consequences: even as parenting needs taper off over time, female labor supply doesn't recover, suggesting irreversibility in labor supply decisions made at a time of high pressure such as the birth of their first child.

Second, we showed that labor market conditions for women do impact how women choose to allocate their time. Following a reform that increased their labor supply, treated mothers substituted away from housework, but not from parenting. This has important implications for the discussion concerning the perceived costs to children of their mothers working: this is an example in which a large increase in labor supply came at no cost in terms of parental time investment in children.

Finally, we demonstrated that labor market conditions for women do not affect the division of labor within the household nor how the time burden of children is shared, suggesting that a child is perceived to be a woman's business no matter what. Despite their large increase in labor supply, treated women continued to bear two-thirds of the increase in active time brought by children, and men did not increase their time spent on housework in response to her reduction. This suggests that there is something beyond labor market conditions - possibly culture - that impacts this gendered allocation of work.

In future work, we plan to explore further the relative role of gender norms and labor market opportunities in intra-household bargaining over time allocation, possibly embedding these reduced-form results in a structural model *à la* Cherchye et al. (2012). Similarly to them, we can also leverage detailed expenditures data to test for income pooling and have a more complete picture of partners' welfare. This will allow us to shed light on partners' (possibly changing) preferences, (possibly dynamic) relative bargaining power, and give predictions on welfare implications for parents and children of improving labor market opportunities for women versus changing norms.

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6 Figures

Figure 1: Time Use around Childbirth

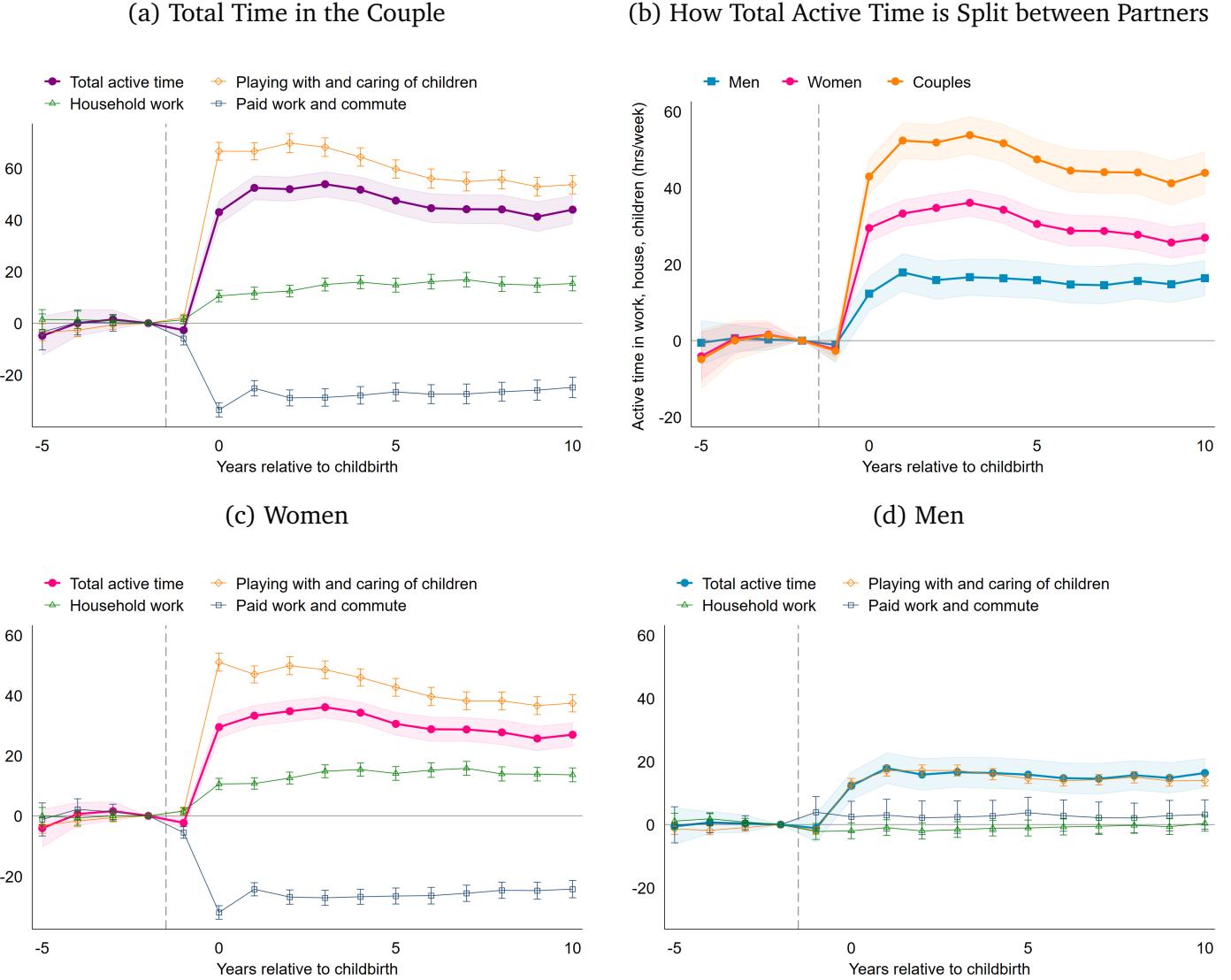
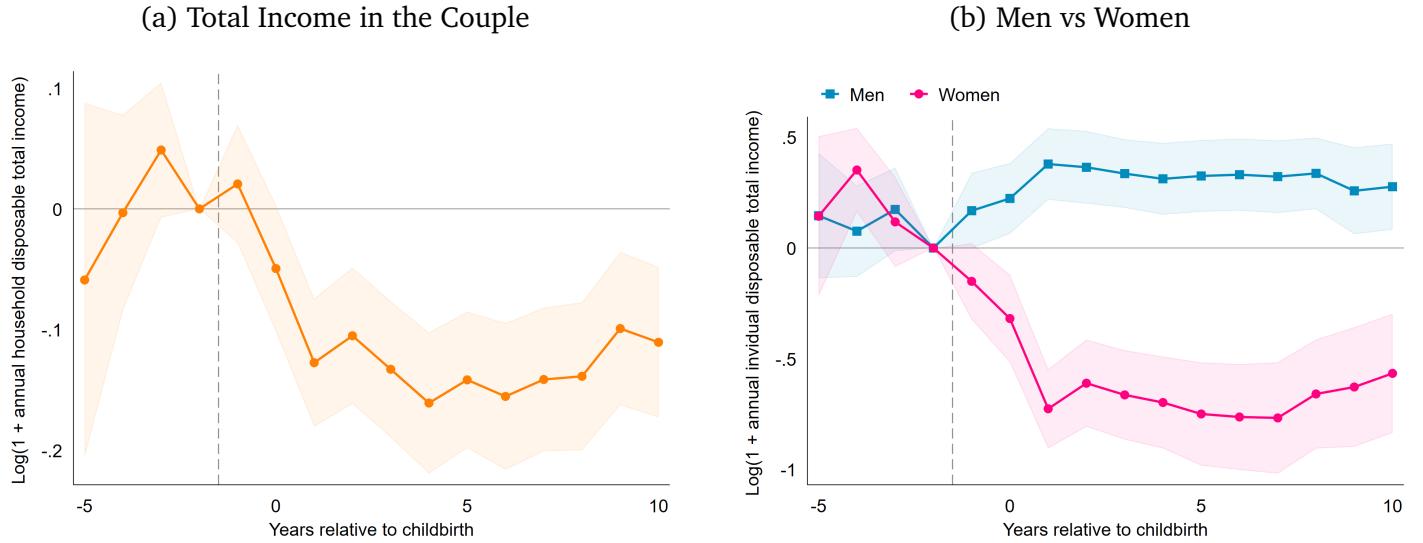


Figure 2: Income around Childbirth



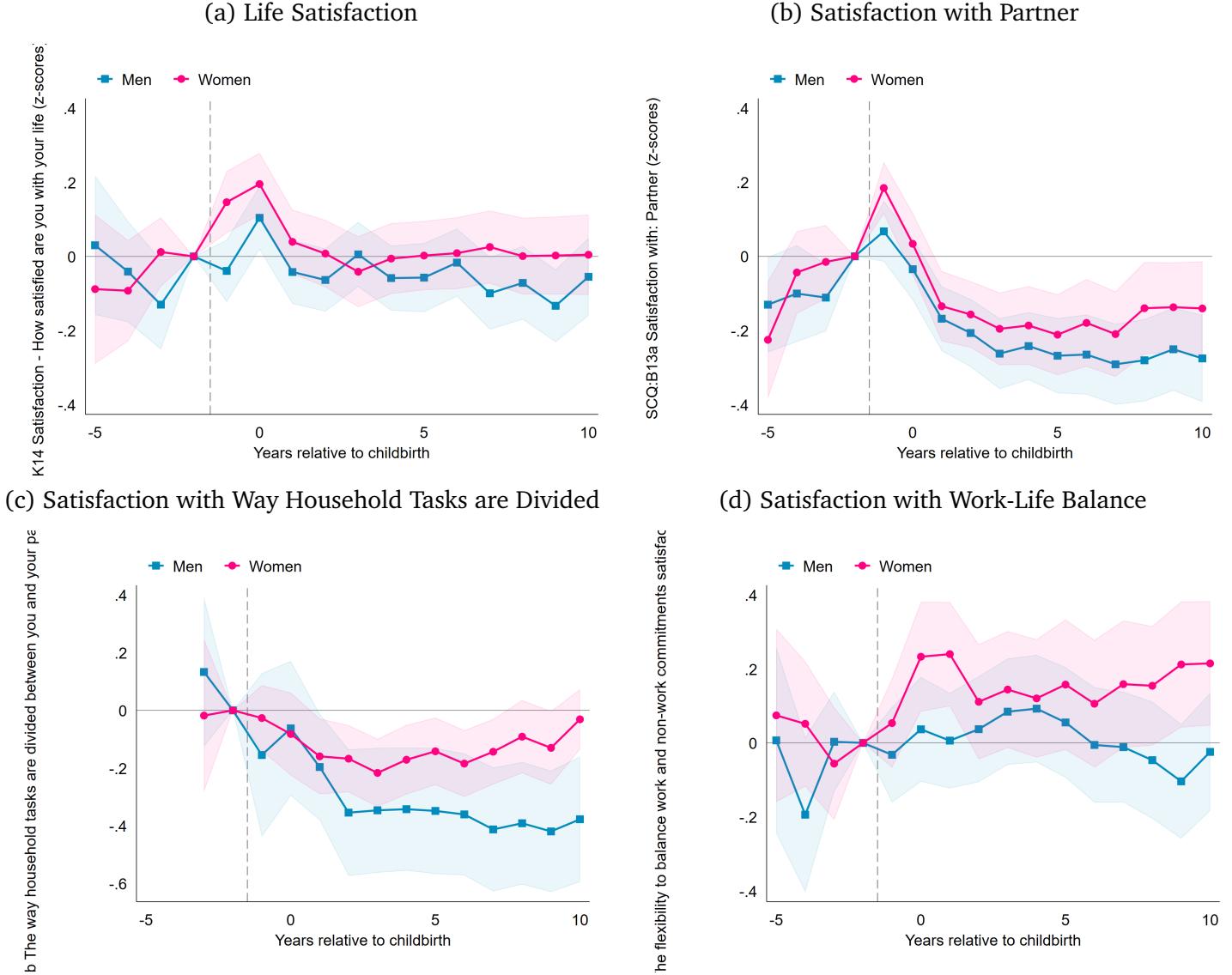
Note: This figure shows the child penalty in income by year relative to childbirth, for couples (panel a) and women and men (panel b). The figure plots the coefficients γ_k 's from estimating equation (1) on the relevant sample, including individual, time, and age fixed effects. The outcome in panel (a) is the log of 1+annual household disposable income, while in panel (b) it is the log of 1 + annual individual disposable income. Household income is the sum of both partners' income. The shades around the point estimates are 95% confidence intervals. We only include parents who have their first child between 2003 and 2008, and we include non-parents as controls. All regressions are estimated using the Sun and Abraham (2020) estimator, and clustering standard errors at the individual level.

Figure 3: Perception of Task Sharing



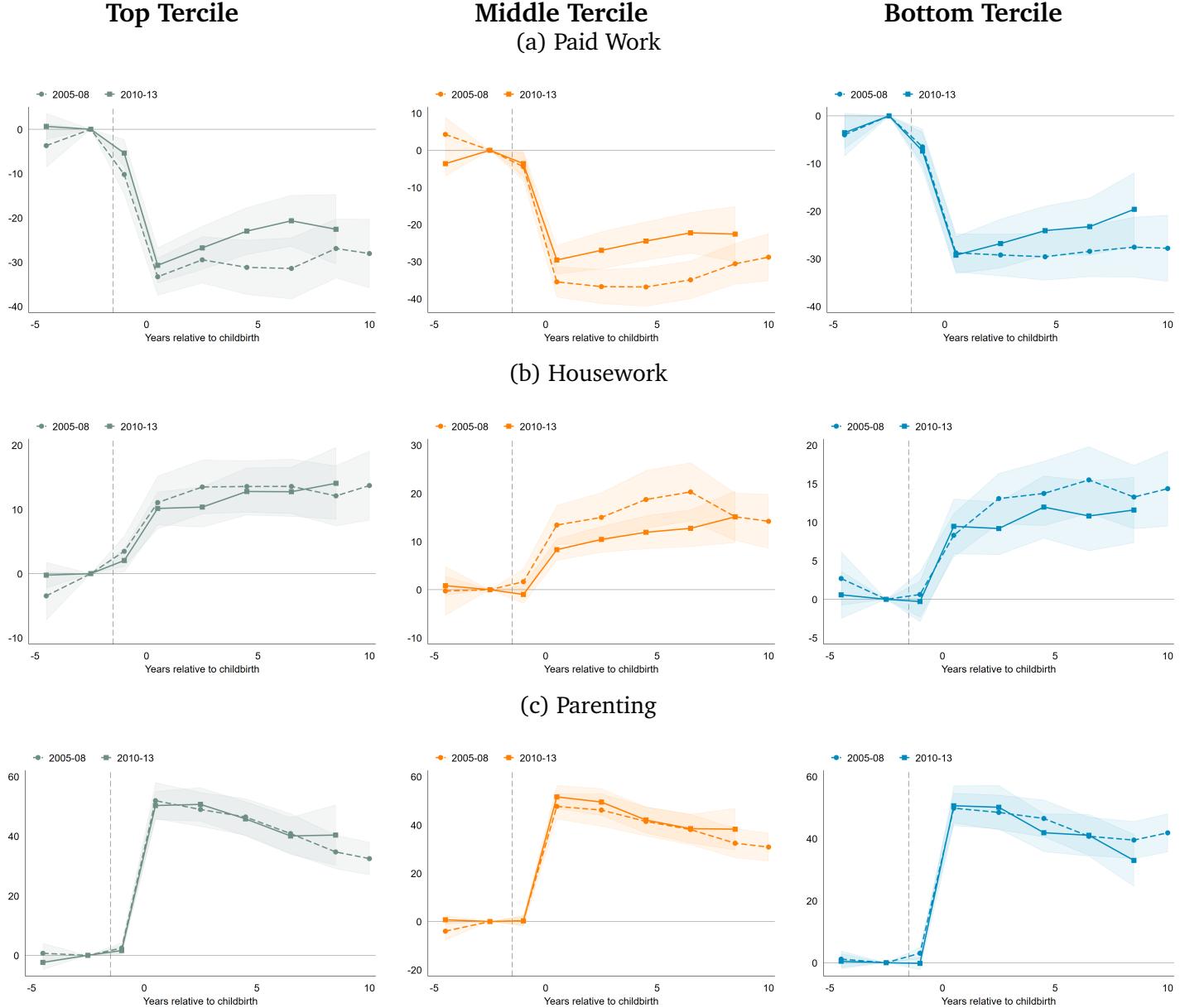
Note: This figure displays individuals' self-reported perception of share of work around the house and share of work parenting, by year relative to the birth of their first child. Specifically, panels (a) and (b) display answers to the question: "Do you think you do your fair share around the house?". The figure displays the fraction of individuals giving each of the five possible responses: I do much more than my fair share; I do more than my fair share; I do my fair share; I do a bit less than my fair share; I do much less than my fair share (underlining present on the questionnaire). Panels (c) and (d) display answers to the question "Do you think you do your fair share of looking after the children?"; possible answers are the same as in the previous question. Panels (a) and (c) report the answers for women, panels (b) and (d) for men. On the x-axis we have years relative to the birth of their first child - for housework, it starts at -6, for parenting, it only starts at 0 when the child is born.

Figure 4: Satisfaction around Childbirth



Note: This figure shows the child penalty in satisfaction by year relative to childbirth for both men and women. The figure plots the coefficients γ_k 's from estimating equation (1), which includes individual, time and age fixed effects. All satisfaction measures are originally measured in a 1-7 or 1-10 scale, but here are converted into z-scores. In panel (a) the outcome is the answer to the question "How satisfied are you with your life"; in panel (b) the answer to the question "How satisfied are you with your relationship with your partner?"; in panel (c) the answer to the question "How satisfied are you with the way household tasks are divided between you and your partner?"; in panel (d) the answer to the question "How satisfied are you with the flexibility to balance work and non-work commitments". In all panels, the blue squares are estimates from a regression that includes only men, while the pink circles are estimates from a regression that includes only women. The shades around them are 95% confidence intervals. We only include parents who have their first child between 2003 and 2008, and we include non-parents as controls. All regressions are estimated using the Sun and Abraham (2020) estimator, and clustering standard errors at the individual level.

Figure 5: Time Use of Women around Childbirth, Before and After Reform by Treatment Status



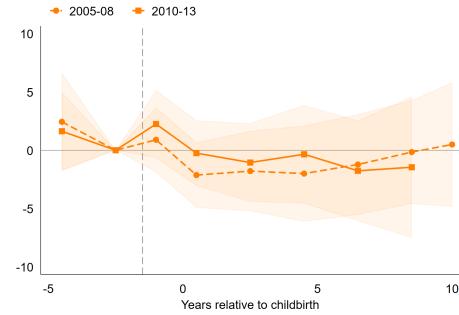
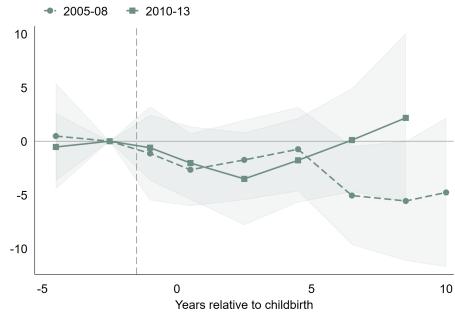
Note: This figure shows the child penalty in time use for women by early and late cohorts and by terciles of regularity distribution. In each panel, we report estimates of γ_k 's from estimating a version of equation (1) that pools adjacent years in pairs for clarity (i.e. the relative-year dummies are bi-annual as opposed to annual). Each set of coefficient estimates comes from separate regressions, all of which include individual, time, and age fixed effects. In the top row, the outcome is weekly hours spent in paid work and commute; in the second row, the outcome is weekly hours spent in household work (housework and errands); in the bottom row, the outcome is weekly hours spent parenting (playing with and caring for the child). The leftmost panels restrict the sample to women whose job two years before their first childbirth was in the top tercile of regularity distribution; the middle panels to women whose job two years before their first childbirth was in the middle tercile of regularity distribution; the rightmost panels to women whose job two years before their first childbirth was in the bottom tercile of regularity distribution - see text for details. Within each panel, the circles connected via dashed lines are estimates when restricting the sample to women who had their first child between 2005 and 2008, while the squares connected via solid lines are coefficient estimates when restricting the sample to women whose first child was born between 2010 ad 2013. Non-mothers are included as controls: they are assigned a random fake childbirth year in order to assign them to a tercile in the same way as we do for mothers. The shades around the point estimates are 95% confidence intervals. All regressions are estimated using the Sun and Abraham (2020) estimator, and clustering standard errors at the individual level.

Figure 6: Time Use of Men around Childbirth, Before and After Reform by Treatment Status

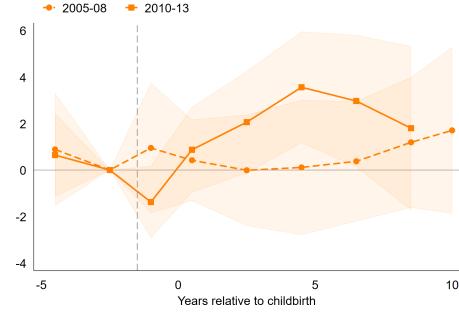
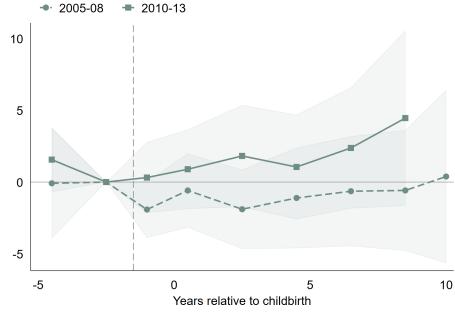
Top Tercile

Middle Tercile

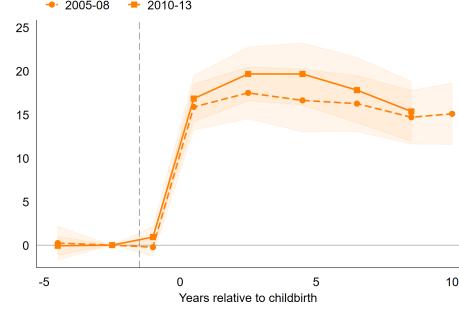
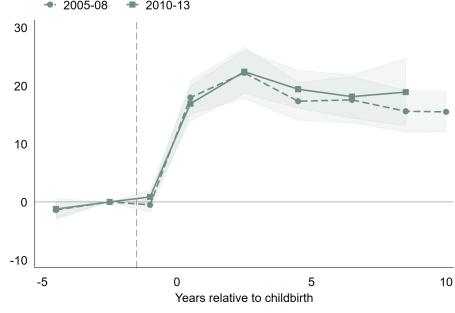
(a) Paid Work



(b) Housework



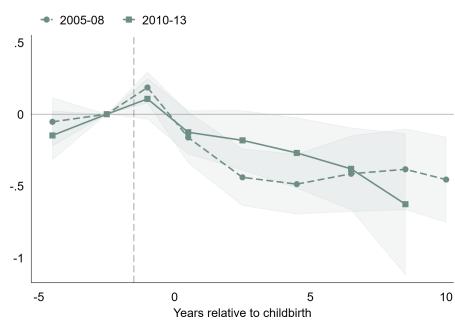
(c) Parenting



Note: See note to Figure 5. For men, treatment status (tercile) is defined as their partner's treatment status: men in the middle tercile, for example, are the husbands/partners of women whose job two years before the birth of their first child was in the middle tercile of regularity distribution. See text for details.

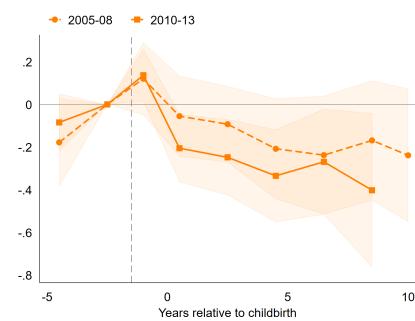
Figure 7: Satisfaction with Partner around Childbirth, Before and After Reform by Treatment Status

Top Tercile

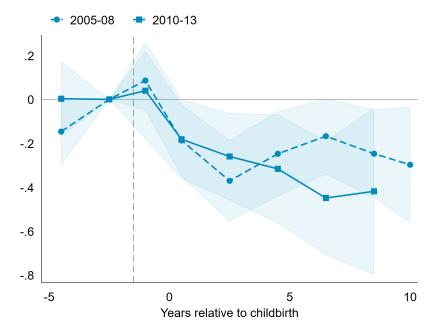


Middle Tercile

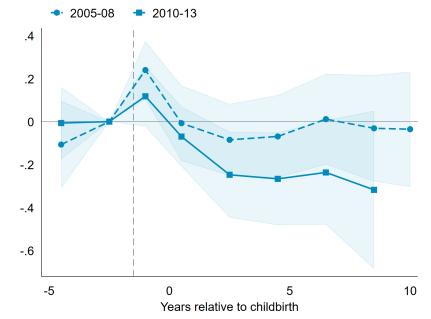
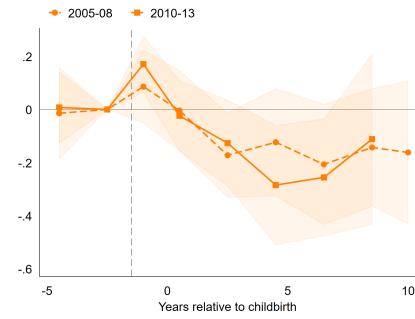
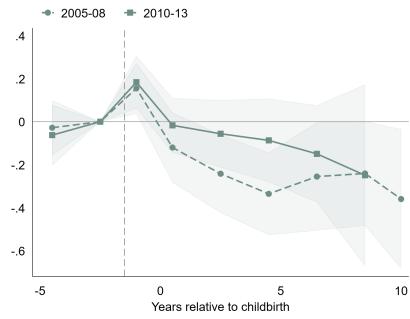
(a) Women



Bottom Tercile



(b) Men



Note: This figure shows the child penalty in satisfaction for women (first row) and men (second row) by early and late cohorts and by terciles of regularity distribution. See notes to Figures 5 and 6 for details.

7 Tables

Table 1: Descriptive Statistics

Women	N	Mean	SD	Min	Max
Age	71844	41.5	11.7	15	65
Has bachelor degree	63817	0.31	0.46	0	1
Age at first birth	11014	29.6	5.01	16	48
Active time in work, house, children (hrs/week)	52804	66.3	28.9	0.017	168
Household work (hrs/week)	52804	25.1	17.1	0	150
Work and commute (hrs/week)	52804	24.7	20.3	0	126
Playing with and caring of children (hrs/week)	52804	13.3	21.4	0	160
Log(1 + annual individual disposable total income)	71160	9.87	1.85	0	13.8
Log(1 + annual household disposable total income)	71691	11.4	0.66	0	13.7
Satisfaction with: work-life balance (z-score)	41630	0.075	0.93	-3.14	1.08
Satisfaction with: Partner (z-scores)	56729	0.027	0.92	-3.87	0.86
How satisfied are you with your life (z-scores)	63806	0.11	0.88	-5.18	1.43
Satisfaction with: split of household tasks (z-score)	43938	-0.11	1.04	-3.11	1.12
Life events in past year: Birth/adoption of new child	53535	0.063	0.24	0	1
Life events in past year: Got married	53678	0.039	0.19	0	1
Changes to marital status - Got divorced	51939	0.0018	0.042	0	1
Changes to marital status - Separated	51939	0.0010	0.032	0	1
Got divorced or separated	51939	0.0028	0.053	0	1
Men	N	Mean	SD	Min	Max
Age	71844	43.8	12.0	15	65
Has bachelor degree	63817	0.27	0.44	0	1
Age at first birth	11014	31.4	5.47	16	52
Active time in work, house, children (hrs/week)	52804	65.7	24.9	0.050	168
Household work (hrs/week)	52804	15.3	12.0	0	150
Work and commute (hrs/week)	52804	42.0	20.9	0	150
Playing with and caring of children (hrs/week)	52804	6.35	10.3	0	128
Log(1 + annual individual disposable total income)	71160	10.7	1.22	0	13.8
Log(1 + annual household disposable total income)	71691	11.4	0.66	0	13.7
Satisfaction with: work-life balance (z-score)	41630	-0.018	0.94	-3.14	1.08
Satisfaction with: Partner (z-scores)	56729	0.13	0.84	-3.87	0.86
How satisfied are you with your life (z-scores)	63806	0.046	0.88	-5.18	1.43
Satisfaction with:split of household tasks (z-score)	43938	0.24	0.81	-3.11	1.12
Life events in past year: Birth/adoption of new child	53535	0.063	0.24	0	1
Life events in past year: Got married	53678	0.038	0.19	0	1
Changes to marital status - Got divorced	51939	0.0021	0.045	0	1
Changes to marital status - Separated	51939	0.00075	0.027	0	1
Got divorced or separated	51939	0.0028	0.053	0	1
Couples	N	Mean	SD	Min	Max
Active time in work, house, children (hrs/week)	52804	132.0	43.8	0.25	336
Household work (hrs/week)	52804	40.3	21.7	0	240
Work and commute (hrs/week)	52804	66.8	31.6	0	240
Playing with and caring of children (hrs/week)	52804	19.7	28.3	0	280
Log(1+ annual disposable total income)	71160	11.3	0.69	0.69	14.4

Note: The table shows summary statistics for our primary sample from HILDA, separately by gender and for couples. The dataset covers the years 2001-2019. See text for details on sample restrictions. Couples' variables are the sum of both partners' variables.

Table 2: (No) Changes in Constraints for the Couple

	(1) Active time in work, house, children (hrs/week)	(2) Active time in work, house, children (hrs/week)	(3) Household work (hrs/week)	(4) Household work (hrs/week)	(5) Work and commute (hrs/week)	(6) Work and commute (hrs/week)	(7) Playing with and caring of children (hrs/week)	(8) Playing with and caring of children (hrs/week)
Child penalty 0-5	46.88*** (1.851)	48.36*** (2.975)	12.66*** (0.965)	11.67*** (1.494)	-30.31*** (1.301)	-28.73*** (2.270)	64.81*** (1.445)	65.14*** (2.526)
* tercile = 2		-6.296 (4.679)		3.377 (2.525)		-8.248** (2.874)		-0.998 (3.611)
* tercile = 1		2.104 (4.218)		-0.566 (2.060)		3.338 (3.365)		0.394 (3.528)
Child penalty 0-5 * post-2010 first birth	5.071* (2.145)	4.201 (3.408)	-1.637 (1.058)	0.476 (1.682)	5.462*** (1.487)	2.083 (2.651)	1.264 (1.738)	2.422 (2.959)
* tercile = 2		4.941 (5.301)		-4.510 ⁺ (2.664)		8.971** (3.407)		-0.664 (4.215)
* tercile = 1		-3.153 (5.005)		-1.834 (2.411)		1.110 (3.889)		-3.355 (4.247)
Early (pre-2010) cohorts: Mean Y pre-birth	118.2		27.91		87.69		1.078	
- tercile 3		122.3		26.81		92.74		1.496
- tercile 2		120.2		27.36		91.14		0.846
- tercile 1		113.5		29.34		80.86		0.955
Late (post-2010) cohorts: Mean Y pre-birth	117.1		25.21		89.49		0.890	
- tercile 3		121.1		25.16		93.16		1.224
- tercile 2		116.6		24.86		90.02		0.433
- tercile 1		113.7		25.68		85.17		1.114
Early cohorts: New parents	335		335		335		335	
- tercile 3		95		95		95		95
- tercile 2		107		107		107		107
- tercile 1		133		133		133		133
Late cohorts: New parents	573		573		573		573	
- tercile 3		172		172		172		172
- tercile 2		202		202		202		202
- tercile 1		199		199		199		199
Tot observations	29750	29749	29750	29749	29750	29749	29750	29749

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: This table reports the estimates of the child penalty in time use for couples, and its interaction with treatment status (defined by the tercile of regularity of the job the woman had two years before the birth of their first child). More formally, even-numbered columns report coefficients that are estimated from equation (2), i.e. γ_a (first row), $\gamma_{a,2}$ (second row), $\gamma_{a,1}$ (third row), γ_b (fourth row), $\gamma_{b,2}$ (fifth row), and $\gamma_{b,1}$ (sixth row). Our main coefficient of interest is $\gamma_{b,2}$ in the fifth row. Odd-numbered columns report estimates from a more basic specification that does not distinguish between terciles of regularity.

Table 3: Changes in Time Use of Women

	(1) Active time in work, house, children (hrs/week)	(2) Active time in work, house, children (hrs/week)	(3) Household work (hrs/week)	(4) Household work (hrs/week)	(5) Work and commute (hrs/week)	(6) Work and commute (hrs/week)	(7) Playing with and caring of children (hrs/week)	(8) Playing with and caring of children (hrs/week)
Child penalty 0-5	30.94*** (1.314)	31.06*** (2.065)	12.52*** (0.844)	10.51*** (1.300)	-28.93*** (1.015)	-26.42*** (1.821)	47.36*** (1.156)	46.66*** (1.912)
* tercile = 2			-2.914 (3.178)		4.235+ (2.215)		-7.797** (2.462)	0.783 (2.819)
* tercile = 1			2.221 (3.086)		1.340 (1.786)		0.170 (2.512)	1.393 (2.801)
Child penalty 0-5 * post-2010 first birth	2.082 (1.570)	1.500 (2.477)	-3.105*** (0.909)	-0.189 (1.406)	4.375*** (1.170)	0.492 (2.110)	1.213 (1.417)	1.992 (2.342)
* tercile = 2			2.628 (3.694)		-5.526* (2.274)		8.187** (2.835)	-0.477 (3.373)
* tercile = 1			-0.706 (3.772)		-3.024 (2.032)		3.770 (2.934)	-2.017 (3.484)
Early (pre-2010) cohorts: Mean Y pre-birth	57.21		15.47		40.39		0.490	
- tercile 3		59.25		14.73		43.20		0.715
- tercile 2		59.11		15.42		43.05		0.307
- tercile 1		54.15		16.13		36.00		0.474
Late (post-2010) cohorts: Mean Y pre-birth	55.85		13.08		41.59		0.286	
- tercile 3		58.47		12.49		44.73		0.354
- tercile 2		55.88		13.25		41.88		0.0775
- tercile 1		53.18		13.46		38.11		0.472
Early cohorts: New parents	335		335		335		335	
- tercile 3		95		95		95		95
- tercile 2		107		107		107		107
- tercile 1		133		133		133		133
Late cohorts: New parents	573		573		573		573	
- tercile 3		172		172		172		172
- tercile 2		202		202		202		202
- tercile 1		199		199		199		199
Tot observations	29750	29749	29750	29749	29750	29749	29750	29749

Standard errors in parentheses

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001

Note: See note to Table 2.

Table 4: (No) Changes in Time Use of Men

	(1) Active time in work, house, children (hrs/week)	(2) Active time in work, house, children (hrs/week)	(3) Household work (hrs/week)	(4) Household work (hrs/week)	(5) Work and commute (hrs/week)	(6) Work and commute (hrs/week)	(7) Playing with and caring of children (hrs/week)	(8) Playing with and caring of children (hrs/week)
Child penalty 0-5	15.04*** (1.056)	15.26*** (1.812)	-0.110 (0.453)	0.362 (0.831)	-1.880* (0.852)	-2.973* (1.389)	17.39*** (0.638)	18.22*** (1.294)
* tercile = 2			-1.251 (2.511)	-0.103 (1.143)		0.234 (1.836)		-1.428 (1.694)
* tercile = 1			0.735 (2.619)	-1.209 (1.139)		2.813 (2.177)		-0.853 (1.618)
Child penalty 0-5 * post-2010 first birth	3.472** (1.207)	3.472 ⁺ (1.988)	1.541** (0.535)	0.592 (0.884)	1.446 (0.958)	2.337 (1.601)	0.135 (0.787)	0.413 (1.522)
* tercile = 2			1.367 (2.877)	1.277 (1.279)		-0.408 (2.169)		-0.0391 (1.981)
* tercile = 1			-2.237 (2.959)	1.538 (1.301)		-2.584 (2.425)		-1.315 (2.010)
Early (pre-2010) cohorts: Mean Y pre-birth	61.07		12.50		47.28		0.594	
- tercile 3		62.99		12.04		49.54		0.777
- tercile 2		61.09		11.99		47.99		0.546
- tercile 1		59.50		13.32		44.85		0.490
Late (post-2010) cohorts: Mean Y pre-birth	61.28		12.14		47.91		0.596	
- tercile 3		62.61		12.66		48.43		0.870
- tercile 2		60.77		11.60		48.17		0.358
- tercile 1		60.54		12.28		47.05		0.611
Early cohorts: New parents	349		349		349		349	
- tercile 3		98		98		98		98
- tercile 2		112		112		112		112
- tercile 1		139		139		139		139
Late cohorts: New parents	588		588		588		588	
- tercile 3		176		176		176		176
- tercile 2		205		205		205		205
- tercile 1		207		207		207		207
Tot observations	29617	29616	29617	29616	29617	29616	29617	29616

Standard errors in parentheses

⁺ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001

Note: See note to Table 2.

Table 5: Changes in Satisfaction

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Women				Men			
	Satisfaction with Partner (z-score)	Satisfaction with Partner (z-score)	How satisfied are you with your life (z-score)	How satisfied are you with your life (z-score)	Satisfaction with Partner (z-score)	Satisfaction with Partner (z-score)	How satisfied are you with your life (z-score)	How satisfied are you with your life (z-score)
Child penalty 0-5	-0.235*** -0.0345	-0.345*** -0.0593	-0.0156 -0.0311	-0.145** -0.0523	-0.155*** -0.0333	-0.260*** -0.0587	0.0308 -0.0308	0.0417 -0.0445
* tercile = 2			0.206* -0.0836	0.178* -0.073		0.132+ -0.077		-0.00645 -0.0645
* tercile = 1			0.123 -0.0834	0.187* -0.077		0.137 -0.0859		-0.0114 -0.0766
Child penalty 0-5 * post-2010 first birth	-0.0582 -0.0425	0.0757 -0.0752	-0.0256 -0.0368	0.0739 -0.0632	-0.0616 -0.0397	0.0925 -0.0735	-0.0846* -0.0374	-0.133* -0.0581
* tercile = 2				-0.148+ -0.0859		-0.172+ (0.0934)		0.134+ -0.0806
* tercile = 1			-0.135 -0.105	-0.113 -0.0938		-0.242* -0.105		-0.000957 -0.094
Early (pre-2010) cohorts: Mean Y pre-birth	0.386		0.216		0.385		0.148	
- tercile 3		0.451		0.256		0.467		0.174
- tercile 2		0.338		0.261		0.371		0.24
- tercile 1		0.376		0.141		0.328		0.0411
Late (post-2010) cohorts: Mean Y pre-birth	0.392		0.242		0.401		0.17	
- tercile 3		0.401		0.279		0.393		0.253
- tercile 2		0.397		0.24		0.413		0.145
- tercile 1		0.378		0.209		0.396		0.118
Early cohorts: New parents	336		344		351		367	
- tercile 3		95		96		98		99
- tercile 2		107		109		113		117
- tercile 1		134		139		140		151
Late cohorts: New parents	573		600		588		624	
- tercile 3		172		176		176		181
- tercile 2		201		210		205		215
- tercile 1		200		214		207		228
Tot observations	31391	31390	34746	34745	31244	31242	34605	34605

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

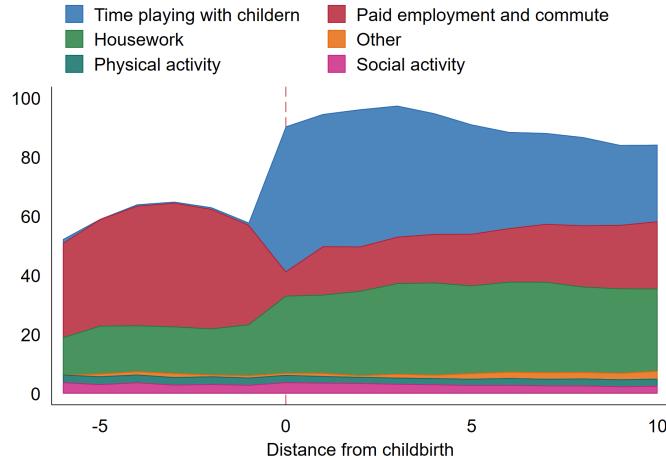
Note: See note to Table 2.

A Appendix

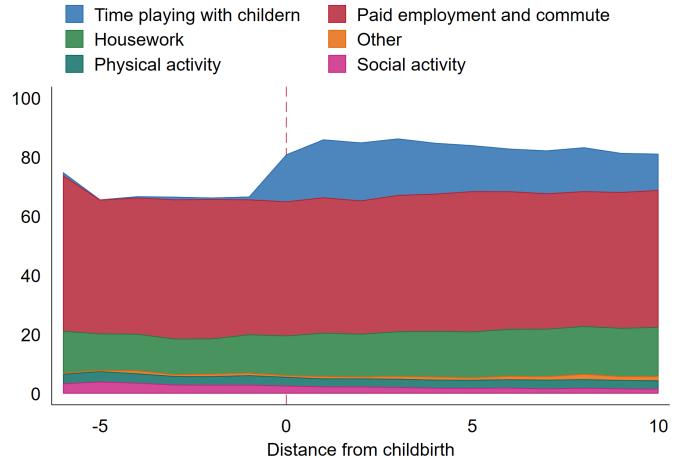
A.1 Appendix Figures

Figure A.1: Time Use around Childbirth, Raw Averages

(a) Women



(b) Men



Note: This figure represents the average number of weekly hours spent in different activities, for women (panel (a)) and men (panel (b)) by years relative to the birth of their first child. For both panels, the horizontal axis represents years to and from childbirth, and the vertical axis represents weekly hours.

Figure A.2: Quality of Relationship

How much do you love your spouse/partner

(a) Women

(b) Men

How good is your relationship compared to most

(c) Women

(d) Men

How well does your spouse meet your needs

(e) Women

(f) Men

Problems in your relationship

(g) Women

(h) Men

Note: This figure displays individuals' self-reported measures of the quality of their relationship, by year relative to the birth of their first child. The different colors represent the share of respondents giving a certain answer, from 1 (red, very low quality of relationship) to 5 (dark blue, very high quality of relationship). The x-axis is in years relative to first childbirth.